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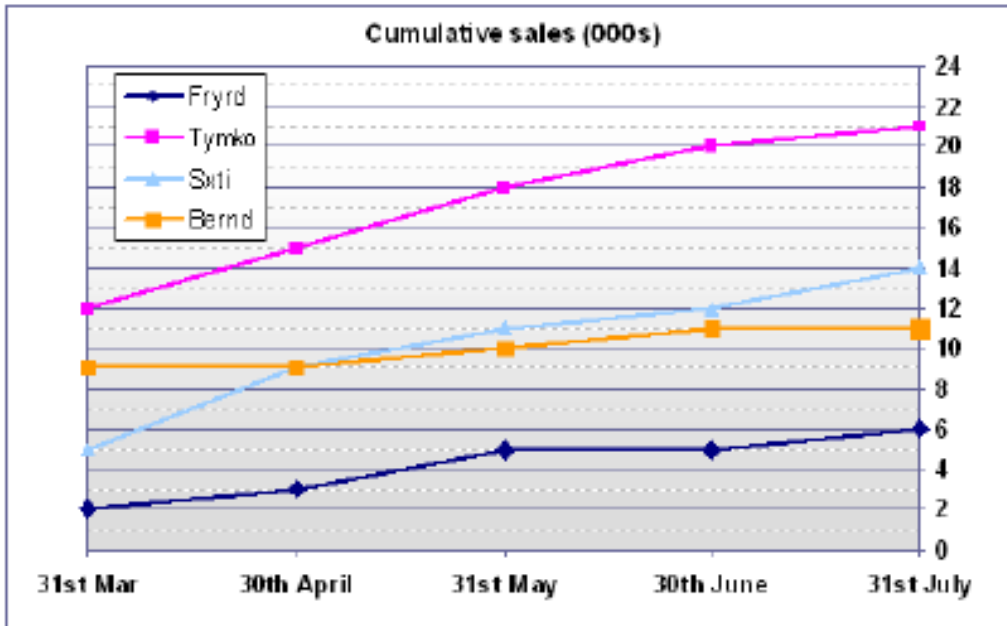
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# NUMERICAL SECTION



1. How many Bernd cars were sold in May?

- A. 10
- B. 1,000
- C. 5,000
- D. 10,000

2. What were the total sales of Tymko cars for May, June, July?

- A. 21,000
- B. 16,000
- C. 22,000
- D. 6,000

Product code	Non-European stores selling product	Current month's sales (\$)	Price per product unit (\$)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

\* Promotional offer = 3 for the price of 2

\*\* Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

3. Which of the products shown had the lowest value of sales per non-European store and which had the highest value of sales per European store?

- A. PU10 (non-European); AE25 (European)
- B. FD24 (non-European); DE45 (European)
- C. FD24 (non-European); AE25 (European)
- D. AE25 (non-European); PU10 (European)
- E. AE25 (non-European); FD24 (European)

4. What is the discrepancy (in \$) between the AE25 price per product unit in non-European stores compared to European stores. Use an exchange rate of 0.80 to the \$.

- A. \$30
- B. \$120
- C. \$130
- D. \$200
- E. \$230

5. This month's combined target for non-European and European sales of AE25 is 40,000.

Using an exchange rate of 0.75 to the \$, what is the difference between the sales values shown and this target?

- A. 575
- B. 750
- C. 5,100
- D. 5,750
- E. 7,500

6. Given that a customer uses the promotional offers shown, put the 5 products sold in non-

European stores into order of increasing promotional price per unit (starting with the cheapest).

- A. AE25, PU10, DE45, FD24, PU20
- B. PU10, DE45, PU20, AE25, FD24
- C. PU10, DE45, AE25, PU20, FD24
- D. DE45, PU10, PU20, AE25, FD24
- E. PU10, DE45, PU20, FD24, AE25

7. Which of the components of the UK and US equity funds have the highest and the lowest value?

- A. lowest is US Fund (Bonds); highest is UK Fund (Derivatives)
- B. lowest is US Fund (Shares); highest is UK Fund (Shares)
- C. lowest is UK Fund (Bonds); highest is US Fund (Shares)
- D. lowest is US Fund (Bonds); highest is UK Fund (Shares)
- E. lowest is US Fund (Derivatives); highest is UK Fund (Shares)

<b>MAINTENANCE COSTS</b> (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

8. For the Glasgow manufacturing plant, which maintenance cost(s) represent

approximately 7% of the total costs?

- A. Rent and Utilities
- B. Rent
- C. Utilities
- D. Insurance
- E. Insurance and Utilities

9. What is the average annual cost for servicing each of the 5 manufacturing plants (assume 4 weeks in a month)?

- A. £3,300
- B. £12,400
- C. £16,500
- D. £39,600
- E. £48,000

**City Population Composition 2000**

	Population at start of year (thousands)	Live births per 1000 population (Jan-Dec)	Deaths per 1000 population (Jan-Dec)	% Population under 15 at start of year	% Population aged 60 or over at start of year
London	7,500	11.2	9.7	16	18
Birmingham	995	13.6	12.7	18	22
Glasgow	600	13.8	13.2	21	21
Liverpool	500	13.4	12.4	22	22
Leeds	450	14.1	13.0	23	23

10. In Liverpool what was the net effect of live birth and death rates in 2000?

- A. -200
- B. +600
- C. +500
- D. +300

# QUANTITATIVE SECTION

1. What is 333 times 135?

- A. 46323
- B. 43623
- C. 43290
- D. 44955
- E. None of these

2. Evaluate: -

$$986 \times 207 - 986 \times 107$$

- A. 108400
- B. 98600
- C. 76500
- D. 64600
- E. None of these

3. Which of the following is larger than  $\frac{3}{5}$ ?

- A.  $\frac{1}{2}$
- B.  $\frac{39}{50}$
- C.  $\frac{7}{25}$
- D.  $\frac{3}{10}$
- E.  $\frac{59}{100}$

4. In a class composed of  $x$  girls and  $y$  boys what part of the class is composed of girls?

- A.  $\frac{y}{(x + y)}$
- B.  $\frac{x}{xy}$
- C.  $\frac{x}{(x + y)}$
- D.  $\frac{y}{xy}$
- E. None of these

5. If  $(11)^3$  is subtracted from the square of a number, the answer so obtained is 6590. What is the number?

- A. 36

- B. 58
- C. 89
- D. 48
- E. None of these

6. The value of  $(0.625 \times 0.0729 \times 28.9) / (0.0017 \times 0.025 \times 8.1)$  is

- A. 3825
- B. 3.825
- C. 38.25
- D. 382.5
- E. 0.3825

7. What is value of 94.5% of 650?

- A. 606.45
- B. 521.65
- C. 518.55
- D. 614.25
- E. None of these

8. Find the greatest fraction among  $5/8$ ,  $7/12$ ,  $13/16$ ,  $16/29$  and  $3/4$ .

- A.  $5/8$
- B.  $7/12$
- C.  $13/16$
- D.  $16/29$
- E.  $3/4$

9. What approximate value will come in place of question mark (?) in the following question? (You are not expected to calculate the exact value)

$$499.99 + 1999 \div 39.99 \times 50.01 = ?$$

- A. 3200
- B. 2700
- C. 3000
- D. 2500
- E. 2400



10. Find the next number of the series.

563, 647, 479, 815, ...?

A. 672

B. 386

C. 279

D. 143

E. 368

# VERBAL SECTION

1. Pick out the most effective words from the given words to fill in the blank to make the sentence meaningfully complete.

I \_\_\_\_\_ with my sister \_\_\_\_\_ I find an apartment.

- A. am living, until
- B. have been living, since
- C. had lived, since
- D. had been living, since
- E. am living, since

2. Fill in the blank with the correct form of tense:

He \_\_\_\_\_ a fortune by writing various kinds of books.

- A. Did making
- B. Would made
- C. Is making
- D. Will made
- E. Will make

3. Select the correct tense.

He will have been working for four hours.

- A. Past Perfect Continuous
- B. Present Perfect Continuous
- C. Future Perfect
- D. Future Perfect Continuous
- E. None of the above

4. Select the correct tense.

**John had been working in a bank for some years.**

- A. Simple past
- B. Past continuous
- C. Past perfect continuous
- D. Past perfect.
- E. None of the above

*Choose from the letters labelled A-E the one which is related to the fifth word in the same way as the words of the first two pairs are related.*

5. Example: Slow; sow, blow; bow, flew, \_\_\_\_\_

- A. ewe
- B. few
- C. low
- D. foe
- E. leaf

6. Telegram; let, derive; red, marble, \_\_\_\_\_

- A. mar
- B. meal
- C. real
- D. ram
- E. man

7. Identify the indirect speech:

The teacher said to me, "Be regular and learn your lesson daily."

The teacher:

- A. told me that to be regular and learn my lesson daily
- B. said to me regular and learn my lesson daily
- C. advised me to be regular and learn my lesson daily
- D. requested me to be regular and learn lesson daily
- E. ordered me to be regular and learn my lesson daily.

8. Form an adjective from the given word

**Gold**

- A. The Gold
- B. Golder
- C. Golden
- D. Goldest
- E. None

9. Fill in the blank with suitable conjunction

He will never pass, \_\_\_\_\_ hard he may try.

- A. However
- B. Whatever
- C. Never
- D. Whenever
- E. Whichever

10. Which of the phrases 1, 2, 3 and 4 given below should replace the phrase given in bold in the following sentence to make the sentence grammatically correct? If the sentence is correct, as it is and 'No correction is required', mark 5 as the answer.

We admire **his attempting to climb** the summit in such bad weather.

- A. his attempting to climb
- B. his attempt of climbing
- C. him for attempt of climb
- D. his for attempt to climbing
- E. No correction required

# BANKING AWARENESS

1. In Banking terminology NPA means
  - A. Non-Promise Account
  - B. Non-Personal Account
  - C. Non-Performing Asset
  - D. Net-performing Asset
  
2. What is the full form of 'ULIP' the term which was in the news recently?
  - A. Universal Life & Investment Plan
  - B. Unit Loan & Investment Plan
  - C. Unit Linked Insurance Plan
  - D. Uniformly Loaded Investment Plan
  
3. Which of the following is NOT a banking related term?
  - A. Radiation
  - B. Outstanding Amount
  - C. Explicit Guarantee
  - D. Benchmark Prime Lending Rate
  
4. Which from the following is NOT true when the interest rate in the economy goes up?
  - A. Saving increases
  - B. Lending decreases
  - C. Cost of production increases
  - D. Return on capital increases
  
5. Rate of interest is determined by:
  - A. The rate of return on the capital invested
  - B. Central Government
  - C. Liquidity preferences
  - D. Commercial Banks
  
6. Green banking means:
  - A. Development of forestry by banks

- B. Financing of environmental friendly projects by banks
- C. Financing of irrigation projects by banks
- D. All of these

7. Which one of the following is NOT a quantitative credit control technique?

- A. Bank Rate
- B. Cash Reserve Ratio (CRR)
- C. Increase of interest rate on saving deposit
- D. Statutory Liquidity Ratio (SLR)

8. Many a time we hear about NPA in banking terminology. What is the full form of NPA?

- A. Non- Performing Asset
- B. Negotiable and Preferential Asset
- C. New Performing Avenues
- D. Net Performing Average

9. Which one of the following is NOT a banking related or financial term?

- A. Credit worthiness
- B. Margin Money
- C. Payment gateways
- D. Polymerization

10. Which among the following terms is NOT related to banking?

- A. Cash reserve ratio
- B. Currency exchange
- C. Bank rate
- D. Zero hour

# GENERAL KNOWLEDGE

1. In \_\_\_\_\_, the first Aeroplane in Nigeria landed in Kano State.

- A. 1925
- B. 1937
- C. 1961
- D. 1955

2. Heathrow Airport is a \_\_\_\_\_ based airport.

- A. London
- B. Paris
- C. Germany
- D. China

3. The full meaning of the acronym KLM Airline, is Koninklijke Luchtvaart Maatschappij, also known as \_\_\_\_\_.

- A. Lufthansa German Airlines
- B. Pan African Airlines
- C. Kenya Airways
- D. Royal Dutch Airlines

4. President Goodluck Jonathan approved the removal of the Director-General of the Nigerian Civil Authority from office with effect from \_\_\_\_\_.

- A. March 12, 2013
- B. March 5, 2013
- C. March 13, 2013
- D. March 11, 2013

5. In March 2013, Engr. Mazi Nnamdi Udoh was the Managing Director of\_\_\_\_\_.

- A. Murtala Muhammed International Airport (MMIA)
- B. Nigerian Airspace Management Agency (NAMA)
- C. International Air Transport Association (IATA)
- D. GE Capital Services Limited (GECAS)

6. 'Asmara' is the capital of which of the following African countries?

- A. Malawi
- B. Eritrea
- C. Burundi
- D. Ethiopia

7. Mount Kilimanjaro is in\_\_\_\_\_.

- A. Tanzania
- B. Kenya
- C. Tunisia
- D. Togo
- E. Ghana

8. The currency used in Israel is\_\_\_\_\_.

- A. Lira
- B. Shekel
- C. Dinar
- D. Rupee
- E. None of the above

9. In which of the following countries can 'Zanzibar' be found?



- A. Ethiopia
- B. Guinea Bissau
- C. Tanzania
- D. Liberia

10. \_\_\_\_\_ are important groups to which individuals belong or hope to belong, that are used as a standard for evaluating themselves, and with whose norms individuals are likely to conform.

- A. Reference groups
- B. Pressure groups
- C. Peer groups
- D. Status groups
- E. Tie groups

# ANSWERS/EXPLANATION

NUMERICAL ANSWERS				
1.B	2.D	3.C	4.B	5.D
6.C	7.E	8.E	9.E	10.D

## EXPLANATIONS

1. From the end of April to the end of May, the graph tells us 1000 Bernd cars were sold. Don't get caught out by the fact that the data is cumulative.

2. Don't waste time working out the sales for each month. End of July, cumulative sales were 21,000, end of April, cumulative sales were 15,000. So total sales = 6,000.

3. Step 1 – calculate each product's average sales per European store

$$DE45 = 21,000/26 = 808$$

$$PU20 = 30,000/19 = 1,579$$

$$AE25 = 24,500/11 = 2,227$$

$$PU10 = 18,700/9 = 2,078$$

$$FD24 = 14,700/13 = 1,131$$

Step 2 – calculate each product's average sales per non-European store

$$DE45 = 35,000/14 = 2,500$$

$$PU20 = 20,000/9 = 2,222$$

$$AE25 = 13,000/6 = 2,167$$

$$PU10 = 24,000/5 = 4,800$$

$$FD24 = 9,000/7 = 1,286$$

Thus the correct answer is (C), FD24 (non-European); AE25 (European)

4. The information that you need is shown in both tables. Note from the possible answers it

doesn't matter which is the greater, we just need the difference.

**Tip:** if you struggle with the term "x to the \$" and you sometimes multiply when you should divide by the conversion, think of an extreme example. So think of a two currencies that have very different strengths, for example Zimbabwean Dollar to the British Pound. It doesn't matter what the values are but you know there are lots of ZWDs

to the BGP and you also know that the same product will cost a lot more ZWDs than

GBP. Hopefully that will help you decide if currency A should be a higher number than currency B, or vice versa.

Step 1 – read from the table the AE25 price per product unit (non-European stores)  
= \$130

Step 2 – Calculate the AE25 price per product unit (European stores)  
=  $200 \times 0.80 = \$250$

Step 3 – calculate the difference between the two  
 $\$250 - \$130 = \$120$

Thus the correct answer is (B), \$120

5. The information that you need is shown in both tables

Step 1 – calculate AE25's non-European sales in Euros  
 $\$13,000 \times 0.75 = 9,750$

Step 2 – calculate AE25's combined European and non-European sales  
 $9,750 + 24,500 = 34,250$

Step 3 – calculate the discrepancy against target sales  
 $40,000 - 34,250 = 5,750$

Thus the correct answer is (D), 5,750

6. The information that we need is shown in the first table (non-European stores)

Step 1 – calculate the 3 for the price of 2 promotional offers

DE45 promotional price per unit =  $\frac{2}{3} \times \$175 = \$116.67$

PU20 promotional price per unit =  $\frac{2}{3} \times \$200 = \$133.33$

Step 2 – calculate the 4 for the price of 3 promotional offers

PU10 promotional price per unit =  $\frac{3}{4} \times \$150 = \$112.50$

FD24 promotional price per unit =  $\frac{3}{4} \times \$180 = \$135.00$

Step 3 – put these promotional prices into order alongside the fifth product (AE25)  
priced

at \$130 and not on promotion

**Thus the correct answer is (C), PU10, DE45, AE25, PU20, FD24**

7. **Tip:** Note that just from looking at the graph and table we know the overall US fund is smaller than the UK fund and the smallest fraction within the US fund (10% to Derivatives)

is not larger than the smallest fraction within the UK fund. So we can instantly say the smallest fraction is Derivatives in the US fund. As it happens there is only one multiple choice with this as an option so we know (E) is the correct answer.

In full, the solution is as follows. The information that we need is shown in both the graph

and the table.

Calculate the value of each component of each equity fund, using this formula:

Component value = Total value  $\times$  Equity fund component %

UK Fund (Cash) =  $55.6 \times 10\% = 5.56$  (£million)

See table below for other component values:

	Component value (£million)			
	Cash	Bonds	Derivatives	Shares
UK	5.56	11.12	16.68	<b>22.24</b>
US	4.86	3.65	<b>2.43</b>	13.37

**Thus the correct answer is (E), lowest is US Fund (Derivatives); highest is UK Fund (Shares)**

8. Step 1 - For the Glasgow plant, calculate the total costs

$$195 + 875 + 300 + 189 + 720 + 425 = 2,704$$

Step 2 - For the Glasgow plant, calculate each cost as a % of the total cost

$$\text{Insurance} = 100\% \times 195/2,704 = 7\%$$

$$\text{Servicing} = 100\% \times 875/2,704 = 32\%$$

$$\text{Rent} = 100\% \times 300/2,704 = 11\%$$

$$\text{Utilities} = 100\% \times 189/2,704 = 7\%$$

$$\text{Administration} = 100\% \times 720/2,704 = 27\%$$

$$\text{Misc} = 100\% \times 425/2,704 = 16\%$$

**Tip:** to save time, you can stop after you've calculated 7% for Insurance and just scan across the row to see if any other costs are close to £195. You will see that Utilities are.

**Thus the correct answer is (E), Insurance and Utilities**

9. Step 1 – total the servicing costs

$$1,050 + 1,100 + 950 + 1,025 + 875 = \text{£}5,000 \text{ per week}$$

Step 2 – calculate the monthly cost

$$5,000 \times 4 = \text{£}20,000 \text{ per month}$$

Step 3 – calculate the average monthly cost

$$\text{£}20,000 / 5 = \text{£}4,000 \text{ per month}$$

Step 4 – calculate the average annual cost

$$4,000 \times 12 = \text{£}48,000$$

**Thus the correct answer is (E), £48,000**

10. Population = 500,000. Live births per 1000 population = 13.4, so  $13.4 \times 500 = 6,700$ .

Deaths per 1000 population = 12.4. So  $12.4 \times 500 = 6,200$ . Net effect

## QUANTITATIVE ANSWERS

1. D	2. B	3. B	4. C	5. C
6. A	7. D	8. C	9. C	10. D

## EXPLANATION

1. Solution: D

This is a simple multiplication.

$$333 \text{ times } 135 = 333 \times 135 = 44955$$

2. Solution: B

$$\text{Given, } 986 \times 207 - 986 \times 107$$

Hence taking 986 common

$$\text{We have } 986 \times (207 - 107)$$

$$= 986 \times 100$$

$$= 98600$$

3. Solution: B

Convert all fractions to their decimal values:

$$3/5 = 0.6$$

$$1/2 = 0.5$$

$$39/50 = 0.78$$

$$7/25 = 0.28$$

$$3/10 = 0.3$$

$$59/100 = 0.59$$

4. Solution: C

Total no. of boys and girls =  $x + y$

No. of girls =  $x$

$\therefore$  Part of class is composed of girls =  $x/(x + y)$

5. Solution: C

Let A is the number.

Given that  $A^2 - 113 = 6590$

$$\Rightarrow A^2 = 6590 + 113$$

$$\Rightarrow A^2 = 6590 + 1331$$

$$\Rightarrow A^2 = 7921$$

$$\Rightarrow A = \sqrt{7921} = 89$$

6. Solution: A

This is a simple .

$$0.0729 = 8.1 \times 0.009$$

$$0.625 = 0.025 \times 25$$

$$28.9 = 0.0017 \times 17000$$

$$\therefore (0.625 \times 0.0729 \times 28.9)/(0.0017 \times 0.025 \times 8.1) = (0.009 \times 25 \times 17000) \\ = 3825$$

7. Solution: D

$$94.5\% \text{ of } 650 = (94.5/100) \times 650$$

$$= 0.945 \times 650$$

$$= 614.25$$

8. Solution: C

We have the decimal values of all fractions as

$$\Rightarrow 5/8 = 0.625$$

$$\Rightarrow 7/12 = 0.5833$$

$$\Rightarrow 13/16 = 0.8125$$

$$\Rightarrow 16/29 = 0.5517$$

$$\Rightarrow 3/4 = 0.75$$

Hence, we observe that 13/16 is the largest number among these.

9. Solution: C

Since we want to find out approximate value,

So we can write these values to their nearest integers.

Given expression is –

$$499.99 + 1999 \div 39.99 \times 50.01 = ?$$

$$\Rightarrow ? \approx 500 + 2000 \div 40 \times 50$$

$$\Rightarrow ? \approx 500 + 50 \times 50$$

$$\Rightarrow ? \approx 3000$$

So the correct option is (C).

10. Solution: D

The pattern followed here is:

$$563 + 84 \times 20 = 647$$

$$647 - 84 \times 21 = 479$$

$$479 + 84 \times 22 = 815$$

$$\therefore \text{next term will be: } 815 - 84 \times 23 = 143$$

Hence, the answer is 143.

VERBAL ANSWERS				
1. A	2. C	3. D	4. C	5. B
6. D	7. C	8. C	9. A	10. B

## EXPLANATION

### 1. Solution: A

The first blank will have the present continuous tense as it is for an action that is happening around now, and is not permanent or habitual. Present perfect continuous tense would have been used if the action began in the past and is continuing now (eg. I have been living with my sister since last week). The structure of forming present continuous tense is am/are/is + verb + ing, so the correct option will be 'am living'. 'Until' is to be used in the second blank and not 'since' as 'since' refers to something that has happened in a time span measured from a certain point in time (eg. I have not found an apartment since last year). So, all options with 'since' are incorrect. 'Until' should be used in the second blank as it means the action will happen in the future.

### 2. Solution: C

'Writing' signifies that he is still writing books and that shows that he is still making fortune as both the tenses will be same so, the first part will also be in present continuous tense. Hence, the correct answer will be 'is making' in the sentence.

### 3. Solution: D

Future perfect continuous is formed by ( will+ have + been + base verb + ing) which here is ' will have been working'. It is used to talk about some long action before some point in the future, which here is four hours from now.

### 4. Solution: C

(Had + been + root + ing) is used to make past perfect continuous tense and indicates that an activity was being carried on in the past, continued for some time and is no longer continued.



5. Solution: B

6. Solution: D

7. Solution: C

The tone of the teacher is not harsh, hence, ordered is a bit extreme. The teacher 'recommended' or 'advised' but she did not request as she did not need anything done from me. 'Said to me regular' is incorrect. Told need not take that after it, thus C is correct.

8. Solution: C

Adjective is something that describes a noun. Eg: Golden Sun

9. Solution: A

'Never' is an adverb and not a conjunction and thus can be eliminated. 'Whatever', 'whichever' and 'whenever' need to be followed by a noun and pronoun which is not the case here. 'However' is a conjunctive adverb which joins two independent clauses which is the case here. It is being used to contrast the situation.

10. Solution: B

'Attempting to climb' is incorrect as we do not know if the action of 'attempting' is going on. 'For' cannot be used before the word attempt. 'Of climbing' is correct and we cannot use 'of climb'.

## **BANKING ANSWERS**

1. C	2. C	3. A	4. D	5. D
6. B	7. C	8. A	9. D	10.D

## GENERAL KNOWLEDGE ANSWERS

1. A	2. A	3. D	4. A	5. B
6. B	7. A	8. B	9. C	10.A

# NUMERICAL SECTION

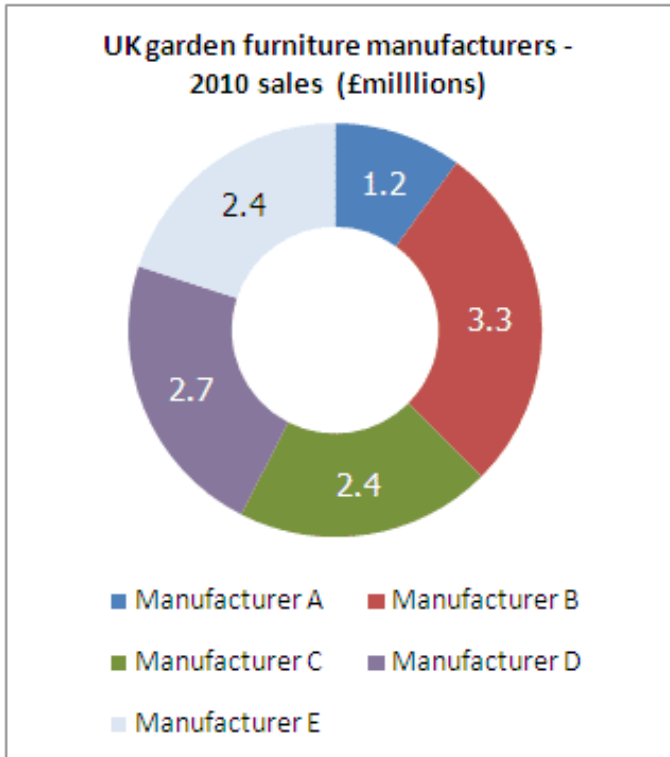
Money spent on public transport (£billion)				
	2006	2007	2008	2008 Population
UK	32	35	38	60,100,000
US	121	128	136	302,500,000
Germany	39	44	46	84,300,000
Italy	25	26	28	58,700,000

1. Which country experienced the largest percentage increase in public transport spending between 2007 and 2008?

- A. UK
- B. US
- C. Germany
- D. Cannot tell

2. Which country had the highest public transport spend per capita in 2008?

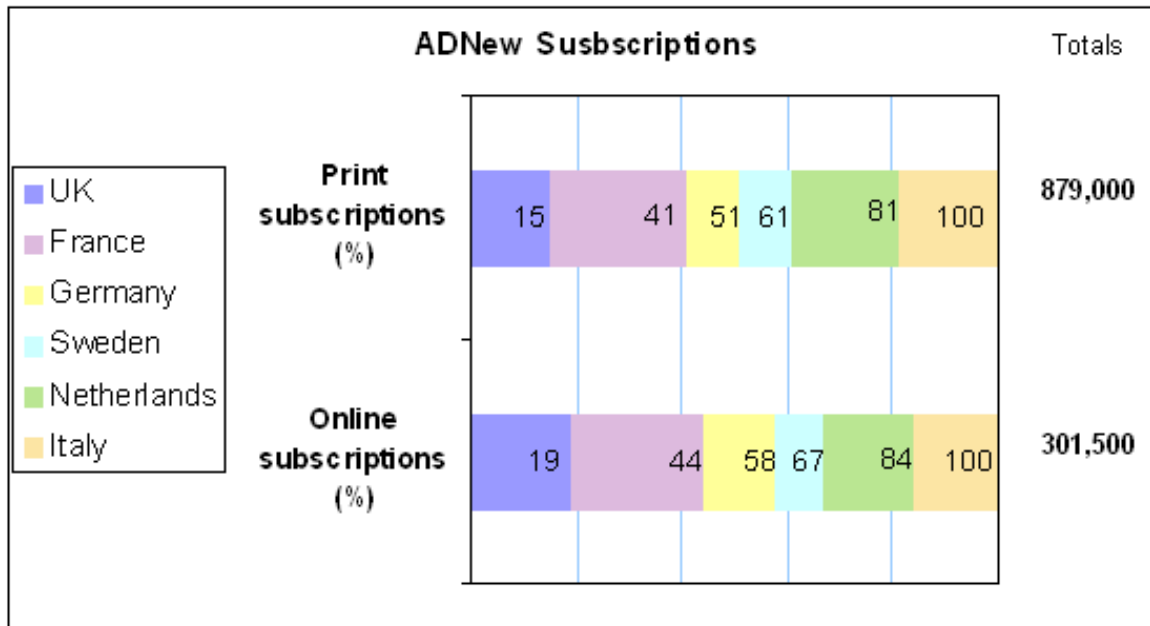
- A. UK
- B. US
- C. Germany
- D. Cannot tell



COMPANY C SALES (£)		
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

3. Manufacturers B and D each aim to increase their annual sales from 2010 to 2011 by a quarter. Manufacturers A, C and E each aim to grow their annual sales by a fifth. Assuming all companies meet these targets, what will be 2011's total furniture manufacturer sales (to the nearest £million)?

- A. £13 million
- B. £14 million
- C. £15 million
- D. £16 million
- E. £17 million



4. By how many does AD News print subscriptions outnumber AD News online subscriptions in France?
- A. 105,265  
 B. 153,165  
 C. 160,551  
 D. 227,730
5. What is the combined total of print subscriptions and online subscriptions for the UK, France and Germany combined?
- A. 623,160  
 B. 1,305,345  
 C. 521,810  
 D. 1,400
6. By what percentage do the online subscriptions need to increase in Sweden if they are to match the online subscriptions of France?
- A. 52.3%

- B. 112.0%
- C. 160.0%
- D. 177.8

<b>Contribution</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Revenue	16.2	18.0	17.9	18.1	18.2	18.7
Cost of Goods Sold	9.8	11.3	10.9	10.9	11.1	11.5
Sales Margin	6.4	6.7	7.0	7.2	7.1	7.2
Fixed Costs	3.2	4.8	4.1	4.2	4.5	4.5
Operating Cash Flow	0.87	1.12	1.04	0.89	0.95	0.84

**(£ Millions)**

7. What was the percentage change in Revenue between 2001 and 2003?

- A. 10.50% increase
- B. 0.55% increase
- C. 1.05% increase
- D. 0.50% decrease

8. Which year saw the largest percentage change in Operating Cash Flow compared with the previous year?

- A. 2001
- B. 2002
- C. 2003
- D. 2004

*Exchange Rate for Euro*

	<b>Closing Point</b>	<b>Today's High</b>	<b>Today's Low</b>	<b>Closing Point Change from Previous Day</b>
Canadian Dollars	1.45	1.45	1.38	up 1.0%
GB Pounds	0.67	0.68	0.58	up 0.8 %
United States Dollars	1.29	1.38	1.21	up 0.9%
Japanese Yen	147.27	147.36	147.17	down 1.1%

9. An individual converts 200 UK Pounds to Euros at Closing Point rate. If this quantity is used to purchase a computer costing 260 Euros, how much, if any, is left over?

- A. €14.5
- B. €34.1
- C. €38.5
- D. €126.0

10. Which currency experienced the largest percentage difference between Today's High and Today's Low?

- A. Canadian
- B. Dollar
- C. GB Pounds
- D. US Dollar Japanese Yen



# QUANTITATIVE SECTION

1. What will be the difference between the compound interest and simple interest at the rate of 5% p.a. on an amount of \$4000 at the end of two years?

- A. \$10
- B. \$20
- C. \$30
- D. Data inadequate
- E. None of these

2. In what time will \$15625 amount to 17576 at 4% compound interest per annum?

- A. 3 yr
- B. 2 yr
- C. 1 yr
- D. 12 yr
- E. None of these

3. A and B invest in a business in the ratio 3: 2. If 5% of the total profit goes to charity and A's share is \$855, the total profit is:

- A. \$1425
- B. \$1500
- C. \$1537.50
- D. \$1576
- E. \$1640

4. A train crosses a platform 100 meters long in 60 seconds at a speed of 45 km per hour. The time taken by the train to cross an electric pole is:

- A. 18 seconds
- B. 1 minute
- C. 52 seconds
- D. 30 seconds
- E. Data inadequate

5. Capacity of a cylindrical vessel is 25.872 litres. If the height of the cylinder is 200% more than the radius of its base, what is the area of the base in square cms?

- A. 336.0

- B. 1232.0
- C. 616.0
- D. Can't be determined
- E. None of these

6. There are 150 weights. Some are 1 kg weights and some are 2 kg weights. The sum of the weights is 260 kg. What is the number of 1kg weights?

- A. 70
- B. 55
- C. 50
- D. 40
- E. 60

7. If selling price of 16 items is same as the cost price of 20 items, then there is a

- A. loss of 20%
- B. loss of 25%
- C. gain of 20%
- D. gain of 25%
- E. None of these

8. It was calculated that 75 men could complete a piece of work in 20 days. When work was scheduled to commence, it was found necessary to send 25 men to another project. How much longer will it take to complete the work?

- A. 35
- B. 25
- C. 30
- D. 45
- E. 50

9. A bus starts at 6:00 pm. from starting point at the speed of 18m/s, reached its destination and waited for 40 minutes. And again returned back at the speed of 28m/s. If the time taken in forward journey is same as time taken in reverse and waiting time.

What will be the time when it reaches again at its starting point?

- A. 8:32 PM
- B. 9:44 PM
- C. 7:52 PM
- D. 9:56 PM
- E. Data Insufficient

10. A policeman starts chasing a thief 30 minutes after the thief had run from a spot. With an average speed of 20km per hour, he takes 2 hours to catch the thief. What is the average speed of the thief?

- A. 16 kmph
- B. 25 kmph
- C. 24 kmph
- D. 18 kmph
- E. None of these

# VERBAL SECTION

1. Fill in the blank with the suitable gerund:

Bernard prefers \_\_\_\_\_ the toast with a knife.

- A. to buttered
- B. of butter
- C. buttering
- D. buttered
- E. None of these

2. Fill in the blank with the suitable gerund:

My cousin's most annoying habit is \_\_\_\_\_ endlessly at food fests.

- A. hogged
- B. hogging
- C. to hogged
- D. hog
- E. None of these

3. Pick out the most effective word from the given words to fill in the blank to make the sentence meaningfully complete

At one point, it looked as if an area of agreement would..... specially over the issue of productivity linked wages.

- A. Develop
- B. Come out
- C. Emerge
- D. Grow
- E. Overlap

*In each of the following problems, there are same sentences. Read them carefully and decide which one should come first, which second and which third, etc.*

4.

- 1. The lion goes in search of food for his family.
- 2. The lioness has just had three cubs.
- 3. She guards them day and night.

- A. 3, 2, 1

B. 2, 1, 3

C. 2, 3, 1

D. 1, 3, 2

E. 1, 2, 3

5.

1. Prices of foodstuff shot up.

2. Farmers complained bitterly of poor harvest.

3. The rains started late this year.

A. 1, 2, 3

B. 1, 3, 2

C. 2, 1, 3

D. 2, 3, 1

E. 3, 2, 1

6.

1. Mrs. Adebayo had a stomach ulcer.

2. She bought some drugs to cure it.

3. She went to see the specialist.

A. 3, 1, 2

B. 1, 2, 3

C. 2, 3, 1

D. 1, 3, 2

E. 3, 2, 1

7.

1. He went to the bookshop.

2. Tunde lost his mathematical set.

3. He collected money from his father.

A. 2, 3, 1

- B. 2, 1, 3
- C. 3, 1, 2
- D. 1, 3, 2
- E. 1, 2, 3

8. If sun is to candle :: then sea is to:

- A. Lagoon
- B. Boat
- C. Pond
- D. Puddle
- E. None of the above.

9. Fill in the blanks with appropriate words from the four options:

Essence is to Flowers as ..... is to Oven.

- A. Vapour
- B. Steam
- C. Fire
- D. Heat

10. A watch gains 12 seconds every 3 hours, what time will it show at 10 A.M. on Tuesday if the watch is set right at 3 A.M. on Sunday?

- A. 09 hrs 58 minutes
- B. 09 hrs 57 minutes 8 seconds
- C. 10 hrs 2 minutes
- D. 10 hrs 3 minutes 40 seconds
- E. None of these

# BANKING AWARENESS

1. Which of the following is NOT banking related terms?
  - A. SME finance
  - B. Overdrafts
  - C. Drawing power
  - D. Equinox
  
2. Bad loans in banking terminology are generally known as:
  - A. Prime loans
  - B. Prime asset
  - C. BPOs
  - D. NPAs
  
3. Which of the following terms is not used in the field of banking and finance?
  - A. Overdraft
  - B. Base line
  - C. RTGS
  - D. GBC
  
4. When more than one bank is allowing credit facilities to one party in coordination with each other under a formal arrangement the arrangement is generally known as:
  - A. Participation
  - B. Consortium
  - C. Syndication
  - D. Multiple Banking

5. When more than one bank is allowing credit facilities to one party in coordination with each other under a formal arrangement the arrangement is generally known as:
- A. Participation
  - B. Consortium
  - C. Syndication
  - D. Multiple Banking
6. Reverse Repo Rate means:
- A. Injecting liquidity by the central bank of a country through purchase of government securities
  - B. Absorption of liquidity from the market by sale of government securities
  - C. Balancing liquidity with a view to enhance economic growth rate
  - D. Any of above
7. Which of the following terms is not used in the field of banking and finance?
- A. Overdraft
  - B. Base line
  - C. RTGS
  - D. GBC
8. The bank rate means:
- A. Rate of interest charged by commercial banks from borrowers
  - B. Rate of interest which commercial banks discounted bills of their borrowers
  - C. Rate of interest allowed by commercial banks on their deposits



- D. Rate at which CBN purchases or rediscounts bill of exchange of commercial banks
9. Open market operations one of the measures taken by CBN in order to control credit expansion in the economy means:
- A. Sale or purchase of government securities
  - B. Issuance of different types of bonds
  - C. Auction of gold
  - D. All of these
10. Which of the following products of a bank is specifically designed to provide financial help to children in their higher studies in Nigeria or in a foreign nation?
- A. Personal loan
  - B. Corporate loan
  - C. Educational loan
  - D. Mortgage loan

# GENERAL KNOWLEDGE

1. The first people to visit the moon are \_\_\_\_\_.
  - A. Americans
  - B. Russians
  - C. French
  - D. Indians
  - E. None of the above
  
2. Which of the following is NOT an example of an intergovernmental organization (IGO)?
  - A. The World Trade Organization.
  - B. Amnesty International.
  - C. The United Nations.
  - D. NATO.
  
3. Petroleum is the most widely used source of power because it \_\_\_\_\_.
  - A. is relatively cheap to mine
  - B. is easily transported
  - C. yields many types of fuel
  - D. burns easily
  - E. All of the above
  
- 4.. General Sani Abacha, a past military ruler of Nigeria died on \_\_\_\_\_.
  - A. May 2, 1996
  - B. August 15, 1997
  - C. Februaury 30, 2000
  - D. June 8, 1998

5. The Presidential system of government ceased to exist on the 31st of November 1983.

- A. True
- B. False

6. In \_\_\_\_\_, Major Chuwkuemeka Nzeogu led a military coup against the Nigerian First Republic.

- A. January 15, 1966
- B. March 7, 1965
- C. August 23, 1964
- D. November 9, 1967

7. Nigeria experienced military rule for \_\_\_\_\_ years.

- A. 27
- B. 14
- C. 15
- D. 28
- E. 29

8. Sullivan Chime, in September 2012, was the Governor Of \_\_\_\_\_.

- A. Ebonyi State
- B. Enugu State
- C. Imo State
- D. Anambra State

9. The purported winner of the 1993 Presidential elections, M.K.O. Abiola was arrested and detained on \_\_\_\_\_.

- A. June 23, 1993
- B. June 12, 1994
- C. June 23, 1994

D. June 12, 1993

10.. The first female political activist in Nigeria is\_\_\_\_\_.

A. Mrs Margraet Ekpo

B. Dr. Doyin Abiola

C. Mrs Bisi Ugowe

D. Mrs Stella Obasanjo.

# ANSWERS/EXPLANATION

NUMERICAL ANSWERS				
1.A	2.A	3.A	4.B	5.A
6.D	7.B	8.A	9.C	10.C

## EXPLANATIONS

1. Consider the percentage increases for each country in turn. UK:  $38/35 = 1.0857$  (increase of 8.57%). US:  $136/128 = 1.0625$ . Germany:  $46/44 = 1.0455$ . Italy:  $28/26 = 1.0769$ . UK was the largest.

2. Thousands per capita: UK:  $38/60.1 = 0.632$ . US:  $136/302.5 = 0.450$ . Germany:  $46/84.3 = 0.546$ .

3. The information that you need is shown in the pie-chart.

Step 1 - Calculate the 2011 targets for each garden furniture manufacturer

Manufacturer A:  $1.2 \times 1.2 = 1.44$

Manufacturer B:  $3.3 \times 1.25 = 4.125$

Manufacturer C:  $2.4 \times 1.2 = 2.88$

Manufacturer D:  $2.7 \times 1.25 = 3.375$

Manufacturer E:  $2.4 \times 1.2 = 2.88$

Step 2 – Calculate the total 2011 target for all garden furniture manufacturers

$1.44 + 4.125 + 2.88 + 3.375 + 2.88 = 14.7$

Step 3 – to the nearest £million = £15 million

Note: in this question we were lucky that £14.7 million was not an available answer.

Sometimes questions deliberately include the answer not rounded as required, to catch you out.

Thus the correct answer is (C), £15 million

4. Be careful; the percentages are cumulative! So print subscriptions in France = (41-15) % of

879,000 which is 228,540. And repeat for online subscriptions: 75,375. So difference is 153,165.

5. Note the percentages are cumulative. So for print subscriptions it is 51% of 879,000 = 448,290. Online subscriptions it is 58% of 301,500 = 174,870. And therefore total is 623,160

6. Note the cumulative percentages. Online subscriptions in Sweden: (67-58) % of 301,500 =

27,135. Online subscriptions in France: 75,375. So difference would need to be 75,375 ÷

27,135 = 277.77% (an increase of 177.8%).

7. 18.1 divided by 18.0 gives 1.0055 which is 0.55% more than 100%.

8. For every year you have to divide the Operating Cash Flow by that of the previous year. So

you should get 128.7%; 92.86%; 85.58%; 106.7%. The largest deviation from 100% is 28.7%

for 2001-2000.

9. £200 divided by 0.67 is 298.5 Euros. Take away the 260 and you're left with 38.5.

10. For each country, divide the Today's High by the Today's Low to find the percentage variation.

This should give 17.24% for GB Pounds.

## QUANTITATIVE ANSWERS

1. A	2. A	3. B	4. C	5. C
6. D	7. D	8. C	9. B	10.A

### EXPLANATION

1. Solution: A

Compound interest is obtained by adding the simple interest on the simple interest for first year.

So, the difference is simply the simple interest on the simple interest obtained on the sum during the first year.

Formula for simple interest,  $SI = P \times R \times T / 100$

Where,

SI = simple interest

P = Principal Amount

R = Rate of interest

T = time duration in years

Simple interest for first year =  $4000 \times 5 \times 1 / 100 = 200$

$\therefore$  Simple interest on the interest =  $200 \times 5 \times 1 / 100 = 10$

2. Solution: A

Formula for calculating the compound interest =  $A = P (1 + r/100)^t$

Where, A = Amount after 't' time

P = principal amount

r = rate of compound interest

t = time

Now, according to the question,

$$17576 = 15625 (1 + 4/100)^t$$

$$\Rightarrow 17576/15625 = (26/25)^t$$

$$\Rightarrow (26/25)^t = (26/25)^3$$

$$\Rightarrow t = 3 \text{ years}$$

3. Solution: B

Say P is the total profit and 5% of P goes to charity.

$\Rightarrow$  95% of P is to be shared between A and B in the ratio 3 : 2

$\Rightarrow$  A's share of profit is  $3/5$  of 95% of P

$$\Rightarrow 855 = (3/5) \times 0.95 \times P$$

$$\Rightarrow P = (855 \times 5) \div (3 \times 0.95) = \$1500$$

4. Solution: C

Say L is the length of the train.

$$\text{Speed of the train} = 45 \text{ km/hr} = 45 \times (5/18) \text{ m/s} = 12.5 \text{ m/s}$$

Time taken by the train to cross the platform i.e. travel the distance (L + 100) m is 60 seconds.

$$\Rightarrow (L + 100)/12.5 = 60 \quad [\text{Distance/speed} = \text{Time}]$$

$$\Rightarrow (L + 100) = 60 \times 12.5 = 750$$

$$\Rightarrow L = 650 \text{ m}$$

$$\therefore \text{Time taken to cross an electric pole} = (650/12.5) \text{ seconds} = 52 \text{ seconds}$$

5. Solution: C

$$\therefore 1 \text{ Litre} = 1000 \text{ Cubic Cms}$$

$$\Rightarrow 25.872 \text{ litres} = 25872 \text{ Cubic Cms}$$

The Volume of a Cylinder =  $\pi \times (\text{Radius of Base})^2 \times \text{Height of the Cylinder}$

Let the Radius of the Base = r



6. Solution: D

Say there are A 1kg weights and B two kg weights.

Given, sum of weights = 260 kg

$$\Rightarrow A + 2 \times B = 260 \dots\dots\dots (\text{Eq.1})$$

Given, there are 150 weights

$$\Rightarrow A + B = 150 \dots\dots\dots (\text{Eq.2})$$

$$\therefore \text{Eq.1} - \text{Eq.2}$$

$$\Rightarrow B = 110$$

$$\text{Eq.2} \Rightarrow A = 150 - B = 150 - 110 = 40$$

$$\therefore \text{Number of 1 kg weights} = 40$$

7. Solution: D

Let SP of 1 item = \$ 1.

Then SP of 16 items = \$ 16

We are given that CP of 20 items = \$ 16

CP of 1 item = \$ 16/20

$$= \$ 0.8$$

Profit on every item = SP – CP

$$= 1 - 0.8$$

$$= 0.2$$

Gain Percentage = Gain/CP × 100

$$= 0.2/0.8 \times 100$$

$$= 25\%$$

8. Solution: C

Amount of work = 75 × 20 = 1500 man-days

25 men are sent away, so men left = 75 – 25 = 50

Hence, days taken to finish work =  $1500 \div 50 = 30$  days

9. Solution: B

Say distance is  $d$  m.

Time taken = Distance/Speed

Time taken in forward journey =  $d/18$  seconds.

Time taken in reverse journey =  $d/28$  seconds.

Given that,  $d/18 = d/28 + (40 \times 60)$  [40 minutes =  $40 \times 60$  seconds]

$$\Rightarrow d \times (5/252) = 2400$$

$$\Rightarrow d = 2400 \times 252/5 = 120960 \text{ m}$$

$$\therefore \text{Total time taken} = (d/18) + (d/28) + 2400 = 13440 \text{ seconds}$$

$$\Rightarrow \text{Time taken} = 13440/60 \text{ minutes} = 224 \text{ minutes} = 3 \text{ hours and } 44 \text{ minutes}$$

$\therefore$  The bus reaches back at 9:44 PM

10. Solution: A

As we know that

Average Speed  $\times$  Total Time taken = Total Distance Travelled

Hence the Distance Travelled by Policeman running with average speed of 20km/hr, and time = 2 hrs

$$\Rightarrow 20 \times 2 = \text{Total Distance Travelled}$$

$$\Rightarrow \text{Total Distance Travelled} = 40 \text{ km}$$

$\therefore$  The distance travelled by the thief = Distance Travelled by the policeman = 40 km

Time Taken by the thief =  $2 + 0.5 = 2.5$  hrs

$$\Rightarrow \text{Average Speed of thief} = 40/2.5$$

$$= 16 \text{ km /hr}$$

## VERBAL ANSWERS

1. C	2. B	3. C	4. E	5. E
6. D	7. A	8. A	9. D	10. D

## EXPLANATION

1. Solution: C

Gerunds always function as nouns. In this example the noun 'butter' is modified to 'buttering' indicating the action of applying butter.

2. Solution: B

Gerunds always perform the function of noun. In this example, the noun 'hog' (occupy) is modified to a gerund 'hogging' to make the sentence grammatically correct.

3. Solution: C

An area of agreement does not grow or develop over an issue. This is because you give and take a little when you are in the middle of negotiations. The compromise comes out of this. So we can say that the most suitable word is 'emerge'. Also it cannot overlap as there would be people disagreeing over the issue also.

4. Solution: E

5. Solution: E

6. Solution: D

7. Solution: A

8. Solution: A

As Candle is the smallest source of light compared to Sun. Similarly, Lagoon is the smallest source of salt water compared to Sea.

9. Solution: D

Essence is intrinsic to flower. Similarly Heat is intrinsic to oven.

10. Solution: D

Time difference between 3 am on Sunday and 10 am on Tuesday = 2 days and 7 hours

## **BANKING ANSWERS**

1. D	2. D	3. D	4. B	5. B
6. B	7. D	8. D	9. A	10.C

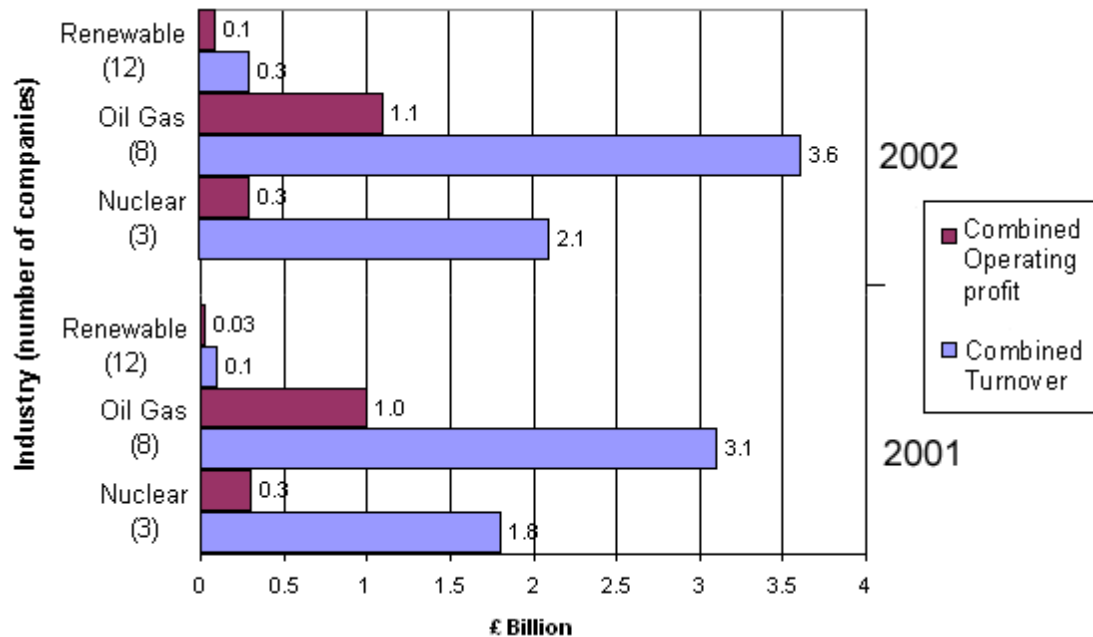
## GENERAL KNOWLEDGE ANSWERS

1.A	2.A	3.C	4.D	5.B
6.A	7.E	8.A	9.B	10.A

# NUMERICAL SECTION

1. If in 2007, Italy aimed to spend 8% more on public transport than they did in 2006, by how much were they short of the target?

- A. £1 million
- B. £1 billion
- C. £0.1 billion
- D. Cannot tell



2. In which industry, in any year, was the highest turnover per company generated?

- A. Nuclear in 2002
- B. Oil Gas in 2002
- C. Nuclear in 2001
- D. Oil Gas in 2001

3. What was the average Operating Profit per energy company in 2001?

- A. £578,000,000
- B. £57,800,000
- C. £4,904,000,000
- D. £65,200,000

4. What was the highest turnover made by an Oil Gas company in 2002?
- A. £450,000,000
  - B. £45,500,000
  - C. £387,500,000
  - D. Cannot say

	Exchange Rate (to the £)				
	Week 1	Week 2	Week 3	Week 4	Week 5
Euro €	1.2	1.26	1.3	1.34	1.28
US \$	1.64	1.69	1.74	1.84	1.76
Japanese Yen	123.2	128.6	134.8	135	128.4
South African Rand	13.4	13.8	13.2	13.6	14.2

5. How much is 5,000 South African Rand worth in Week 4 in US \$?
- A. \$199.81
  - B. \$367.65
  - C. \$476.65
  - D. \$599.18
  - E. \$676.48

EngWorks Personnel Rates			
Company Employee	Salary paid to employee £/hour	Cost charged to client £/hour	Hours spent on Project DD34
Accountant	18.1	130.0	20
Marketing Advisor	14.0	105.0	3
Design Engineer	15.8	110.0	140
Human Resources	9.6	92.0	6
Labourer	7.3	86.5	230

6. What employee generates the least amount of profit for EngWorks per hour?
- A. Marketing Advisor
  - B. Design Engineer
  - C. HR
  - D. Labourer

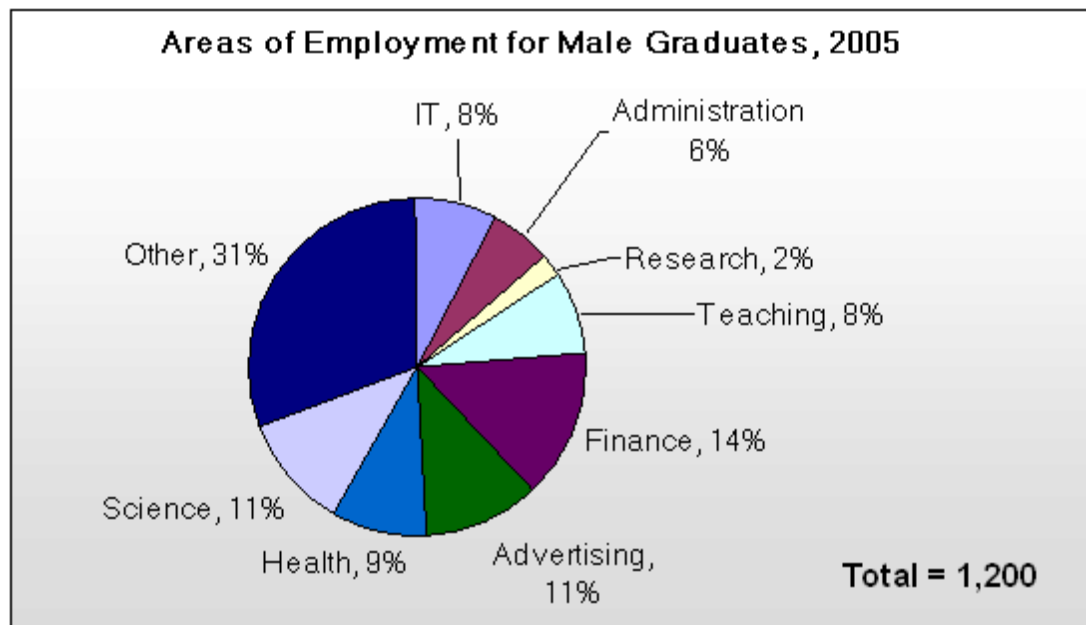


7. If on a particular project, the client is charged £1,625 for the Accountant's time, how much will the Accountant receive for his time on the project?

- A. £226.25
- B. £108.60
- C. £1,399
- D. £289.00

8. On Project DD34, how much more is the client charged for Labour than for Design Engineer services?

- A. £533
- B. £1,233
- C. £2,984
- D. £4,495



9. Into which area do 34% of male graduates go?

- A. Finance, Advertising & Health
- B. Teaching, Finance & Advertising
- C. IT, Administration & Research
- D. None of these

10. How many more males went into Science than into Teaching?

- A. 3
- B. 12

C. 36  
D. 61

# QUANTITATIVE SECTION

1. What is the probability of getting 3 or 4 in 3 consecutive rolls of a dice?

- A.  $\frac{1}{6}$
- B.  $\frac{1}{27}$
- C.  $\frac{1}{16}$
- D.  $\frac{1}{4}$
- E. None of these

2. The volume of a wall, 5 times as high as it is broad and 8 times as long as it is high, is  $12.8 \text{ metre}^3$ . Find the breadth of the wall.

- A. 120 cm
- B. 160 cm
- C. 38 cm
- D. 40 cm
- E. None of these

3. Samuel is younger than Rick by 7 years. If the ratio of their ages is 7: 9, find the age of Samuel.

- A. 12.5 years
- B. 24.5 years
- C. 23.5 years
- D. 14.5 years
- E. None of these

4. What is the least number to be added to 4321 to make it a perfect square?

- A. 32
- B. 34
- C. 36
- D. 38
- E. None of these

5. At a car park there are 100 vehicles, 60 of which are cars, 30 are vans and the remaining are Lorries. If every vehicle is equally likely to leave, find the probability of car leaving second if either a lorry or van had left first:

- A.  $\frac{20}{33}$
- B.  $\frac{19}{33}$

- C.  $\frac{3}{5}$
- D.  $\frac{2}{5}$
- E. None of the above

6. If 9 men working 7.5 hours a day can finish a piece of work in 20 days, then how many days will be taken by 12 men, working 6 hours a day to finish the work? It is being given that 2 men of latter type work as much as 3 men of the former type?

- A. 10.5
- B. 11
- C. 6
- D. 13
- E. 12.5

7. A shopkeeper bought a watch for \$400 and sold it for \$ 500.What is his profit percentage?

- A. 50%
- B. 15%
- C. 20%
- D. 30%
- E. 25%

8. What percent of 60 is 12?

- A. 25
- B. 20
- C. 30
- D. 12.5
- E. None of these

9. An employee may claim \$ 7.00 for each km when he travels by taxi and \$ 6.00 for each km if he drives his own car. If in one week, he claimed \$ 595 for traveling 90 km. How many km/s did he travel by taxi?

- A. 55
- B. 65
- C. 62
- D. 70
- E. 35

10. A sum was put at simple interest at a certain rate for 2 years Had it been put at 1% higher rate, it would have fetched \$24 more. The sum is:

- A. \$600
- B. \$1200
- C. \$800
- D. \$480
- E. \$960

# VERBAL SECTION

1. Give the synonym for the word 'infallible'

- A. Irritable
- B. Fashionable
- C. Successful
- D. Clumsy
- E. Reliable

2. Fill in the blank with a suitable homophone:

It's hard to believe what Anushka did, she always ..... so nice.

- A. Seemed
- B. Seamed
- C. Shamed
- D. Schemed
- E. None of the above.

3. Select the correct plural form for the given word:

Match

- A. Match
- B. Matchies
- C. Matches
- D. Matchs
- E. None of the above

4. What is the opposite of the word CRUDE?

- A. Sophisticated
- B. Antagonized
- C. Asymmetric
- D. Boorish
- E. None of the above

5. What is the opposite of MELLIFLUOUS?

- A. Tribunal

- B. Superficial
- C. Cacophony
- D. Truncated
- E. None of the above

6. Choose the word which is the exact OPPOSITE of the given words.

EXODUS

- A. Influx
- B. Home-coming
- C. Return
- D. Restoration
- E. Revival

7. Fill in the blank with the most suitable word from the given options

Man who has committed such an \_\_\_\_\_ crime must get the most severe punishment.

- A. injurious
- B. uncharitable
- C. unworthy
- D. abominable
- E. None of the above

8. Identify the antonym of the given word.

Embellish

- A. Sacrifice
- B. Disfigure
- C. Forfeit
- D. Indict
- E. Decorate

9. Identify the synonym of the given word

Zest

- A. pleasure
- B. distaste
- C. flop
- D. encircles
- E. enthusiasm

10. For each hour a watch is going slow by 30 seconds. Now the time is 8 a.m., when the clock is set right. What will be the time in watch when the actual time is 8 p.m.?

- A. 7:48 PM
- B. 7:54 PM
- C. 7:52 PM
- D. None of the above
- E. Data inadequate



# BANKING AWARENESS

1. Which of the following is an international forum to discuss and implement supervisory norms in all the banks of the world?
  - A. Basel Committee
  - B. UN charter on commercial laws.
  - C. World trade organization
  - D. International Board of banks and finance
  
2. What is the full meaning of GNP as used in the financial sector?
  - A. Gross Net Product
  - B. National Gross Product
  - C. Gross New Product
  - D. None of these
  
3. Which of the following is not a banking related term?
  - A. Outstanding amount
  - B. Explicit guarantee
  - C. Creditor
  - D. Radiation
  
4. Insurances service provided by various bank is commonly known as:
  - A. Investment banking
  - B. Portfolio management
  - C. Merchant banking
  - D. Banc assurance

5. Which of the following payment instrument introduced by the banks is known as plastic money?
- A. Bearer Cheques
  - B. Credit Cards
  - C. Demand Drafts
  - D. Gift cheques
6. Central Co-operative banks work at:
- A. District level
  - B. State level
  - C. National level
  - D. Block level
7. The term plastic money applies to
- A. Bank draft made of plastic coated paper
  - B. Currency notes impregnated with plastic thread
  - C. Currency notes printed on plastic coated paper
  - D. Credit cards mainly issued by the banks
8. PAN card issued by the income tax department cannot be used for which of the following purpose?
- A. Proof of identity
  - B. Proof of a registered tax payer
  - C. Proof of address
  - D. Proof of date of birth
9. Which one of the following banks gives long term loans to agriculture?
- A. State co-operative bank
  - B. Commercial bank
  - C. Primary credit society
  - D. Land development bank

10. Non- performing asset (NPA) in commercial banks mean

- A. Bank deposits which are not invested
- B. Capital asset not in use
- C. Loans in which interest or principal amount is not recovered
- D. Loan interest rate loan

# GENERAL KNOWLEDGE

1. The first election in Nigeria was in the year \_\_\_\_\_.

- A. 1912
- B. 1914
- C. 1923
- D. 1920
- E. None of the above

2. in 2005, the Nigerian Minister for Education was \_\_\_\_\_.

- A. Prof. Fabian Osuji
- B. Dr Iyorchia Ayu
- C. Mrs Rita Akpan
- D. Mallam Adamu Bello
- E. None of the above

3. In March 2013, the National Chairman of Peoples Democratic Party (PDP) was \_\_\_\_\_.

- A. Alhaji Bamanga Tukur
- B. Babangida Aliyu
- C. Chief Maxi Okwu
- D. Dr. Hakeem Ahmed

4. A form of governance in which all citizens have fundamental equal rights, enjoy liberty and freedom; where the ultimate legitimacy of actions, choices rests with citizens' legitimate representatives elected by fair ballot is called.

- A. Rightocracy
- B. Aristocracy
- C. Democracy
- D. Democrats

E. Democratization

5. A state of emergency may be declared under the following circumstances, except\_\_\_\_\_.

- A. a holy war
- B. a period of civil unrest
- C. a military regime
- D. a man-made disaster
- E. natural disaster

6. In March 2013, which of the following parties was not a part of the four political parties seeking a merger under the name APC?

- A. All People's Party (APP)
- B. All Nigeria Peoples Party (ANPP)
- C. Action Congress of Nigeria (ACN)

7. In February 2013, \_\_\_\_\_ was the Minister for sports.

- A. Comrade Abba Moro
- B. Mrs Stella Oduah Ogeimwonyi
- C. Alh. Yusuf Suleiman
- D. Dr Akinwunmi Ayo Adesina

8. In March 2013, the Chairman of the Peoples Democratic Party, PDP in Edo State was\_\_\_\_\_.

- A. Adams Oshiomhole
- B. Chief Dan Osi Orbih
- C. Chief Tony Anenih
- D. Ikedi Ohakim

9. \_\_\_\_\_ is the 4th Executive President of Nigeria.

A. Olusegun Obasanjo

B. Shenu Shagari

C. Goodluck Jonathan

D. Ernest Shonekan

10. Arabic schools were first established in Sokoto, Kano and Kaduna in the year\_\_\_\_\_.

A. 1450

B. 1545

C. 1689

D. 1721

# ANSWERS/EXPLANATION

NUMERICAL ANSWERS				
1.B	2.A	3.B	4.D	5.E
6.D	7.A	8.D	9.A	10.C

## EXPLANATIONS

1.8% of £25 billion is £2 billion. They needed to spend 27, but spent only 26 billion.

2. Note the number of companies is given in brackets. Work out the turnover per company and you will find nuclear was the highest in 2002 with 2.1 billion for 3 companies (0.7 billion per company).

3. Total Operating Profit for all the energy companies in 2001 was (0.03 + 1.0 + 0.3) billion. Divide this by the number of companies (23) and you get  $1.33 / 23 = 0.0578$  billion.

4. Only the sum totals for all Oil Gas companies is given, not for individual companies, so it is impossible to say from the given data.

5. **Step 1** – Convert from Rand in to £

$$5,000 / 13.6 = 367.65$$

**Step 2** – Convert from £ in to US \$

$$367.65 \times 1.84 = \$676.48$$

Thus the correct answer is (E), \$676.48

6. Profit is defined as (Cost Charged to Client) - (Salary Paid to Employee). Work this out for every employee and you should find for a labourer it is  $(86.5 - 7.3) = £79.2/\text{hour}$ .

7. The accountant is charged out at £130/hour. So £1,625 divided by £130 p/h works out at 12.5 hours. And 12.5 hours x £18.1/hour is £226.25.

8. The client is charged for labour: 230hrs x 86.5£/hr = £19,895. And for Design Services:  
140hrs x 110£/hr = £15,400.

9. For these type of questions, take each multiple choice answer in turn and consider. By adding up the percentages given on the chart, we can see a total of 34% is from Finance, Advertising & Health.

10. 11% of 1,200 went into Science and 8% of 1,200 went into Teaching.



## QUANTITATIVE ANSWERS

1. B	2. D	3. B	4. E	5. A
6. E	7. E	8. B	9. A	10. B

### EXPLANATION

1. Solution: B

We have total possible outcomes on rolling a dice = 6

Total favourable outcomes = 2

Probability of getting 3 or 4 in first throw of dice =  $\frac{2}{6} = \frac{1}{3}$

Probability of getting 3 or 4 in first throw of dice =  $\frac{2}{6} = \frac{1}{3}$

Probability of getting 3 or 4 in first throw of dice =  $\frac{2}{6} = \frac{1}{3}$

Hence  $P(\text{getting 3 or 4 in 3 consecutive rolls of a dice}) = \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} = \frac{1}{27}$

2. Solution: D

We know that, formula:

Volume of any Cuboid = Length  $\times$  Breadth  $\times$  Height

Now, according to the given question:

Let the breadth of the wall be  $x$  metres. Then,

Height =  $5x$  metres, and

Length =  $40x$  metres.

According to the formula:

Volume of the cuboid =  $x \times 5x \times 40x = 12.8$

$\therefore x^3 = \frac{12.8}{200} \text{ m}^3$

$= \frac{128}{2000} \text{ m}^3$

$= \frac{64}{1000} \text{ m}^3$

So,  $x = (4/10) \text{ m}$

$= \{(4/10) \times 100\} \text{cm} = 40 \text{ cm.}$

Hence the required answer is 40 cm.

3. Solution: B

Let's say Rick is  $x$  years' old

So Samuel is  $x - 7$  years' old

So, as per the question,

$$x - 7x = 79$$

$$\Rightarrow 9x - 63 = 7x$$

$$\Rightarrow 2x = 63$$

$$\Rightarrow x = 31.5$$

So, Samuel's age is  $31.5 - 7 = 24.5$  years

4. Solution: E

We need to find the approximate value of square root of 4321 using long division method or trial and error.

We find that  $65^2 = 4225 < 4321$  and  $66^2 = 4356 > 4321$

So the least number to be added =  $4356 - 4321 = 35$ .

$\therefore 35$  can be added to 4321 to make it a perfect square.

5. Solution: A

If either a lorry or a van had left first, there would be 99 vehicles remaining. So the sample space would be 99.

$$n(S) = 99$$

There are 60 number of cars after a lorry or van had left.

$$n(C) = 60.$$

$\therefore$  Probability of car leaving second =  $n(C)/n(S) = 60/99 = 20/33$

6. Solution: E

Work done by 9 men in a day =  $1/20$

∴ Work done by 1 man in a day for 7.5 hours =  $(1/20) \div 9 = 1/180$

∴ Work done by 1 man in an hour =  $(1/180) \div (7.5) = 1/1350$

Given that 2 men of latter type are equal to 3 men of former type  $\Rightarrow$  1 man of latter type = 1.5 men of former type.

∴ Work done by 1 man of latter type in an hour =  $1.5 \times (1/1350) = 1/900$

∴ Work done by 1 man in 6 hours =  $6 \times (1/900) = 1/150$

∴ Work done by 12 men in a day working 6 hours/day =  $12 \times (1/150) = 2/25$

Days required to finish the work =  $25/2 = 12.5$  days.

7. Solution: E

Profit made by the shopkeeper = Selling price – Cost price

$\Rightarrow$  Profit = \$500 – \$400 = \$100

We know that profit percentage =  $(\text{Profit}/\text{Cost}) \times 100$

∴ Profit percentage of shopkeeper =  $(100/400) \times 100 = 25\%$

8. Solution: B

To find what percentage of 60, 12 is

We need to find

$\Rightarrow (12/60) \times 100 \%$

= 20%

9. Solution: A

Say the employee travelled x km by Taxi and y km by his own car.

Total amount claimed by the employee =  $7x + 6y = 595$  ..... (i)

Total distance =  $x + y = 90$  ..... (ii)

Multiply equation (ii) by 6 and subtract it from (i)

$x = 55$

10. Solution: B

Say P is the sum put at simple interest and R is the initial rate of interest.

Formula for Simple interest is,  $I = P \times T \times R / 100$ , where T is the time period.

∴ Initial interest  $I = P \times 2 \times R / 100$

When rate of interest is (R+1), interest is (I+24)

$$\Rightarrow I + 24 = P \times 2 \times (R + 1) / 100 = P \times 2 \times R / 100 + P \times 2 / 100$$

$$\Rightarrow I + 24 = I + [(P \times 2) / 100]$$

$$\Rightarrow (P \times 2) = 24 \times 100$$

$$\Rightarrow P = \$1200$$

VERBAL ANSWERS				
1. E	2. A	3. C	4. A	5. C
6. A	7. D	8. B	9. E	10. B

## EXPLANATION

1. Solution: E

'Infallible' means incapable of making mistakes or being wrong. 'Irritable' means having the tendency to be easily annoyed. 'Fashionable' means representing popular style. 'Successful' means accomplishing a desired aim or result. 'Clumsy' means awkward in movement or handling things. 'Reliable' means consistently good in quality or performance. From this, we can see that 'reliable' is the only word which has the same meaning as the given word.

2. Solution: A

1. 'Seem' (verb) means to look or appear.
2. 'Seam' (verb) means to join with a seam.
3. 'Shame' (verb) means to make (someone) feel ashamed.
4. 'Scheme' (verb) means to conspire or plot something.

After considering the above mentioned meanings 'seemed' is the most appropriate option.

3. Solution: C

Whenever the noun ends in -ch, we always add -es to the plural form of the noun. So, the plural of the word 'match' will be 'matches'. Hence, option 3 is correct.

4. Solution: A

'Crude' means something that is present in its raw natural state. 'Sophisticated' means refined or having been developed with a lot of complexity. 'Asymmetric' means lack of balance in arrangement of parts. 'Boorish' means rough and bad mannered. Clearly, 'sophisticated' is the opposite of 'crude'.

5. Solution: C

'Mellifluous' means smooth and musical to hear. 'Tribunal' means a court of justice. 'Superficial' means existing only at the surface. 'Cacophony' means a harsh discordant mixture of sounds. 'Truncated' means shortened. Clearly, 'cacophony' is the opposite of 'mellifluous'.

6. Solution: A

'Exodus' is a mass departure of people. 'influx' is arrival or entry of a large number of people. These are exact opposites. 'Homecoming' is 'to return home'. This means that the person has departed earlier. 'Revival' and 'restoration' are used for 'improvement in condition' or 'return to a former place'.

7. Solution: D

'Abominable' is something that is very bad/terrible. It is also something that can cause moral disgust. 'Unworthy' does not deserve respect. A crime is 'disrespectful' so this word need not be specified. 'Uncharitable' is irrelevant as a crime cannot be charitable anyway. Hence, 4 is the correct option.

8. Solution: B

'Embellish' is to make something more attractive. 'Decorate' means the same. 'Indict' is to accuse and 'forfeit' is to be deprived of. 'Disfigure' is to make unattractive. Hence, it is an antonym.

9. Solution: E

Zest means great energy and enthusiasm. 'Pleasure' is 'feeling of happiness or satisfaction'. 'Distaste' is aversion or dislike. 'Flop' is to fail. 'Encircle' is to surround. Thus, 'enthusiasm' is the correct synonym. Let us explore its use in a sentence:

The zest the old man portrayed towards life was admirable.

10. Solution: B

30 seconds lost in 1 hr.

So, in 12 hours, time lost =  $30 \times 12 = 360$  seconds = 6 minutes

So, when actual time at 8:00 PM watch will show 7:54 PM

## **BANKING ANSWERS**

1. A	2. D	3. D	4. D	5. A
6. A	7. D	8. B	9. A	10.C

## GENERAL KNOWLEDGE ANSWERS

1.C	2.A	3.A	4.C	5.C
6.A	7.C	8.B	9.C	10.A



# NUMERICAL SECTION

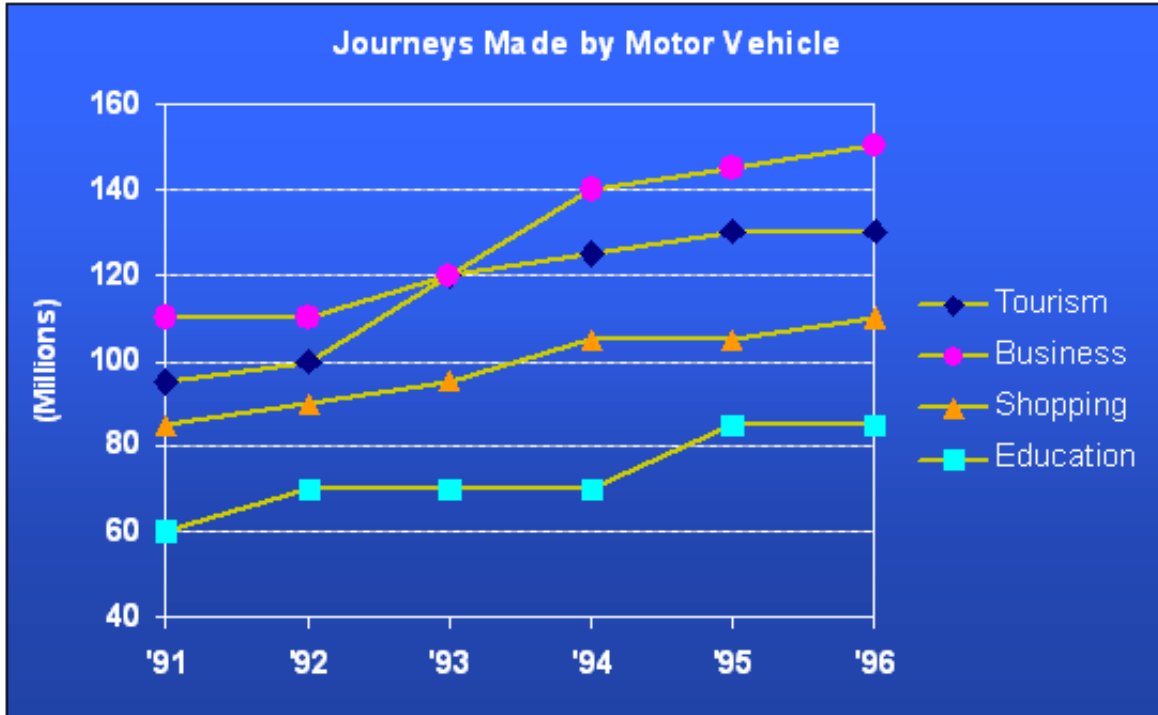
Annual Travel Expenditure per Employee (£)				
	2003		2004	
	UK	France	UK	France
Graduate	124	110	135	112
Engineer	180	165	195	170
Senior Engineer	275	230	300	241
Associate Engineer	421	380	461	417
Partner	738	691	798	706

1. What was the difference between total travel expenditure in the UK and total travel expenditure in France for 2004?

- A. £243
- B. £218
- C. £628
- D. Cannot Say

2. If in 2003, there were 64 Partners in the UK and 264 Partners in France, how much more was spent on Partner travel in France?

- A. £35,188
- B. £135,192
- C. £614,671
- D. £148,341



3. In which year were there an equal number of journeys made for both Tourism and Business?

- A. 1993
- B. 1994
- C. 1995
- D. None of these

4. How many more Business journeys were made in 1992 than there were Education journeys made in 1994?

- A. 15 million
- B. 20 million
- C. 40 million
- D. 65 million

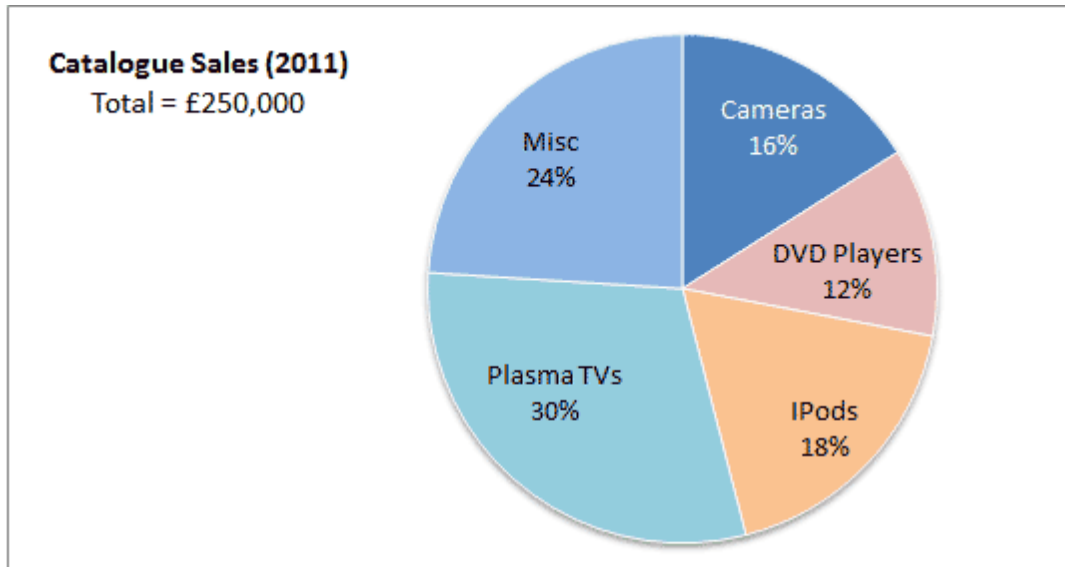
5. If the total number of all motor vehicle journeys in 1996 was 520 million, what percentage were for Tourism purposes?

- A. 3%
- B. 25%
- C. 53%
- D. 74%

	Exchange Rate (to the £)				
	Week 1	Week 2	Week 3	Week 4	Week 5
Euro €	1.2	1.26	1.3	1.34	1.28
US \$	1.64	1.69	1.74	1.84	1.76
Japanese Yen	123.2	128.6	134.8	135	128.4
South African Rand	13.4	13.8	13.2	13.6	14.2

6. Which currency has shown the greatest proportionate change in value between Weeks 1 and 4?

- A. Euro
- B. US \$
- C. Japanese Yen
- D. South African Rand
- E. Can't tell from data



	<b>Online Sales (2011)</b>	<b>High Street Sales (2011)</b>
Cameras	£553,000	£336,000
DVD Players	£808,000	£483,000
iPods	£852,000	£644,000
Plasma TVs	£325,000	£456,000
Misc	£575,000	£678,000
<b>Total</b>	<b>£3,113,000</b>	<b>£2,597,000</b>

7. The profit made from selling cameras online compared to the High Street is in the ratio 9:7, and 15% of online camera sales is profit. What is the 2011 profit for High Street camera sales?

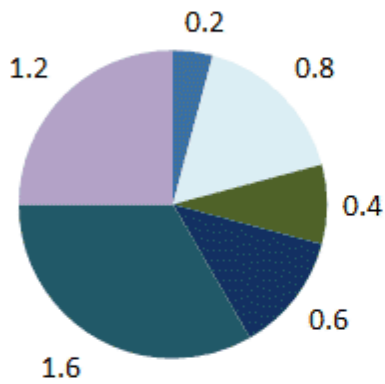
- A. £36,291
- B. £64,517
- C. £66,980
- D. £72,428
- E. £82,950

Expenses by Department (£)	Number of staff	Quarter				Annual Expense Budget
		1	2	3	4	
HR	3	1,053	1,680	1,305	1,346	6,500
Marketing	6	4,790	3,706	3,652	4,309	16,000
Sales	12	6,825	6,021	5,091	5,245	22,500
IT	5	1,160	1,042	938	956	4,500
Finance	7	4,257	4,830	4,545	4,463	20,000
R&D	4	1,169	1,009	1,755	1,821	6,000

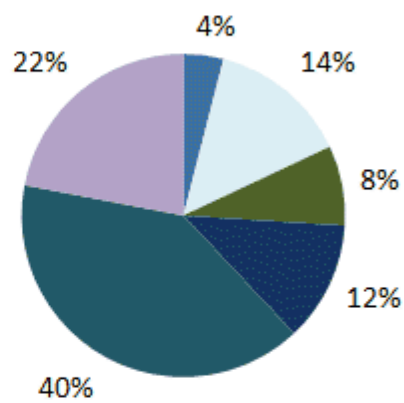
8. If the annual expense budget was evenly allocated for each Quarter, which Department is under budget by the highest amount in Quarter 4?

- A. HR
- B. Marketing
- C. Sales
- D. Finance
- E. R&D

**Growth Fund Investments - Year 1**  
(\$millions)



**Growth Fund Investments - Year 2**  
(\$millions) Total = \$4.5 million



- Gilts
- Fixed Interest
- North American Equities
- European Equities
- UK Equities
- Pacific Rim Equities

9. What was Year 2's decrease in the amount invested in North American and European Equities compared to Year 1?

- A. \$10,000
- B. \$100,000
- C. \$110,000
- D. \$111,000
- E. \$111,100

10. If the proportional change in the Growth Fund between Year 1 and Year 2 continued over subsequent years, what would be the projected Growth Fund value in Year 6?

- A. \$3.48 million
- B. \$3.51 million
- C. \$3.71 million
- D. \$5.73 million
- E. \$5.95 million

## QUANTITATIVE SECTION

1. In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is:

- A. 1 hour
- B. 2 hours
- C. 3 hours
- D. 4 hours
- E. 5 hours

2. If  $9x - 3y = 12$  and  $3x - 5y = 7$  then  $6x - 2y = ?$

- A. -5
- B. 4
- C. 2
- D. 8
- E. 5

3. Evaluate:

$$986 \times 237 + 986 \times 863$$

- A. 1084600
- B. 1084800
- C. 986000
- D. 986860
- E. None of these

4. A Pipe can fill in 20 minutes and Pipe B in 30 mins and Pipe C can empty the same in 40 mins. If all of them work together, find the time taken to fill the tank?

- A.  $140/7$  mins
- B.  $120/6$  mins
- C.  $80/6$  mins
- D.  $120/7$  min
- E.  $140/8$  min

5. The price of a product is reduced by 30%. By what percentage should it be increased to make it 100%?

1. 50 %
2. 42.85 %
3. 30 %
4. 46.87 %
5. 45.83%

6. What is the selling price of a car if the cost of the car is \$60 and a profit of 10% over cost price is earned?

- A. \$ 66
- B. \$ 54
- C. \$ 72
- D. \$ 64
- E. None of these

7. If on an item a company gives 25% discount, they earn 25% profit. If they now give 10% discount, then what is the profit percentage?

- A. 40%
- B. 55%
- C. 35%
- D. 30%
- E. 50%

8. Three partners started a business with \$ 80000. At the end of the year they receive \$ 1800, \$ 3000 and \$ 4800 as profit. Find the investment of the second person.

- A. \$ 27000
- B. \$ 7030
- C. \$ 8510
- D. \$ 32000
- E. None of these

9. Time and Work

George can do a piece of work in 8 hours Paul can do the same work in 10 hours, Hari can do the same work in 12 hours George, Paul and Hari start the same work at 9 am, while George stops at 11 am, the remaining two complete the work. Approximately at what time will the work complete?



- A. 11.30 am
- B. 12 noon
- C. 12.30 pm
- D. 1 pm
- E. 2 pm

10. A cylinder of diameter 14 cm and height 7 cm is converted into a cone of radius 6 cm. Now, what could be the height of the new shape?

- A. 28.58 cm
- B. 26.58 cm
- C. 27.48 cm
- D. 27.74 cm
- E. None of these

# VERBAL SECTION

1. Select the correct tense:

She had played carom.

- A. Future perfect
- B. Past perfect
- C. Present perfect
- D. Simple present
- E. None of the above

2. Fill in the blank with the suitable article:

I met \_\_\_ old man in the train.

- A. some
- B. a
- C. an
- D. the
- E. No article

3. What is the opposite word of Restive?

- A. Patient
- B. Rigorous
- C. Deceptive
- D. Active
- E. None of the above

4. Choose an appropriate word from the options to suitably fill the blank in the sentence below so that the sentence makes sense, both grammatically and contextually.

Blessed are those who get paid to work in the field they \_\_\_\_\_.

- A. avoid
- B. like
- C. dread
- D. hate
- E. dislike

5.

Fill in the blank with a suitable homophone:

This is my favourite \_\_\_\_\_ of jeans.

- A. Pear
- B. Pair
- C. Pare
- D. Purse
- E. None of the above

6. Fill in the blank with a suitable homophone:

\_\_\_\_\_ be here in a few minutes.

- A. He'll
- B. Heal
- C. Heel
- D. Hell
- E. None of the above.

7. Choose the correct antonym from the given four alternatives.

AUDACITY

- A. Quivering
- B. Patricide
- C. Bravado
- D. Cowardice
- E. Courage

8. Some proverbs/idioms are given below together with their meanings. Choose the correct meaning of proverb/idiom.

Speaking a lot, with confidence and enthusiasm.

- A. Talkative
- B. Chatty
- C. Voluble
- D. Loquacious
- E. None of these

9. Fill in the blank with the suitable gerund:

Stop \_\_\_\_\_ nonsense.

- A. Making
- B. Talking
- C. In talking
- D. In making
- E. On talking

10. Fill in the blanks:

Legends say that he \_\_\_\_\_ from the ashes.

- A. Rised
- B. Risen
- C. Rose
- D. Was rose
- E. Will rose

# BANKING AWARENESS

1. The controlling authority of government expenditure is –
  - A. The Budget Office
  - B. Ans. The Finance Ministry
  - C. The Central Bank of Nigeria
  - D. The Bank of Industry
  
2. Foreign currency which has a tendency of quick migration is called –
  - A. Crypto Currency
  - B. Hot currency
  - C. Currency money
  - D. Mobile Money
  
3. Banks normally publicize that additional interest rate is allowed on retail domestic term deposits of which citizens?
  - A. Senior citizens
  - B. Elite Citizens
  - C. Male Citizens
  - D. Female Citizens
  
4. Lending to Micro Finance Institutions by Banks is considered as finance to which sector?
  - A. Banking Sector
  - B. Priority Sector
  - C. Private Sector
  - D. Public Sector
  
5. What is money laundering?
  - A. Control of money illegally obtained
  - B. Conversion of Money which is illegally obtained
  - C. Expenditure of money illegally obtain
  - D. Saving of money illegally obtained
  
6. What type of loan is granted by banks for purchase of white goods?
  - A. Customer Durable Loans
  - B. Client Durable loans
  - C. Government durable loans
  - D. Consumer durables loan

7. What are fixed deposits and recurring deposits?

- A. Requested on demand
- B. Repayable on demand
- C. Repayable on supply
- D. Fixed on deposits

8. Which accounts are allowed to be operated by cheques?

- A. Savings and current accounts
- B. Savings account
- C. Current Account
- D. Fixed Deposits accounts

9. What is Mortgage?

- A. Guarantee on property loan
- B. Provision of loans for property
- C. Security on immovable property for a loan given by a bank
- D. Security on immovable loans

10. What is the Rate at which the domestic currency can be converted into foreign currency and vice-versa?

- E. Conversion rate
- F. Exchange rate
- G. Currency rate
- H. Money rate

# GENERAL KNOWLEDGE

1. Nigeria experienced military rule for \_\_\_\_\_years.
  - A. 27
  - B. 14
  - C. 15
  - D. 28
  - E. 29
  
2. The first military president in Nigeria is\_\_\_\_\_.
  - A. General Olesegun Aremu Obasanjo
  - B. General Muhammadu Buhari
  - C. General Ibrahim Badamosi Babangida
  - D. General Yakubu Gowon
  
3. The first Nigerian first lady to die in office, Mrs. Stella Obasanjo died on\_\_\_\_\_.
  - A. October 23, 2005
  - B. May 16, 2006
  - C. August 30, 2007
  - D. September 9, 2004
  
4. Which of the following is not a political party in Nigeria?
  - A. CPC
  - B. NDDP
  - C. ANPP
  - D. CAN
  
5. The legislature, judiciary, and executive are collectively called the\_\_\_\_\_.
  - A. tiers of government

- B. arms of government
- C. systems of government
- D. ranks of government
- E. aids of government

6. A state of emergency may be declared under the following circumstances, except\_\_\_\_\_.

- A. a holy war
- B. a period of civil unrest
- C. a military regime
- D. a man-made disaster
- E. natural disaster

7. The society for the abolition of slave trade was established in the year\_\_\_\_\_.

- A. 1442
- B. 1633
- C. 1834
- D. 1777

8. The Federal Capital Territory of Nigeria, Abuja was formally established in\_\_\_\_\_.

- A. 1991
- B. 1989
- C. 1990
- D. 1985

9. The States in Nigeria were increased from 30 to 36 on the\_\_\_\_\_.

- A. 27th May 1996
- B. 1st October 1996



- C. 1st May 1996
- D. 29th May 1996
- E. None of the above

10. Which of these club sides won the 2009 UEFA championships

- A. Manchester United
- B. Chelsea
- C. Arsenal
- D. Manchester City
- E. Barcelona

# ANSWERS/EXPLANATION

NUMERICAL ANSWERS				
1.D	2.B	3.A	4.C	5.B
6.B	7.B	8.D	9.A	10.A

## EXPLANATIONS

1. The number of each employee is not given, so working out totals is not possible.
2. In the UK, 64 partners at £738 each is £47,232. In France, 264 partners at £691 each is £182,424.
3. The graph shows that in 1993, both tourism and business had 120 million.
4. From the graph we see that business journeys = 110 million, and Education journeys = 70 million.
5. Work out what percentage 130 million is of 520 million.  $130 \div 520 = 0.25$ .
6. **Step 1** – Calculate the % change in value for each currency between Weeks 1 and 4  
Euro:  $(1.34 - 1.20) / 1.20 = 0.117$ . Note: some people find it quicker to calculate  $1.34 / 1.2$  but both methods produce the same answer.  
US \$:  $(1.84 - 1.64) / 1.64 = 0.122$   
Japanese Yen:  $(135.0 - 123.2) / 123.2 = 0.096$   
South African Rand:  $(13.6 - 13.4) / 13.4 = 0.015$   
Thus the correct answer is (B), US \$
7. **Step 1** – Calculate the profit for online camera sales  
 $15\% \times £553,000 = £82,950$

**Step 2** – Calculate the profit for High Street camera sales

$$£82,950 \times 7 / 9 = £64,517$$

Thus the correct answer is (B), £64,517

8. **Step 1** – Calculate the quarterly expense budgets for each Department (excluding IT which is

not shown in the answer options)

$$\text{HR: } 6,500 / 4 = 1,625$$

$$\text{Marketing: } 16,000 / 4 = 4,000$$

$$\text{Sales: } 22,500 / 4 = 5,625$$

$$\text{Finance: } 20,000 / 4 = 5,000$$

$$\text{R\&D: } 6,000 / 4 = 1,500$$

**Step 2** – Compare to the Quarter 4 figures for each Dept.

$$\text{HR: } 1,625 - 1,346 = £279$$

Marketing is over budget

$$\text{Sales: } 5,625 - 5,245 = £380$$

$$\text{Finance: } 5,000 - 4,463 = £537$$

R&D is over budget

Thus the correct answer is (D), Finance

9. **Step 1** – Calculate Year 2's investments in North American and European Equities

$$\text{North American: } \$4.5\text{million} \times 8\% = \$360,000$$

$$\text{European: } \$4.5\text{million} \times 12\% = \$540,000$$

**Step 2** - Calculate Year 2's decrease compared to Year 1

North American change + European change

$$= (\$400,000 - \$360,000) + (\$600,000 - \$540,000)$$

$$= \$100,000$$

Thus the correct answer is (A), \$100,000

10. **Step 1** – Calculate the proportional change in the Growth Fund between Year 1 and 2

$$(4.8 - 4.5) / 4.8 = - 6.25\%$$

**Step 2** – Apply this % to calculate the growth Fund value each year up to Year 6

$$\text{Year 3: } 93.75\% \times 4.5 = 4.2188$$

$$\text{Year 4: } 93.75\% \times 4.2188 = 3.955$$

$$\text{Year 5: } 93.75\% \times 3.955 = 3.708$$

$$\text{Year 6: } 93.75\% \times 3.708 = \$3.476 \text{ million}$$

Thus the correct answer is (A), \$3.48 million

## QUANTITATIVE ANSWERS

1. A	2. D	3. A	4. D	5. B
6. A	7. E	8. E	9. D	10.A

### EXPLANATION

1. Solution: A

Let, the original duration of flight be (t) hrs.

∴ Average Speed = Total Distance / Time

Total Distance of the flight is 600 km.

So, original average speed =  $600/t$

Due to bad weather speed of trip is reduced by 200 km/hr and time of flight is increased by 30 minutes i.e. 0.5 hr.

∴ Reduced average speed =  $(600/t) - 200$

And New duration of flight =  $(t + 0.5)$  hrs

So, the new average speed =  $600 / (t + 0.5)$

Equating,

$$\Rightarrow 600t - 200 = 600(t + 0.5) \Rightarrow 3t - 1 = 3t + 0.5 \Rightarrow 3 - t = 3t + 0.5$$

$$\Rightarrow t^2 + 0.5t - 1.5 = 0$$

$$\Rightarrow 2t^2 + t - 3 = 0$$

$$\Rightarrow 2t^2 - 2t + 3t - 3 = 0$$

$$\Rightarrow (t - 1)(2t + 3) = 0$$

$$\Rightarrow (t - 1) = 0$$

$$\therefore t = 1 \text{ hr}$$

2. Solution: D

$$9x - 3y = 12 \dots\dots\dots(i)$$

$$3x - 5y = 7 \dots\dots\dots(ii)$$

Multiplying eq. (ii) by (-3)

$$\Rightarrow -3 ( 3x - 5y = 7 )$$

$$\Rightarrow -9x + 15y = -21 \dots\dots\dots(iii)$$

Adding equation (iii) & Equation (i)

$$( 9x - 3y ) + ( -9x + 15y ) = 12 + (-21)$$

$$\Rightarrow 9x - 3y -9x + 15y = -9$$

$$\Rightarrow 12y = -9$$

$$\Rightarrow y = (-9/12) \dots\dots\dots (iv)$$

Putting equation (iv) in equation (i)

$$\Rightarrow 9x - 3(-9/12) = 12$$

$$\Rightarrow 9x + (9/4) = 12$$

$$\Rightarrow 9x = 12 - (9/4) = (39 / 4)$$

$$\Rightarrow x = (13 /12) \dots\dots\dots(v)$$

Putting Values of x, y from eq (iv) & (v) respectively in required expression

$$\Rightarrow 6x -2y = ?$$

$$\Rightarrow 6(13/12) - 2(-9/12) = ?$$

$$\Rightarrow 39/6 + 9/6 = ?$$

$$\Rightarrow 48 / 6 = ?$$

$$\Rightarrow 8 = ?$$

3. Solution: A

We are given  $986 \times 237 + 986 \times 863$

Hence taking 986 common

We have  $986 \times (237 + 863)$

$$= 986 \times 1100$$

$$= 108460018$$

4. Solution: D

In one min work done by A =  $1/20$

In one min work done by B =  $1/30$

In one min work done by C =  $1/40$

∴ A and B both fill the tank and C empty the tank

∴ Total work done in one min to fill the tank =  $1/20 + 1/30 - 1/40 = 6+4-3/120 = 7/120$

∴ Time take to fill the tank =  $120/7$  mins

5. Solution: B

Let the cost price be x

Discount = 30%

New Price = Cost Price - Discount

New Price =  $x - (30/100)x = (70/100)x = (7/10)x$

Now the New Price =  $(7/10)x$

% increase to bring it back to its original price (i.e. x) = y

⇒  $(7/10)x + (y/100) \times (7/10)x = x$

⇒  $(7/10) + (y/100) \times (7/10) = 1$

⇒  $(y/100) \times (7/10) = (3/10)$

⇒  $y = (3/7) \times 100 = 42.85\%$

6. Solution: A

Selling Price = Cost Price + Profit

Cost Price = 60

Profit = 10%

Selling price =  $60 + (10/100) \times (60)$

Selling price =  $60 + 6$

Selling price = 66

Hence Option (A)

7. Solution: E

Let the Marked price of the object is \$.100

Given that company gives 25% discount, the object is sold at 75% price =  $0.75 \times 100 = \$75$

$\therefore \$75$  fetches 25% profit, this implies  $25/100 = (75 - \text{Cost})/\text{Cost}$  [Cost is cost incurred by company]

[From percentage gain formula, Percentage profit =  $((\text{Selling price} - \text{cost})/\text{Cost}) \times 100$ ]

$$0.25 \times \text{cost} = 75 - \text{cost}$$

$$\Rightarrow \text{Cost} = 75/1.25$$

$$\Rightarrow \text{Cost} = \$60$$

Now the company gives only 10% discount  $\Rightarrow$  Selling price =  $0.90 \times 100 = \$90$

$$\text{Profit made} = \$90 - \$60 = \$30$$

$$\text{Profit Percentage} = (30/60) \times 100 = 50\%$$

8. Solution: E

$$\text{Ratio of their profit} = 1800 : 3000 : 4800 = 3 : 5 : 8$$

As they receive profit in the ratio 3 : 5 : 8, their capital will also be divided in that ratio

So, the investment brought in by the second person will be in the ratio of 5/16 of the entire capital

$$= (5/16) \times 80000 = 25000$$

So, investment of 2nd person = \$ 25000

9. Solution: D

Amount of work George can do in one hour =  $1/8$

Amount of work Hari can do in one hour =  $1/12$

Amount of work Paul can do in one hour =  $1/10$

Amount of work all together can do in one hour =  $(1/8) + (1/10) + (1/12) = 37/120$

All three work for two hours i.e. from 9 am to 11 am

$$\Rightarrow \text{Work done} = 2 \times (37/120) = 37/60$$

$$\text{Remaining work} = 1 - (37/60) = 23/60$$

$$\text{Amount of work Paul and Hari can do in one hour} = (1/10) + (1/12) = 11/60$$

$$\text{Time taken by Paul and Hari to complete } 23/60 \text{ of work} = 23/11 \text{ hours.}$$

$$= 2 \text{ hours and } (60/11) \text{ minutes.} = 2 \text{ hours (approximating)}$$

So the work gets completed by 11 am + 2 hours = 1 pm

10. Solution: A

We have the volume of the cylinder as  $\pi r^2 h$

We have radius = diameter/2 = 14/2 = 7 and height = 7

Hence, volume of cylinder =  $\pi \times 7 \times 7 \times 7$

$$= 343 \pi$$

We also know that volume of cone =  $\pi r^2 h/3$

We have volume of cone = Volume of cylinder

$$\text{Hence } 343 \pi = \pi r^2 h/3$$

$$\Rightarrow 343 \times 3 = 6 \times 6 \times h$$

$$\Rightarrow 1029 = 36 \times h$$

$$\Rightarrow h = 1029/36$$

$$\Rightarrow h = 28.58 \text{ cm}$$



VERBAL ANSWERS				
1. B	2. C	3. A	4. B	5. B
6. A	7. D	8. C	9. B	10. C

## EXPLANATION

1. Solution: B

'Past perfect tense' uses 'had + past participle' form of the verb, same as given in the sentence.

2. Solution: C

'A' or 'an' are sometimes used in the vague sense of the certain, it means that we only have some basic information about the person and it is not enough to make it a certain object. Here we only know that the person was old and since it starts with a vowel sound, 'an' is the best fit.

3. Solution: A

'Restive' is used to define something which is restless and impatient. So, out of the choices, the most appropriate and closest to opposite of 'impatient' is being patient. So, the antonym for restive is patient. Hence, option 1 is correct.

4. Solution: B

Being blessed means to be in a good position in some field (in this case, work), which many others do not get a chance to. One cannot say a person is blessed if he/she gets paid to do the work which they would like to avoid or they dread/ hate/ dislike. Hence, only the word 'like' is most suitable.

5. Solution: B

'Pear' is a fruit. 'Pare' is 'to peel or trim something'. 'Purse' is an accessory used for holding items. 'Pair' means 'two or a couple'. From the terms, the most appropriate is 'pair' as it is generally used for trousers or jeans. So, option 2 is correct.

6. Solution: A

The sentence is talking about a person who will be at a place in a few minutes. 'Heal' means to cure something or bring it back to health. 'Heel' means the part of the foot below the ankle. 'Hell' is defined as an imaginary place of evil and suffering. 'He'll' means 'he will' which is appropriate here in the sentence as it is defining a person. Hence, option 1 is correct.

7. Solution: D

'Audacity' means extreme boldness or fearlessness or daring.

Quivering – a shaky motion

Patricide – killing one's own father

Bravado - a swaggering show of courage

Cowardice - the trait of lacking courage

8. Solution: C

Talkative – talking too much.

Chatty - liking to talk a lot in a friendly, informal way.

Voluble – speaking a lot, with confidence and enthusiasm.

Loquacious – talking a lot.

9. Solution: B

'In' and 'on' cannot be used before a verb in this context. Hence, between making and talking, 'talking' is more appropriate as we cannot 'make' nonsense.

10. Solution: C

Legends talk about the past. Thus the verb must be of past tense. The right past tense form of 'rise' is 'rose'.

## **BANKING ANSWERS**

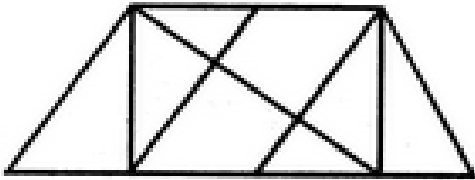
1. B	2. B	3. A	4. B	5. B
6. D	7. B	8. A	9. C	10.C

## GENERAL KNOWLEDGE ANSWERS

1. E	2. C	3. A	4. B	5. B
6. C	7. D	8. A	9. B	10. A
11. B	12. D	13. B	14. A	15. D

# ANALYTICAL REASONING

1. Find the number of triangles in the given figure.



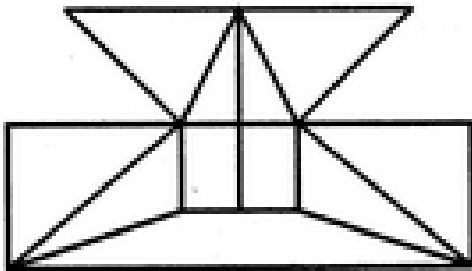
A.8

B.10

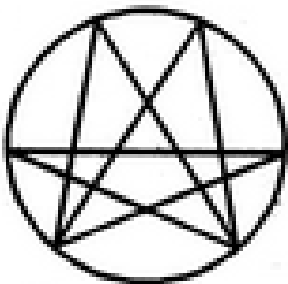
C.12

D.14

2. Find the minimum number of straight lines required to make the given figure.



3. Find the number of triangles in the given figure.

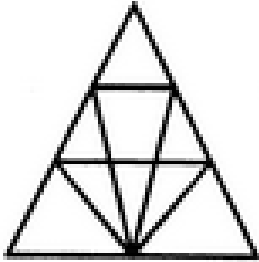


B.24

C.26

D.28

4. Find the number of triangles in the given figure.



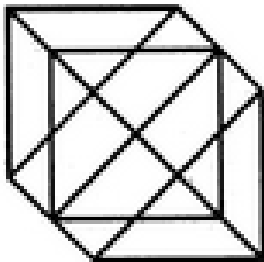
A.12

B.18

C.22

D.26

5. Find the number of triangles in the given figure.



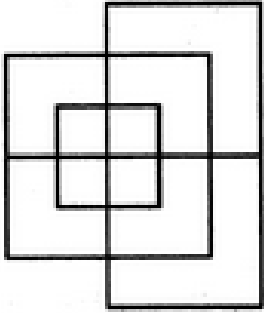
A.18

B.20

C.24

D.27

6. Find the minimum number of straight lines required to make the given figure.



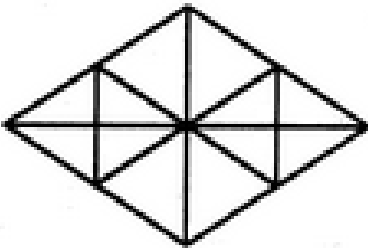
A.13

B.15

C.17

D.19

7. Find the number of triangles in the given figure.



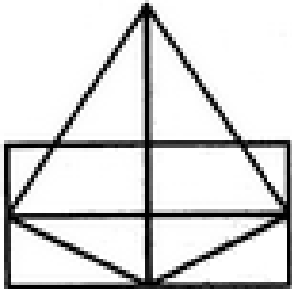
A.16

B.22

C.28

D.32

8. Find the number of triangles in the given figure.



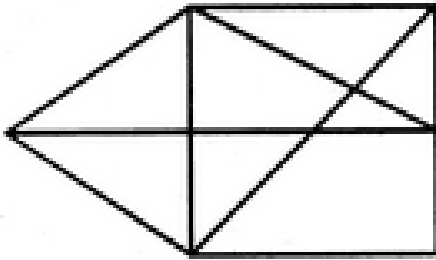
A.11

B.13

C.15

D.17

9. Find the number of triangles in the given figure.



A.12

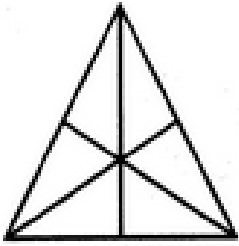
B.13

C.14

D.15



10. Find the number of triangles in the given figure.



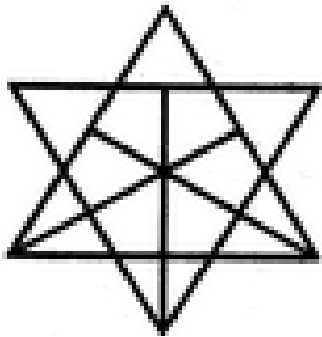
A.16

B.13

C.9

D.7

11. Find the number of triangles in the given figure.



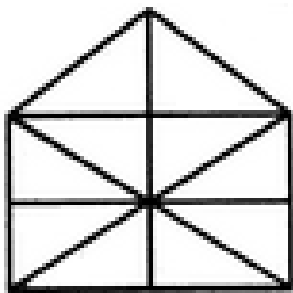
A.21

B.23

C.25

D.27

12. Find the number of triangles in the given figure.



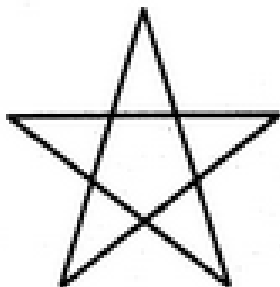
A.10

B.19

C.21

D.23

13. Find the number of triangles in the given figure.



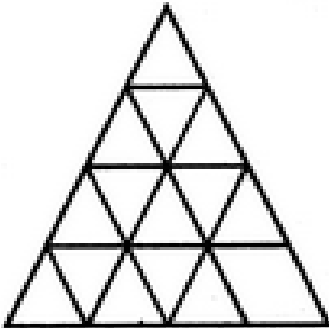
A.5

B.6

C.8

D.10

14. Find the minimum number of straight lines required to make the given figure.



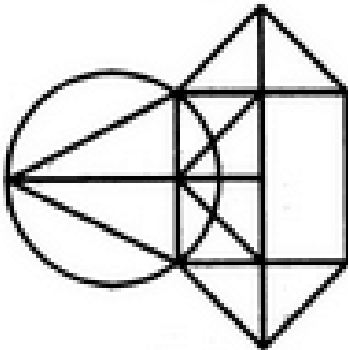
A.9

B.11

C.15

D.16

15. Find the number of triangles in the given figure.



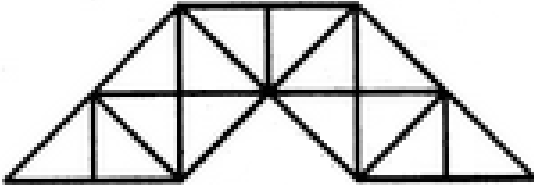
A.10

B.12

C.14

D.16

16. Find the number of triangles in the given figure.



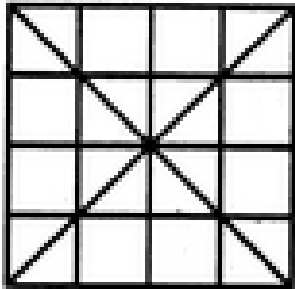
A.23

B.27

C.29

D.31

17. Find the number of triangles in the given figure.



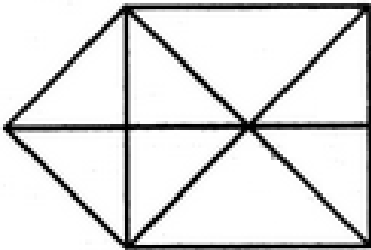
A.36

B.40

C.44

D.48

18. Find the number of triangles in the given figure.



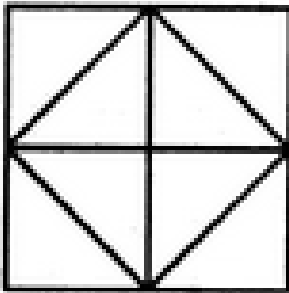
A. 15

B. 16

C. 17

D. 18

19. Find the number of triangles in the given figure.



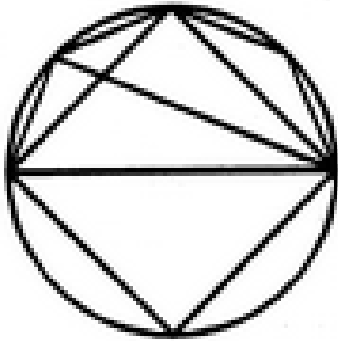
A. 8

B. 10

C. 12

D. 14

20. Find the number of triangles in the given figure.



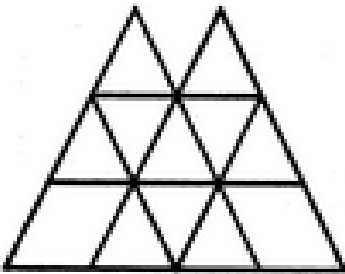
A.8

B.10

C.11

D.12

21. Find the number of triangles in the given figure.



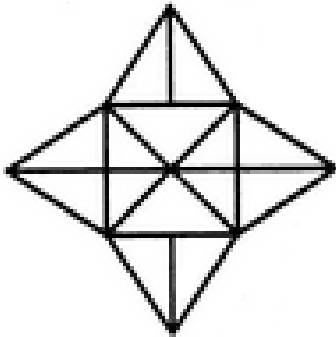
A.16

B.18

C.14

D.15

22. Find the number of triangles in the given figure.



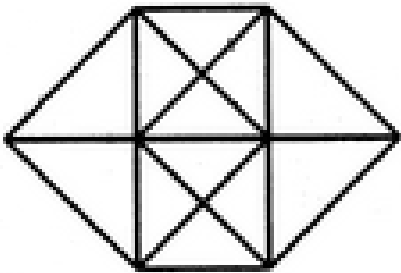
A.18

B.20

C.28

D.34

23. Find the number of triangles in the given figure.



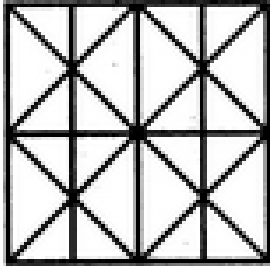
A.20

B.24

C.28

D.32

24. Find the minimum number of straight lines required to make the given figure.



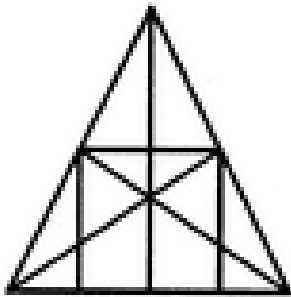
A. 11

B. 14

C. 16

D. 17

25. What is the number of straight lines and the number of triangles in the given figure?



A. 10 straight lines and 34 triangles

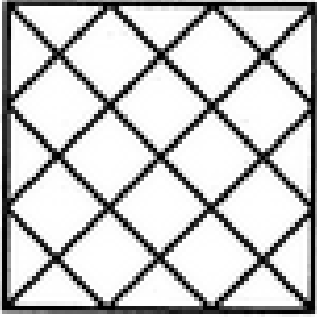
B. 9 straight lines and 34 triangles

C. 9 straight lines and 36 triangles

D. 10 straight lines and 36 triangles

26. Find the number of triangles in the given figure.





A.28

B.32

C.36

D.40

27. What is the number of triangles that can be formed whose vertices are the vertices of an octagon but have only one side common with that of octagon?

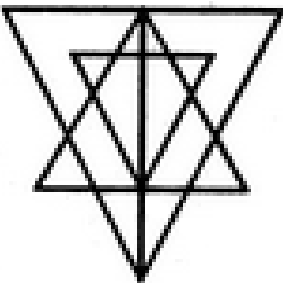
A.64

B.32

C.24

D.16

28. Find the number of triangles in the given figure.



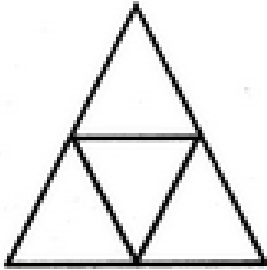
A.27

B.25

C.23

D.21

29. Find the number of triangles in the given figure.



A.4

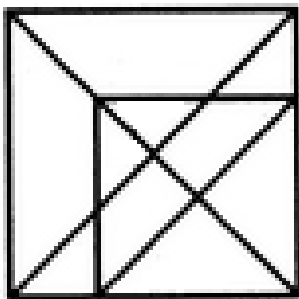
B.5

C.6

D.7

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30. Find the number of triangles in the given figure.



A.16

B.18

C.19

D.21

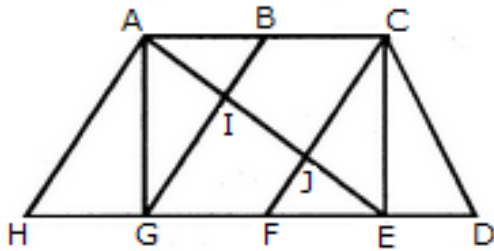


# ANALYTICAL REASONING – ANSWERS

1. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are AHG, AIG, AIB, JFE, CJE and CED i.e. 6 in number.

The triangles composed of two components each are ABG, CFE, ACJ and EGI i.e. 4 in number.

The triangles composed of three components each are ACE, AGE and CFD i.e. 3 in number.

There is only one triangle i.e. AHE composed of four components.

Therefore, There are  $6 + 4 + 3 + 1 = 14$  triangles in the given figure.

A.16

B.17

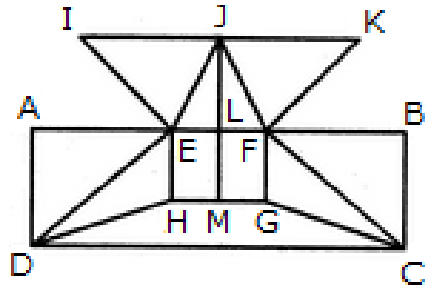
C.18

D.19

2. Answer: Option B

Explanation:

The figure may be labelled as shown.



The horizontal lines are IK, AB, HG and DC i.e. 4 in number.

The vertical lines are AD, EH, JM, FG and BC i.e. 5 in number.

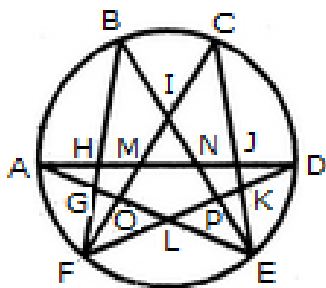
The slanting lines are IE, JE, JF, KF, DE, DH, FC and GC i.e. 8 is number.

Thus, there are  $4 + 5 + 8 = 17$  straight lines in the figure.

3. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are AGH, GFO, LFO, DJK, EKP, PEL and IMN i.e. 7 in number.

The triangles having two components each are GFL, KEL, AMO, NDP, BHN, CMJ, NEJ and HFM i.e. 8 in number.

The triangles having three components each are IOE, IFP, BIF and CEI i.e. 4 in number.

The triangles having four components each are ANE and DMF i.e. 2 in number.

The triangles having five components each are FCK, BGE and ADL i.e. 3 in number.

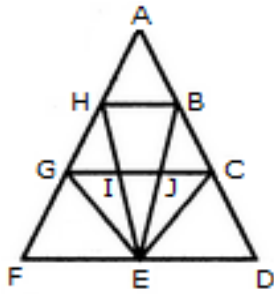
The triangles having six components each are BPF, COE, DHF and AJE i.e. 4 in number.

Total number of triangles in the figure =  $7 + 8 + 4 + 2 + 3 + 4 = 28$ .

4. Answer: Option B

Explanation:

The figure may be labelled as shown.



The simplest triangles are AHB, GHI, BJC, GFE, GIE, IJE, CEJ and CDE i.e. 8 in number.

The triangles composed of two components each are HEG, BEC, HBE, JGE and ICE i.e. 5 in number.

The triangles composed of three components each are FHE, GCE and BED i.e. 3 in number.

There is only one triangle i.e. AGC composed of four components.

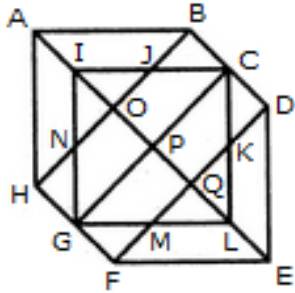
There is only one triangle i.e. AFD composed of nine components.

Thus, there are  $8 + 5 + 3 + 1 + 1 = 18$  triangles in the given figure.

5. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are IJO, BCJ, CDK, KQL, MLQ, GFM, GHN and NIO i.e. 8 in number.

The triangles composed of two components each are ABO, AHO, NIJ, IGP, ICP, DEQ, FEQ, KLM, LCP and LGP i.e.10 in number.

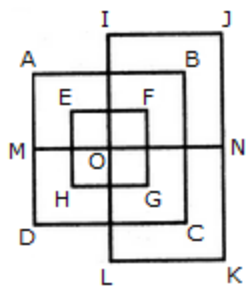
The triangles composed of four components each are HAB, DEF, LGI, GIC, ICL and GLC i.e. 6 in number.

Total number of triangles in the figure =  $8 + 10 + 6 = 24$ .

6. Answer: Option A

Explanation:

The figure may be labelled as shown.



The horizontal lines are IJ, AB, EF, MN, HG, DC and LK i.e. 7 in number.

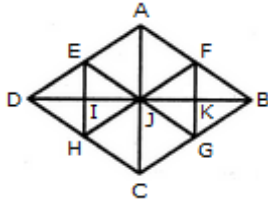
The vertical lines are AD, EH, IL, FG, BC and JK i.e. 6 in number.

Thus, there are  $7 + 6 = 13$  straight lines in the figure.

7. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are AFJ, FJK, FKB, BKG, JKG, JGC, HJC, HIJ, DIH, DEI, EIJ and AEJ i.e. 12 in number.

The triangles composed of two components each are JFB, FBG, BJG, JFG, DEJ, EJH, DJH and DEH i.e. 8 in number.

The triangles composed of three components each are AJB, JBC, DJC and ADJ i.e. 4 in number.

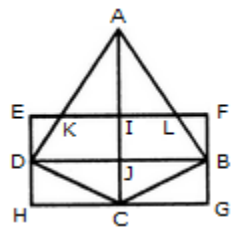
The triangles composed of six components each are DAB, ABC, BCD and ADC i.e. 4 in number.

Thus, there are  $12 + 8 + 4 + 4 = 28$  triangles in the figure.

8. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are AKI, AIL, EKD, LFB, DJC, BJC, DHC and BCG i.e. 8 in number.

The triangles composed of two components each are AKL, ADJ, AIB and DBC i.e. 4 in number.



The triangles composed of the three components each are ADC and ABC i.e. 2 in number.

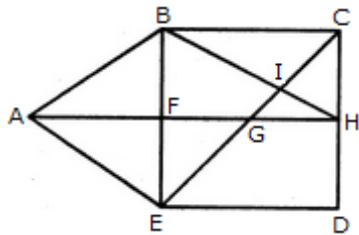
There is only one triangle i.e. ADB composed of four components.

Thus, there are  $8 + 4 + 2 + 1 = 15$  triangles in the figure.

9. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABF, BIC, CIH, GIH, FGE and AFE i.e. 6 in number.

The triangles composed of two components each are ABE, AGE, BHF, BCH, CGH and BIE i.e. 6 in number.

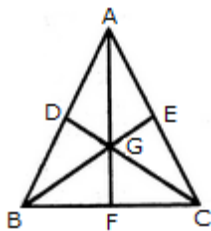
The triangles composed of three components each are ABH, BCE and CDE i.e. 3 in number.

Hence, the total number of triangles in the figure =  $6 + 6 + 3 = 15$ .

10. Answer: Option A

Explanation:

The figure may be labelled as shown.



The simplest triangles are AGE, EGC, GFC, BGF, DGB and ADG i.e. 6 in number.

The triangles composed of two components each are AGC, BGC and ABG i.e. 3 in number.

The triangles composed of three components each are AFC, BEC, BDC, ABF, ABE and DAC i.e. 6 in number.

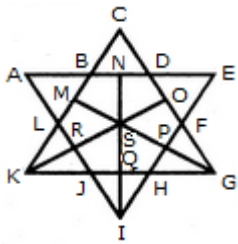
There is only one triangle i.e. ABC composed of six components.

Thus, there are  $6 + 3 + 6 + 1 = 16$  triangles in the given figure.

11. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABL, BCD, DEF, FGP, PGH, QHI, JQI, KRJ and LRK i.e. 9 in number.

The triangles composed of two components each are OSG, SGQ, SPI, SRI, KSQ, KMS, FGH, JHI and JKL i.e. 9 in number.

There is only one triangle i.e. KSG which is composed of four components.

The triangles composed of five components each are NEI, ANI, MCG and KCO i.e. 4 in number.

The triangles composed of six components each are GMK and KOG i.e. 2 in number.

There is only one triangle i.e. AEI composed of ten components.

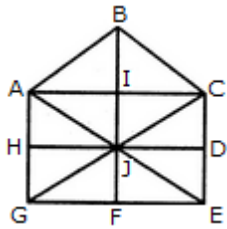
There is only one triangle i.e. KCG composed of eleven components.

Therefore, Total number of triangles in the given figure =  $9 + 9 + 1 + 4 + 2 + 1 + 1 = 27$ .

12. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABI, BIC, AIJ, CIJ, AHJ, CDJ, JHG, JDE, GJF and EJF i.e. 10 in number.

The triangles composed of two components each are ABC, BCJ, ACJ, BAJ, AJG, CJE and GJE i.e. 7 in number.

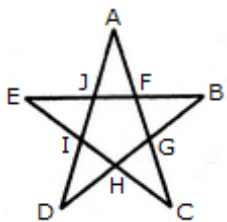
The triangles composed of four components each are ACG, ACE, CGE and AGE i.e. 4 in number.

Total number of triangles in the figure =  $10 + 7 + 4 = 21$ .

13. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are AJF, FBG, GCH, HDI and IEJ i.e. 5 in number.

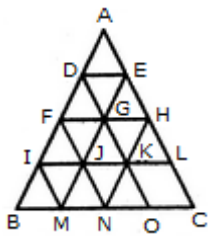
The triangles composed of three components each EBH, AIC, EFC, ADG and BJD i.e. 5 in number.

Thus, there are  $5 + 5 = 10$  triangles in the figure.

14. Answer: Option B

Explanation:

The figure may be labelled as shown.



The horizontal lines are DE, FH, IL and BC i.e. 4 in number.

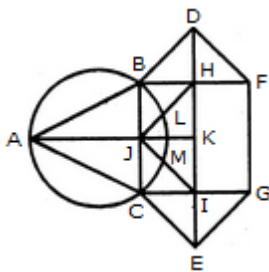
The slanting lines are AC, DO, FN, IM, AB, EM and HN i.e. 7 in number.

Thus, there are  $4 + 7 = 11$  straight lines in the figure.

15. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABJ, ACJ, BDH, DHF, CIE and GIE i.e. 6 in number.

The triangles composed of two components each are ABC, BDF, CEG, BHJ, JHK, JKI and CJI i.e. 7 in number.

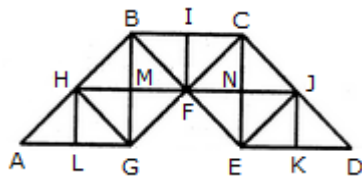
There is only one triangle JHI which is composed of four components.

Thus, there are  $6 + 7 + 1 = 14$  triangles in the given figure.

16. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are AHL, LHG, GHM, HMB, GMF, BMF, BIF, CIF, FNC, CNJ, FNE, NEJ, EKJ and JKD i.e. 14 in number.

The triangles composed of two components each are AGH, BHG, HBF, BFG, HFG, BCF, CJF, CJE, JEF, CFE and JED i.e. 11 in number.

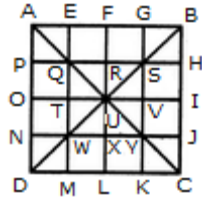
The triangles composed of four components each are ABG, CBG, BCE and CED i.e. 4 in number.

Total number of triangles in the given figure =  $14 + 11 + 4 = 29$ .

17. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are APQ, AEQ, QTU, QRU, BGS, BHS, RSU, SUV, TUW, UWX, NWD, WDM, UVY, UXY, JCY and YKC i.e. 16 in number.

The triangles composed of two components each are QUW, QSU, SYU and UWY i.e. 4 in number.

The triangles composed of three components each are AOU, AFU, FBU, BIU, UIC, ULC, ULD and OUD i.e. 8 in number.

The triangles composed of four components each are QYW, QSW, QSY and SYW i.e. 4 in number.

The triangles composed of six components each are AUD, ABU, BUC and DUC i.e. 4 in number.

The triangles composed of seven components each are QMC, ANY, EBW, PSD, CQH, AGY, DSK and BJW i.e. 8 in number.

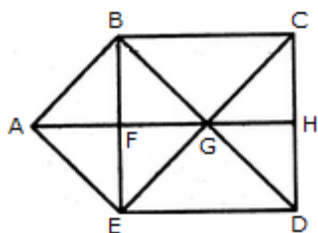
The triangles composed of twelve components each are ABD, ABC, BCD and ACD i.e. 4 in number.

Thus, there are  $16 + 4 + 8 + 4 + 4 + 8 + 4 = 48$  triangles in the figure.

18. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABF, BFG, BCG, CGH, GHD, GED, EFG and AFE i.e. 8 in number.

The triangles composed of two components each are ABG, BGE, AGE, ABE and GCD i.e. 5 in number.

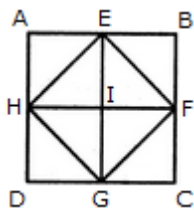
The triangles composed of three components each are BCD, CDE, BED and BCE i.e. 4 in number.

Thus, there are  $8 + 5 + 4 = 17$  triangles in the figure.

19. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are AEH, EHI, EBF, EFI, FGC, IFG, DGH and HIG i.e. 8 in number.

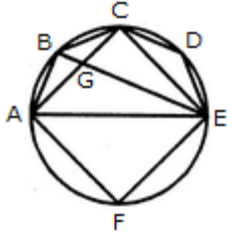
The triangles composed of two components each are HEF, EFG, HFG and EFG i.e. 4 in number.

Thus, there are  $8 + 4 = 12$  triangles in the figure.

20. Answer: Option B

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABG, BCG, CGE, CDE, AGE and AEF i.e. 6 in number.

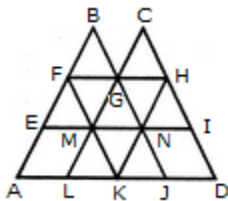
The triangles composed of two components each are ABE, ABC, BCE and ACE i.e. 4 in number.

There are  $6 + 4 = 10$  triangles in the figure.

21. Answer: Option B

Explanation:

The figure may be labelled as shown.



The simplest triangles are BFG, CGH, EFM, FMG, GMN, GHN, HNI, LMK, MNK and KNJ i.e. 10 in number.

The triangles composed of three components each are FAK and HKD i.e. 2 in number.

The triangles composed of four components each are BEN, CMI, GLJ and FHK i.e. 4 in number.

The triangles composed of eight components each are BAJ and OLD i.e. 2 in number.

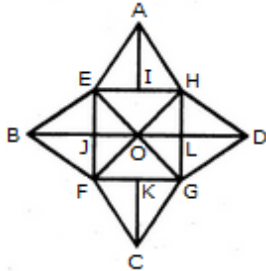
Thus, there are  $10 + 2 + 4 + 2 = 18$  triangles in the given figure.



22. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are AEI, AIH, BEJ, BJE, CFK, CKG, DGL, DLH, EOJ, FOJ, FOG, LOG, HOL and HOE i.e. 14 in number.

The triangles composed of two components each are EAH, FBE, BEO, EOF, BFO, FCG, GDH, HOD, HOG and GOD i.e. 10 in number.

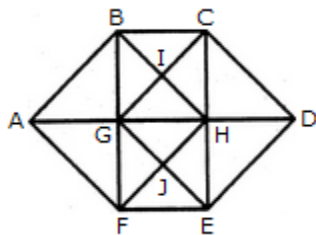
The triangles composed of three components each are EFH, EHG, FGH and EFG i.e. 4 in number.

Thus, there are  $14 + 10 + 4 = 28$  triangles in the given figure.

23. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are ABG, BIG, BIC, CIH, GIH, CDH, HED, GHJ, HJE, FEJ, GFJ and AGF i.e. 12 in number.

The triangles composed of two components each are ABF, CDE, GBC, BCH, GHG, BHG, GHF, GHE, HEF and GEF i.e. 10 in number.

The triangles composed of three components each are ABH, AFH, CDG and GDE i.e. 4 in number.

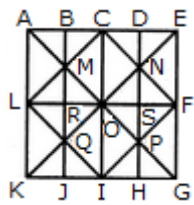
The triangles composed of four components each are BHF and CGE i.e. 2 in number.

Total number of triangles in the figure =  $12 + 10 + 4 + 2 = 28$ .

24. Answer: Option B

Explanation:

The figure may be labelled as shown.



The horizontal lines are AK, BJ, CI, DH and EG i.e. 5 in number.

The vertical lines are AE, LF and KG i.e. 3 in number.

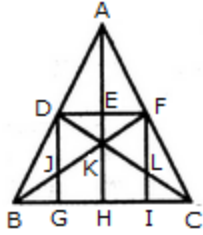
The slanting lines are LC, CF, FI, LI, EK and AG i.e. 6 in number.

Thus, there are  $5 + 3 + 6 = 14$  straight lines in the figure.

25. Answer: Option C

Explanation:

The figure may be labelled as shown.



The Horizontal lines are DF and BC i.e. 2 in number.

The Vertical lines are DG, AH and FI i.e. 3 in number.

The Slanting lines are AB, AC, BF and DC i.e. 4 in number.

Thus, there are  $2 + 3 + 4 = 9$  straight lines in the figure.

Now, we shall count the number of triangles in the figure.

The simplest triangles are ADE, AEF, DEK, EFK, DJK, FLK, DJB, FLC, BJK and LIC i.e. 10 in number.

The triangles composed of two components each are ADF, AFK, DFK, ADK, DKB, FCK, BKH, KHC, DGB and FIC i.e. 10 in number.

The triangles composed of three components each are DFJ and DFL i.e. 2 in number.

The triangles composed of four components each are ABK, ACK, BFI, CDG, DFB, DFC and BKC i.e. 7 in number.

The triangles composed of six components each are ABH, ACH, ABF, ACD, BFC and CDB i.e. 6 in number.

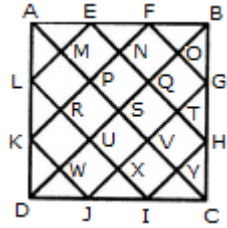
There is only one triangle i.e. ABC composed of twelve components.

There are  $10 + 10 + 2 + 7 + 6 + 1 = 36$  triangles in the figure.

26. Answer: Option C

Explanation:

The figure may be labelled as shown.



The simplest triangles are AML, LRK, KWD, DWJ, JXI, IYC, CYH, HTG, GOB, BOF, FNE and EMA i.e. 12 in number.

The triangles composed of two components each are AEL, KDJ, HIC and FBG i.e. 4 in number.

The triangles composed of three components each are APF, EQB, BQH, GVC, CVJ, IUD, DUL and KPA i.e. 8 in number.

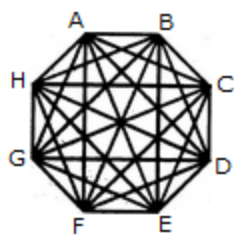
The triangles composed of six components each are ASB, BSC, CSD, DSA, AKF, EBH, CGJ and IDL i.e. 8 in number.

The triangles composed of twelve components each are ADB, ABC, BCD and CDA i.e. 4 in number.

Total number of triangles in the figure =  $12 + 4 + 8 + 8 + 4 = 36$ .

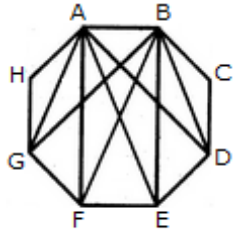
27. Answer: Option B

Explanation:



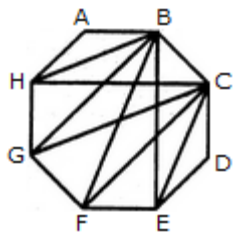
(Fig.1)

When the triangles are drawn in an octagon with vertices same as those of the octagon and having one side common to that of the octagon, the figure will appear as shown in (Fig. 1).



(Fig. 2)

Now, we shall first consider the triangles having only one side AB common with octagon ABCDEFGH and having vertices common with the octagon (See Fig. 2). Such triangles are ABD, ABE, ABF and ABG i.e. 4 in number.



(Fig.3)

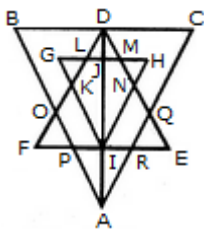
Similarly, the triangles having only one side BC common with the octagon and also having vertices common with the octagon are BCE, BCF, BCG and BCH (as shown in Fig. 3). i.e. There are 4 such triangles.

This way, we have 4 triangles for each side of the octagon. Thus, there are  $8 \times 4 = 32$  such triangles.

28. Answer: Option A

Explanation:

The figure may be labelled as shown.



The simplest triangles are GLK, DLJ, DJM, HMN, QRE, IRA, IPA and FPO i.e. 8 in number.

The triangles having two components each are BDO, CDQ, DLM, PRA, KFI, NEI, HJI, GJI, DKI and DNI i.e. 10 in number.

The triangles having four components each are DIE, DFI, DOA, DQA and GHI i.e. 5 in number.

The triangles having six components each are DCA and DBA i.e. 2 in number.

DEF is the only triangle having eight components.

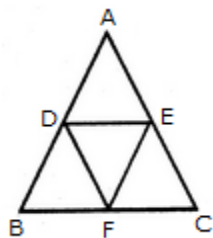
ABC is the only triangle having twelve components.

Thus, there are  $8+10+ 5 + 2+1 + 1 = 27$  triangles in the figure.

29. Answer: Option B

Explanation:

The figure may be labelled as shown.



The simplest triangles are ADE, BDF, DEF and EFC i.e. 4 in number.

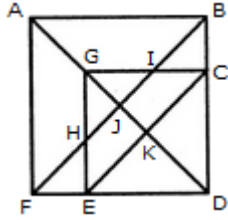
There is only one triangle ABC composed of four components.

Thus, there are  $4+1 = 5$  triangles in the given figure.

30. Answer: Option D

Explanation:

The figure may be labelled as shown.



The simplest triangles are EFH, BIC, GHJ, GIJ, EKD and CKD i.e. 6 in number.

The triangles composed of two components each are ABJ, AFJ, GCK, GEK, CED and GHI i.e. 6 in number.

The triangles composed of three components each are GCD, GED, DJB and DJF i.e. 4 in number.

The triangles composed of four components each are ABF and GCE i.e. 2 in number.

The triangles composed of five components each are ABD and AFD i.e. 2 in number.

There is only one triangle i.e. FBD composed of six components.

Total number of triangles in the figure =  $6 + 6 + 4 + 2 + 2 + 1 = 21$ .

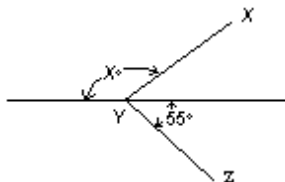
# **OLDER PAST QUESTIONS**



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**QUANTITATIVE REASONING 1****20 Minutes****(20 Questions)**

- The 180 students in a group are to be seated in rows so that there is an equal number of students in each row. Each of the following could be the number of rows EXCEPT
  - 4
  - 20
  - 30
  - 40
  - 90
- A parking garage rents parking spaces for \$10 per week or \$30 per month. How much does a person save in a year by renting by the month rather than by the week?
  - \$140
  - \$160
  - \$220
  - \$240
  - \$260
- If  $y = 5x^2 - 2x$  and  $x = 3$ , then  $y =$ 
  - 24
  - 27
  - 39
  - 51
  - 219
- Of the following, which is the best approximation to  $\sqrt{0.0026}$ ?
  - 0.05
  - 0.06
  - 0.16
  - 0.5
  - 0.6
- At a certain diner, a hamburger and coleslaw cost \$3.59, and a hamburger and french fries cost \$4.40. If french fries cost twice as much as coleslaw, how much do french fries cost?
  - \$0.30
  - \$0.45
  - \$0.60
  - \$0.75
  - \$0.90



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6. If  $\angle XYZ$  in the figure above is a right angle, what is the value of  $x$ ?

- (A) 155
- (B) 145
- (C) 135
- (D) 125
- (E) 110

$$\frac{\left(\frac{a}{b}\right)}{c}$$

7. In the expression above,  $a$ ,  $b$ , and  $c$  are different numbers and each is one of the numbers 2, 3, or 5. What is the least possible value of the expression?

- (A)  $\frac{1}{30}$
- (B)  $\frac{2}{15}$
- (C)  $\frac{1}{6}$
- (D)  $\frac{3}{10}$
- (E)  $\frac{5}{6}$

8. A certain culture of bacteria quadruples every hour. If a container with these bacteria was half full at 10:00 a.m., at what time was it one-eighth full?

- (A) 9:00 a.m.
- (B) 7:00 a.m.
- (C) 6:00 a.m.
- (D) 4:00 a.m.
- (E) 2:00 a.m.

9. Al, Lew, and Karen pooled their funds to buy a gift for a friend. Al contributed \$2 less than  $\frac{1}{3}$  of the cost of the gift and Lew contributed \$2 more than  $\frac{1}{4}$  of the cost. If Karen contributed the remaining \$15, what was the cost of the gift?

- (A) \$24
- (B) \$33
- (C) \$36
- (D) \$43
- (E) \$45

10. What is the total number of integers between 100 and 200 that are divisible by 3?

- (A) 33
- (B) 32

- 
- (C) 31
  - (D) 30
  - (E) 29

11. Which of the following inequalities is equivalent to  $10 - 2x > 18$ ?

- (A)  $x > -14$
- (B)  $x > -4$
- (C)  $x > 4$
- (D)  $x < 4$
- (E)  $x < -4$

12. In 1979 approximately  $\frac{1}{3}$  of the 37.3 million airline passengers traveling to or from the United States used Kennedy Airport. If the number of such passengers that used Miami Airport was  $\frac{1}{2}$  the number that used Kennedy Airport and 4 times the number that used Logan Airport, approximately how many millions of these passengers used Logan Airport that year?

- (A) 18.6
- (B) 9.3
- (C) 6.2
- (D) 3.1
- (E) 1.6

13. A certain basketball team that has played  $\frac{2}{3}$  of its games has a record of 17 wins and 3 losses. What is the greatest number of the remaining games that the team can lose and still win at least  $\frac{3}{4}$  of all of its games?

- (A) 7
- (B) 6
- (C) 5
- (D) 4
- (E) 3

14. Dan and Karen, who live 10 miles apart meet at a cafe that is directly north of Dan's house and directly east of Karen's house. If the cafe is 2 miles closer to Dan's house than to Karen's house, how many miles is the cafe from Karen's house?

- (A) 6
- (B) 7
- (C) 8
- (D) 9
- (E) 10

15. If  $n$  is an integer and  $n = \frac{2 \cdot 3 \cdot 5 \cdot 7 \cdot 11 \cdot 13}{77k}$  then which of the following could be the

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value of  $k$ ?

- (A) 22
- (B) 26
- (C) 35
- (D) 54
- (E) 60

16. There were 36,000 hardback copies of a certain novel sold before the paperback version was issued. From the time the first paperback copy was sold until the last copy of the novel was sold, 9 times as many paperback copies as hardback copies were sold. If a total of 441,000 copies of the novel were sold in all, how many paperback copies were sold?

- (A) 45,000
- (B) 360,000
- (C) 364,500
- (D) 392,000
- (E) 396,900

17. In the formula  $w = \frac{p}{t\sqrt{v}}$ , integers  $p$  and  $t$  are positive constants. If  $w = 2$  when  $v = 1$  and

if  $w = \frac{1}{2}$  when  $v = 64$ , then  $t =$

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 16

18. Last year Mrs. Long received \$160 in dividends on her shares of Company X stock, all of which she had held for the entire year. If she had had 12 more shares of the stock last year, she would have received \$15 more in total annual dividends. How many shares of the stock did she have last year?

- (A) 128
- (B) 140
- (C) 172
- (D) 175
- (E) 200

Month	Average Price per Dozen
April	\$1.26
May	\$1.20
June	\$1.08

19. The table above shows the average (arithmetic mean) price per dozen of the large grade A

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eggs sold in a certain store during three successive months. If  $\frac{2}{3}$  as many dozen were sold in April as in May, and twice as many were sold in June as in April, what was the average price per dozen of the eggs sold over the three-month period?

- (A) \$1.08
- (B) \$1.10
- (C) \$1.14
- (D) \$1.16
- (E) \$1.18

20. If  $y \neq 3$  and  $\frac{3x}{y}$  is a prime integer greater than 2, which of the following must be true?

- I.  $x = y$
- II.  $y = 1$
- III.  $x$  and  $y$  are prime integers.

- (A) None
- (B) I only
- (C) II only
- (D) III only
- (E) I and III

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**QUANTITATIVE REASONING 2****20 Minutes****(20 Questions)**

1. The market value of a certain machine decreased by 30 percent of its purchase price each year. If the machine was purchased in 1982 for its market value of \$8,000, what was its market value two years later?  
(A) \$8,000  
(B) \$5,600  
(C) \$3,200  
(D) \$2,400  
(E) \$800
2. What percent of 50 is 15?  
(A) 30%  
(B) 35%  
(C) 70%  
(D) 300%  
(E)  $333\frac{1}{3}\%$
3. In a certain diving competition, 5 judges score each dive on a scale from 1 to 10. The point value of the dive is obtained by dropping the highest score and the lowest score and multiplying the sum of the remaining scores by the degree of difficulty. If a dive with a degree of difficulty of 3.2 received scores of 7.5, 8.0, 9.0, 6.0, and 8.5, what was the point value of the dive?  
(A) 68.8  
(B) 73.6  
(C) 75.2  
(D) 76.8  
(E) 81.6
4. If  $2x = 3y = 10$ , then  $12xy =$   
(A) 1,200  
(B) 200  
(C) 120  
(D) 40  
(E) 20
5. If Jack walked 5 miles in 1 hour and 15 minutes, what was his rate of walking in miles per hour?  
(A) 4  
(B) 4.5  
(C) 6  
(D) 6.25  
(E) 15

- 
6. Of a certain high school graduating class, 75 percent of the students continued their formal education, and 80 percent of those who continued their formal education went to four-year colleges. If 300 students in the class went to four-year colleges, how many students were in the graduating class?
- (A) 500  
(B) 375  
(C) 240  
(D) 225  
(E) 180
7. What is the least integer greater than  $-2+0.5$ ?
- (A)  $-2$   
(B)  $-1$   
(C)  $0$   
(D)  $1$   
(E)  $2$
8. Which of the following is equivalent to  $\frac{2x+4}{2x^2+8x+8}$  for all values of  $x$  for which both expressions are defined?
- (A)  $\frac{1}{2x^2+6}$   
(B)  $\frac{1}{9x+2}$   
(C)  $\frac{2}{x+6}$   
(D)  $\frac{1}{x+4}$   
(E)  $\frac{1}{x+2}$
9. A certain business printer can print 40 characters per second, which is 4 times as fast as an average printer. If an average printer can print 5 times as fast as an electric typewriter, how many characters per minute can an electric typewriter print?
- (A) 2  
(B) 32  
(C) 50  
(D) 120  
(E) 600
10. When ticket sales began, Pat was the  $n$ th customer in line for a ticket, and customers purchased their tickets at the rate of  $x$  customers per minute. Of the following, which best approximates the time, in minutes, that Pat had to wait in line from the moment ticket sales began?
- (A)  $(n-1)x$

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(B)  $n + x - 1$

(C)  $\frac{n-1}{x}$

(D)  $\frac{x}{n-1}$

(E)  $\frac{n}{x-1}$

11. If 6 gallons of gasoline are added to a tank that is already filled to  $\frac{3}{4}$  of its capacity, the tank is then filled to  $\frac{9}{10}$  of its capacity. How many gallons does the tank hold?

(A) 20

(B) 24

(C) 36

(D) 40

(E) 60

12. A bus trip of 450 miles would have taken 1 hour less if the average speed  $S$  for the trip had been greater by 5 miles per hour. What was the average speed  $S$ , in miles per hour, for the trip?

(A) 10

(B) 40

(C) 45

(D) 50

(E) 55

13.  $10^3$  is how many times  $(0.01)^3$ ?

(A)  $10^6$

(B)  $10^8$

(C)  $10^9$

(D)  $10^{12}$

(E)  $10^{18}$

14. Which of the following groups of numbers could be the lengths of the sides of a right triangle?

I . 1, 4,  $\sqrt{17}$

II . 4, 7,  $\sqrt{11}$

III. 4, 9, 6

(A) I only

(B) I and II only

(C) I and III only

(D) II and III only



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(E) I, II, and III

15. When the stock market opened yesterday, the price of a share of stock  $X$  was  $10\frac{1}{2}$ .

When the market closed, the price was  $11\frac{1}{4}$ . Of the following, which is closest to the percent increase in the price of stock  $X$ ?

- (A) 0.5%
- (B) 1.0%
- (C) 6.7%
- (D) 7.1%
- (E) 7.5%

16. If  $x$  and  $y$  are integers and  $xy^2$  is a positive odd integer, which of the following must be true?

- I.  $xy$  is positive.
- II.  $xy$  is odd.
- III.  $x + y$  is even.

- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) II and III



17. The figure above shows the dimensions of a rectangular box that is to be completely wrapped with paper. If a single sheet of paper is to be used without patching, then the dimensions of the paper could be

- (A) 17 in by 25 in
- (B) 21 in by 24 in
- (C) 24 in by 12 in
- (D) 24 in by 14 in
- (E) 26 in by 14 in

18. 
$$x - y = 3$$
$$2x = 2y + 6$$

The system of equations above has how many solutions?

- (A) None
- (B) Exactly one
- (C) Exactly two

- 
- (D) Exactly three  
(E) Infinitely many

19. If  $M$  and  $N$  are positive integers that have remainders of 1 and 3, respectively, when divided by 6, which of the following could NOT be a possible value of  $M+N$ ?

- (A) 86  
(B) 52  
(C) 34  
(D) 28  
(E) 10

20. The  $R$  students in a class agree to contribute equally to buy their teacher a birthday present that costs  $y$  dollars. If  $x$  of the students later fail to contribute their share, which of the following represents the additional number of dollars that each of the remaining students must contribute in order to pay for the present?

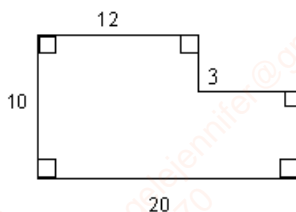
- (A)  $\frac{y}{R}$   
(B)  $\frac{y}{R-x}$   
(C)  $\frac{xy}{R-x}$   
(D)  $\frac{xy}{R(R-x)}$   
(E)  $\frac{y}{R(R-x)}$

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**QUANTITATIVE REASONING 3****20 Minutes****(20 Questions)**

1.  $6.09 - 4.693 =$

- (A) 1.397
- (B) 1.403
- (C) 1.407
- (D) 1.497
- (E) 2.603



2. What is the area of the region enclosed by the figure above?

- (A) 116
- (B) 144
- (C) 176
- (D) 179
- (E) 284

3. If  $p = 0.2$  and  $n = 100$ , then  $\sqrt{\frac{p(1-p)}{n}} =$

- (A)  $-\sqrt{0.002}$
- (B)  $\sqrt{0.02} - 0.02$
- (C) 0
- (D) 0.04
- (E) 0.4

4. If each of 4 subsidiaries of Corporation  $R$  has been granted a line of credit of \$700,000 and each of the other 3 subsidiaries of Corporation  $R$  has been granted a line of credit of \$112,000, what is the average (arithmetic mean) line of credit granted to a subsidiary of Corporation  $R$ ?

- (A) \$1,568,000
- (B) \$448,000
- (C) \$406,000
- (D) \$313,600
- (E) \$116,000

5. If  $x$  is a number such that  $x^2 - 3x + 2 = 0$  and  $x^2 - x - 2 = 0$ , what is the value of  $x$ ?

- (A)  $-2$
- (B)  $-1$

- 
- (C) 0
  - (D) 1
  - (E) 2

6. In traveling from a dormitory to a certain city, a student went  $\frac{1}{5}$  of the way by foot,  $\frac{2}{3}$  of the way by bus, and the remaining 8 kilometers by car. What is the distance, in kilometers, from the dormitory to the city?

- (A) 30
- (B) 45
- (C) 60
- (D) 90
- (E) 120

7. A certain elevator has a safe weight limit of 2,000 pounds. What is the greatest possible number of people who can safely ride on the elevator at one time with the average (arithmetic mean) weight of half the riders being 180 pounds and the average weight of the others being 215 pounds?

- (A) 7
- (B) 8
- (C) 9
- (D) 10
- (E) 11

8. After paying a 10 percent tax on all income over \$3,000, a person had a net income of \$12,000. What was the income before taxes?

- (A) \$13,300
- (B) \$13,000
- (C) \$12,900
- (D) \$10,000
- (E) \$9,000

9.  $1 - [2 - (3 - [4 - 5] + 6) + 7] =$

- (A) -2
- (B) 0
- (C) 1
- (D) 2
- (E) 16

10. The price of a model  $M$  camera is \$209 and the price of a special lens is \$69. When the camera and lens are purchased together, the price is \$239. The amount saved by purchasing the camera and lens together is approximately what percent of the total price of the camera and lens when purchased separately?

- (A) 14%
- (B) 16%
- (C) 29%
- (D) 33%

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(E) 86%

11. If 0.497 mark has the value of one dollar, what is the value to the nearest dollar of 350 marks?
- (A) \$174      (B) \$176      (C) \$524  
(D) \$696      (E) \$704
12. A right cylindrical container with radius 2 meters and height 1 meter is filled to capacity with oil. How many empty right cylindrical cans, each with radius  $\frac{1}{2}$  meter and height 4 meters, can be filled to capacity with the oil in this container?
- (A) 1      (B) 2      (C) 4  
(D) 8      (E) 16
13. If a sequence of 8 consecutive odd integers with increasing values has 9 as its 7th term, what is the sum of the terms of the sequence?
- (A) 22      (B) 32      (C) 36  
(D) 40      (E) 44
14. A rectangular floor is covered by a rug except for a strip  $p$  meters wide along each of the four edges. If the floor is  $m$  meters by  $n$  meters, what is the area of the rug, in square meters?
- (A)  $mn - p(m + n)$   
(B)  $mn - 2p(m + n)$   
(C)  $mn - p^2$   
(D)  $(m - p)(n - p)$   
(E)  $(m - 2p)(n - 2p)$
15. Working alone,  $R$  can complete a certain kind of job in 9 hours.  $R$  and  $S$ , working together at their respective rates, can complete one of these jobs in 6 hours. In how many hours can  $S$ , working alone, complete one of these jobs?
- (A) 18      (B) 12      (C) 9  
(D) 6      (E) 3
16. A family made a down payment of \$75 and borrowed the balance on a set of encyclopedias that cost \$400. The balance with interest was paid in 23 monthly payments of \$16 each and a final payment of \$9. The amount of interest paid was what percent of the amount borrowed?
- (A) 6%  
(B) 12%  
(C) 14%  
(D) 16%  
(E) 20%
17. If  $x \neq 0$  and  $x = \sqrt{4xy - 4y^2}$ , then, in terms of  $y$ ,  $x =$

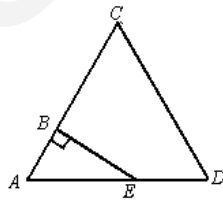
- (A)  $2y$   
 (B)  $y$   
 (C)  $\frac{y}{2}$   
 (D)  $\frac{-4y^2}{1-2y}$   
 (E)  $-2y$

18. Solution  $Y$  is 30 percent liquid  $X$  and 70 percent water. If 2 kilograms of water evaporate from 8 kilograms of solution  $Y$  and 2 kilograms of solution  $Y$  are added to the remaining 6 kilograms of liquid, what percent of this new solution is liquid  $X$ ?

- (A) 30%  
 (B)  $33\frac{1}{3}\%$   
 (C)  $37\frac{1}{2}\%$   
 (D) 40%  
 (E) 50%

19.  $\frac{1}{\frac{1}{0.03} + \frac{1}{0.37}} =$

- (A) 0.004  
 (B) 0.02775  
 (C) 2.775  
 (D) 3.6036  
 (E) 36.036



20. If each side of  $\triangle ACD$  above has length 3 and if  $BE$  has length 1, what is the area of region  $BCDE$ ?

- (A)  $\frac{9}{4}$   
 (B)  $\frac{7}{4}\sqrt{3}$   
 (C)  $\frac{9}{4}\sqrt{3}$

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(D)  $\frac{7}{2}\sqrt{3}$

(E)  $6 + \sqrt{3}$

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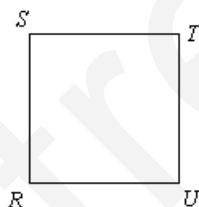
Phone: 08164671570

Teststreams

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**QUANTITATIVE REASONING 4****20 Minutes****(20 Questions)**

- Which of the following is equal to 85 percent of 160?  
(A) 1.88  
(B) 13.6  
(C) 136  
(D) 188  
(E) 13,600
- The regular hourly wage for an employee of a certain factory is \$5.60. If the employee worked 8 hours overtime and earned  $1\frac{1}{2}$  times this regular hourly wage for overtime, how much overtime money was earned?  
(A) \$67.20  
(B) \$55.40  
(C) \$50.00  
(D) \$44.80  
(E) \$12.00

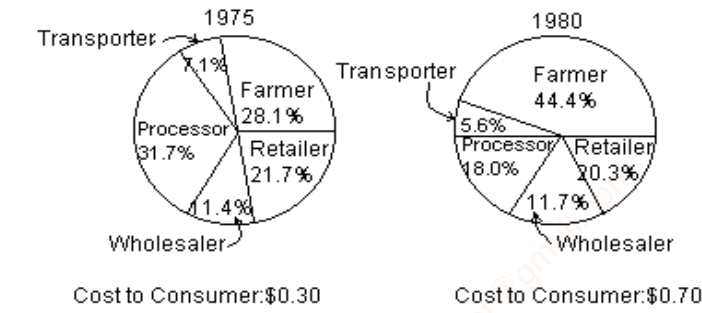


- Square  $RSTU$  shown above is rotated in a plane about its center in a clockwise direction the minimum number of degrees necessary for  $T$  to be in the position where  $S$  is now shown. The number of degrees through which  $RSTU$  is rotated is  
(A)  $135^\circ$   
(B)  $180^\circ$   
(C)  $225^\circ$   
(D)  $270^\circ$   
(E)  $315^\circ$

Questions 4-5 refer to the following graphs.



BREAKDOWN OF COST TO CONSUMER FOR THE PRODUCTION  
OF 6 OUNCES OF FROZEN ORANGE JUICE



4. Of the following, which is closest to the increase from 1975 to 1980 in the amount received by the processor in producing 6 ounces of frozen orange juice?
- (A) \$0.03  
 (B) \$0.05  
 (C) \$0.06  
 (D) \$0.08  
 (E) \$0.13
5. In 1980, approximately what fraction of the cost to the consumer for the production of 6 ounces of frozen orange juice went to the farmer?
- (A)  $\frac{3}{11}$             (B)  $\frac{1}{3}$             (C)  $\frac{4}{9}$   
 (D)  $\frac{5}{9}$             (E)  $\frac{3}{5}$
6.  $\sqrt[4]{496}$  is between
- (A) 3 and 4  
 (B) 4 and 5  
 (C) 5 and 6  
 (D) 6 and 7  
 (E) 7 and 8
7. If  $x \neq 0$ ,  $2x = 5y$ , and  $3z = 7x$ , what is the ratio of  $z$  to  $y$ ?
- (A) 2 to 21  
 (B) 3 to 5  
 (C) 14 to 15  
 (D) 6 to 5  
 (E) 35 to 6

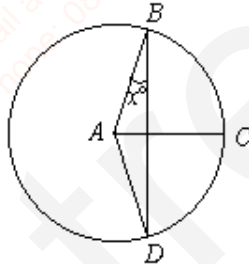
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8. A grocer purchased a quantity of bananas at 3 pounds for \$0.50 and sold the entire quantity at 4 pounds for \$1.00. How many pounds did the grocer purchase if the profit from selling the bananas was \$10.00?

- (A) 40
- (B) 60
- (C) 90
- (D) 120
- (E) 240

9. There are between 100 and 110 cards in a collection of cards. If they are counted out 3 at a time, there are 2 left over, but if they are counted out 4 at a time, there is 1 left over. How many cards are in the collection?

- (A) 101
- (B) 103
- (C) 106
- (D) 107
- (E) 109



Note: Figure not drawn to scale.

10. If A is the center of the circle shown above and  $AB=BC=CD$ , what is the value of  $x$ ?

- (A) 15
- (B) 30
- (C) 45
- (D) 60
- (E) 75

11. Out of a total of 1,000 employees at a certain corporation, 52 percent are female and 40 percent of these females work in research. If 60 percent of the total number of employees work in research, how many male employees do NOT work in research?

- (A) 520
- (B) 480
- (C) 392
- (D) 208
- (E) 88

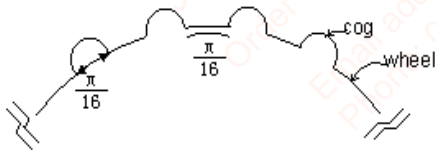
12. An instructor scored a student's test of 50 questions by subtracting 2 times the number of incorrect answers from the number of correct answers. If the student answered all of the questions and received a score of 38, how many questions did that student answer

correctly?

- (A) 19
- (B) 38
- (C) 41
- (D) 44
- (E) 46

13. Which of the following integers does NOT have a divisor greater than 1 that is the square of an integer?

- (A) 75
- (B) 42
- (C) 32
- (D) 25
- (E) 12



14. There are cogs around the circumference of a wheel and each cog is  $\frac{\pi}{16}$  centimeter

wide with a space of  $\frac{\pi}{16}$  centimeter between consecutive cogs, as shown above. How

many cogs of this size, with the same space between any two consecutive cogs, fit on a wheel with diameter 6 centimeters?

- (A) 96
- (B) 64
- (C) 48
- (D) 32
- (E) 24

15. If  $r \odot s = rs + r + s$ , then for what value of  $s$  is  $r \odot s$  equal to  $r$  for all values of  $r$ ?

- (A) -1
- (B) 0
- (C) 1
- (D)  $\frac{1}{r+1}$
- (E)  $r$

16. In each production lot for a certain toy, 25 percent of the toys are red and 75 percent of the toys are blue. Half the toys are size  $A$  and half are size  $B$ . If 10 out of a lot of 100 toys are red and size  $A$ , how many of the toys are blue and size  $B$ ?

- (A) 15
- (B) 25
- (C) 30
- (D) 35
- (E) 40

---

17. If  $2x + 5y = 8$  and  $3x = 2y$ , what is the value of  $2x + y$ ?

- (A) 4
- (B)  $\frac{70}{19}$
- (C)  $\frac{64}{19}$
- (D)  $\frac{56}{19}$
- (E)  $\frac{40}{19}$

18. A ladder 25 feet long is leaning against a wall that is perpendicular to level ground. The bottom of the ladder is 7 feet from the base of the wall. If the top of the ladder slips down 4 feet, how many feet will the bottom of the ladder slip?

- (A) 4
- (B) 5
- (C) 8
- (D) 9
- (E) 15

19. What is the least possible product of 4 different integers, each of which has a value between  $-5$  and  $10$ , inclusive?

- (A)  $-5040$
- (B)  $-3600$
- (C)  $-720$
- (D)  $-600$
- (E)  $-120$

20. If a motorist had driven 1 hour longer on a certain day and at an average rate of 5 miles per hour faster, he would have covered 70 more miles than he actually did. How many more miles would he have covered than he actually did if he had driven 2 hours longer and at an average rate of 10 miles per hour faster on that day?

- (A) 100
- (B) 120
- (C) 140
- (D) 150
- (E) 160

---

**QUANTITATIVE REASONING 5**  
**20 Minutes (20 Questions)**

1. What is the average (arithmetic mean) of the numbers 15, 16, 17, 17, 18, and 19?
- (A) 14.2  
(B) 16.5  
(C) 17  
(D) 17.5  
(E) 18
2. Kathy bought 4 times as many shares in Company X as Carl, and Carl bought 3 times as many shares in the same company as Tom. Which of the following is the ratio of the number of shares bought by Kathy to the number of shares bought by Tom?
- (A)  $\frac{3}{4}$   
(B)  $\frac{4}{3}$   
(C)  $\frac{3}{1}$   
(D)  $\frac{4}{1}$   
(E)  $\frac{12}{1}$
3. Of the following, which is closest to  $\frac{0.15 \times 495}{9.97}$ ?
- (A) 7.5  
(B) 15  
(C) 75  
(D) 150  
(E) 750
4. A manager has \$6,000 budgeted for raises for 4 full-time and 2 part-time employees. Each of the full-time employees receives the same raise, which is twice the raise that each of the part-time employees receives. What is the amount of the raise that each full-time employee receives?
- (A) \$750  
(B) \$1,000  
(C) \$1,200  
(D) \$1,500  
(E) \$3,000
5.  $x^2 - \left(\frac{x}{2}\right)^2 =$
- (A)  $x^2 - x$

---

(B)  $\frac{x^2}{4}$

(C)  $\frac{x^2}{2}$

(D)  $\frac{3x^2}{4}$

(E)  $\frac{3x^2}{2}$

6. A hospital pharmacy charges \$0.40 per fluidram of a certain medicine but allows a discount of 15 percent to Medicare patients. How much should the pharmacy charge a Medicare patient for 3 fluidounces of the medicine?(128 fluidrams = 16 fluidounces)

(A) \$9.60

(B) \$8.16

(C) \$3.20

(D) \$2.72

(E) \$1.02

7.  $(-1)^2 - (-1)^3 =$

(A) -2

(B) -1

(C) 0

(D) 1

(E) 2

8. At a certain bowling alley, it costs \$0.50 to rent bowling shoes for the day and \$1.25 to bowl 1 game. If a person has \$12.80 and must rent shoes, what is the greatest number of complete games that person can bowl in one day?

(A) 7

(B) 8

(C) 9

(D) 10

(E) 11

9. If  $\frac{x}{y} = 2$ , then  $\frac{x-y}{x} =$

(A) -1

(B)  $-\frac{1}{2}$

(C)  $\frac{1}{2}$

(D) 1

(E) 2

---

10. If each photocopy of a manuscript costs 4 cents per page, what is the cost, in cents, to reproduce  $x$  copies of an  $x$ -page manuscript?

- (A)  $4x$
- (B)  $16x$
- (C)  $x^2$
- (D)  $4x^2$
- (E)  $16x^2$

11. Ken left a job paying \$75,000 per year to accept a sales job paying \$45,000 per year plus 15 percent commission. If each of his sales is for \$750, what is the least number of sales he must make per year if he is not to lose money because of the change?

- (A) 40
- (B) 200
- (C) 266
- (D) 267
- (E) 600

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Teststream

MONTHLY KILOWATT-HOURS

	500	1,000	1,500	2,000
Present	\$24.00	\$41.00	\$57.00	\$73.00
Proposed	\$26.00	\$45.00	\$62.00	\$79.00

12. The table above shows present rates and proposed rates for electricity for residential customers. For which of the monthly kilowatt-hours shown would the proposed rate be the greatest percent increase over the present rate?

- (A) 500  
 (B) 1,000  
 (C) 1,500  
 (D) 2,000  
 (E) Each of the percent increases is the same.

13. If  $a$ ,  $b$ , and  $c$  are three consecutive odd integers such that  $10 < a < b < c < 20$  and if  $b$  and  $c$  are prime numbers, what is the value of  $a + b$ ?

- (A) 24                      (B) 28                      (C) 30  
 (D) 32                      (E) 36

14. Of a group of people surveyed in a political poll, 60 percent said that they would vote for candidate  $R$ . Of those who said they would vote for  $R$ , 90 percent actually voted for  $R$ , and of those who did not say that they would vote for  $R$ , 5 percent actually voted for  $R$ . What percent of the group voted for  $R$ ?

- (A) 56%                      (B) 59%                      (C) 62%  
 (D) 65%                      (E) 74%

15. If  $r = 1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27}$  and  $s = 1 + \frac{1}{3}r$ , then  $s$  exceeds  $r$  by

- (A)  $\frac{1}{3}$                       (B)  $\frac{1}{6}$                       (C)  $\frac{1}{9}$   
 (D)  $\frac{1}{27}$                       (E)  $\frac{1}{81}$

16. 
$$\frac{0.025 \times \frac{15}{2} \times 48}{5 \times 0.0024 \times \frac{3}{4}} =$$

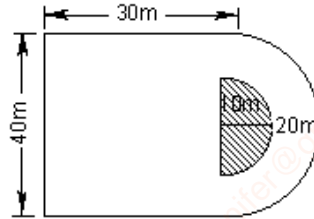
- (A) 0.1  
 (B) 0.2  
 (C) 100  
 (D) 200  
 (E) 1,000

17. A student responded to all of the 22 questions on a test and received a score of 63.5. If the scores were derived by adding 3.5 points for each correct answer and deducting 1



point for each incorrect answer, how many questions did the student answer incorrectly?

- (A) 3
- (B) 4
- (C) 15
- (D) 18
- (E) 20

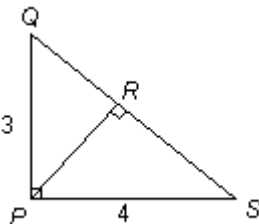


18. The figure above represents a rectangular parking lot that is 30 meters by 40 meters and an attached semicircular driveway that has an outer radius of 20 meters and an inner radius of 10 meters. If the shaded region is not included, what is the area, in square meters, of the lot and driveway?

- (A)  $1,350 \pi$
- (B)  $1,200 + 400 \pi$
- (C)  $1,200 + 300 \pi$
- (D)  $1,200 + 200 \pi$
- (E)  $1,200 + 150 \pi$

19. One-fifth of the light switches produced by a certain factory are defective. Four-fifths of the defective switches are rejected and  $\frac{1}{20}$  of the nondefective switches are rejected by mistake. If all the switches not rejected are sold, what percent of the switches sold by the factory are defective?

- (A) 4%
- (B) 5%
- (C) 6.25%
- (D) 11%
- (E) 16%



20. In  $\triangle PQS$  above, if  $PQ = 3$  and  $PS = 4$ , then  $PR =$

- (A)  $\frac{9}{4}$

- 
- (B)  $\frac{12}{5}$
  - (C)  $\frac{16}{5}$
  - (D)  $\frac{15}{4}$
  - (E)  $\frac{20}{3}$

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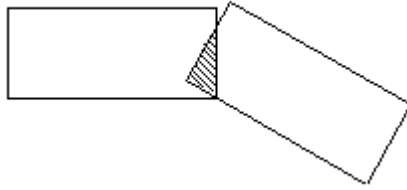
Phone: 08164671570

Teststreams

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**QUANTITATIVE REASONING 6**  
**20 Minutes (20 Questions)**

1. If  $x$  is an even integer, which of the following is an odd integer?
- (A)  $3x + 2$
  - (B)  $7x$
  - (C)  $8x + 5$
  - (D)  $x^2$
  - (E)  $x^3$
2. On a purchase of \$120, a store offered a payment plan consisting of a \$20 down payment and 12 monthly payments of \$10 each. What percent of the purchase price, to the nearest tenth of a percent, did the customer pay in interest by using this plan?
- (A) 16.7%
  - (B) 30%
  - (C) 75.8%
  - (D) 106.7%
  - (E) 107.5%
3.  $\frac{5}{4}(42 \div \frac{3}{16}) =$
- (A) 6.3
  - (B) 9.8
  - (C) 179.2
  - (D) 224
  - (E) 280
4. When magnified 1,000 times by an electron microscope, the image of a certain circular piece of tissue has a diameter of 0.5 centimeter. The actual diameter of the tissue, in centimeters, is
- (A) 0.005
  - (B) 0.002
  - (C) 0.001
  - (D) 0.0005
  - (E) 0.0002
5. In 1970 there were 8,902 women stockbrokers in the United States. By 1978 the number had increased to 19,947. Approximately what was the percent increase?
- (A) 45%
  - (B) 125%
  - (C) 145%
  - (D) 150%
  - (E) 225%



6. In the figure above, two rectangles with the same dimensions overlap to form the shaded region. If each rectangle has perimeter 12 and the shaded region has perimeter 3, what is the total length of the heavy line segments?
- (A) 15      (B) 18      (C) 21  
(D) 22      (E) 23
7. If one root of the equation  $2x^2 + 3x - k = 0$  is 6, what is the value of  $k$ ?
- (A) 90  
(B) 42  
(C) 18  
(D) 10  
(E) -10
8. Bottle  $R$  contains 250 capsules and costs \$6.25. Bottle  $T$  contains 130 capsules and costs \$2.99. What is the difference between the cost per capsule for bottle  $R$  and the cost per capsule for bottle  $T$ ?
- (A) \$0.25  
(B) \$0.12  
(C) \$0.05  
(D) \$0.03  
(E) \$0.002
9. Trucking transportation rates are  $x$  dollars per metric ton per kilometer. How much does it cost, in dollars, to transport one dozen cars, which weigh two metric tons each,  $n$  kilometers by truck?
- (A)  $\frac{x}{12n}$   
(B)  $\frac{x}{24n}$   
(C)  $\frac{xn}{24}$   
(D)  $12xn$   
(E)  $24xn$
10. For a positive integer  $n$ , the number  $n!$  is defined to be  $n(n - 1)(n - 2)\dots(1)$ . For example,  $4! = 4(3)(2)(1)$ . What is the value of  $5! - 3!$ ?
- (A) 120      (B) 114      (C) 20  
(D) 15      (E) 2

---

11. A man who died left an estate valued at \$111,000. His will stipulated that his estate was to be distributed so that each of his three children received from the estate and his previous gifts, combined, the same total amount. If he had previously given his oldest child \$15,000, his middle child \$10,000, and his youngest \$2,000, how much did the youngest child receive from the estate?

- (A) \$50,000
- (B) \$48,000
- (C) \$46,000
- (D) \$44,000
- (E) \$39,000

12. If  $y > 0$ , which of the following is equal to  $\sqrt{48y^3}$ ?

- (A)  $4y\sqrt{3y}$
- (B)  $3y\sqrt{4y}$
- (C)  $2\sqrt{12y}$
- (D)  $3\sqrt{8y}$
- (E)  $16y\sqrt{3y}$

13. The volume of a box with a square base is 54 cubic centimeters. If the height of the box is twice the width of the base, what is the height, in centimeters?

- (A) 2
- (B) 3
- (C) 4
- (D) 6
- (E) 9

$$q = 3\sqrt{3}$$

$$r = 1 + 2\sqrt{3}$$

$$s = 3 + \sqrt{3}$$

14. If  $q$ ,  $r$  and  $s$  are the numbers shown above, which of the following shows their order from greatest to least?

- (A)  $q, r, s$
- (B)  $q, s, r$
- (C)  $r, q, s$
- (D)  $s, q, r$
- (E)  $s, r, q$

15. The sum of the interior angles of any polygon with  $n$  sides is  $180(n - 2)$  degrees. If the sum of the interior angles of polygon  $P$  is three times the sum of the interior angles of quadrilateral  $Q$ , how many sides does  $P$  have?

- 
- (A) 6            (B) 8            (C) 10  
(D) 12          (E) 14

16. In Company  $X$ , 30 percent of the employees live over ten miles from work and 60 percent of the employees who live over ten miles from work are in car pools. If 40 percent of the employees of Company  $X$  are in car pools, what percent of the employees of Company  $X$  live ten miles or less from work and are in car pools?
- (A) 12%  
(B) 20%  
(C) 22%  
(D) 28%  
(E) 32%
17. If an organization were to sell  $n$  tickets for a theater production, the total revenue from ticket sales would be 20 percent greater than the total costs of the production. If the organization actually sold all but 5 percent of the  $n$  tickets, the total revenue from ticket sales was what percent greater than the total costs of the production?
- (A) 4%            (B) 10%          (C) 14%  
(D) 15%          (E) 18%
18. When the integer  $n$  is divided by 6, the remainder is 3, Which of the following is NOT a multiple of 6?
- (A)  $n - 3$   
(B)  $n + 3$   
(C)  $2n$   
(D)  $3n$   
(E)  $4n$
19. How many liters of pure alcohol must be added to a 100-liter solution that is 20 percent alcohol in order to produce a solution that is 25 percent alcohol?
- (A)  $\frac{7}{2}$   
(B) 5  
(C)  $\frac{20}{3}$   
(D) 8  
(E)  $\frac{39}{4}$
20. If 10 persons meet at a reunion and each person shakes hands exactly once with each of the others, what is the total number of handshakes?
- (A)  $10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$   
(B)  $10 \cdot 10$   
(C)  $10 \cdot 9$   
(D) 45  
(E) 36

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**QUANTITATIVE REASONING 7**  
**20 Minutes (20 Questions)**

1. At the rate of \$7.50 per hour, how many hours must a person work to earn \$232.50?
- (A) 25  
(B) 27  
(C) 29  
(D) 30  
(E) 31
2. Each month for 6 months the amount of money in a benefit fund is doubled. At the end of the 6 months there is a total of \$640 in the fund. How much money was in the fund at the end of 3 months?
- (A) \$80  
(B) \$100  
(C) \$120  
(D) \$160  
(E) \$320
3.  $6[-2(6-9)+11-23]=$
- (A) -224  
(B) -108  
(C) -36  
(D) 24  
(E) 79
4. If  $\frac{2}{3} \times \frac{3}{5} \times \frac{5}{8} \times \frac{8}{n} = \frac{2}{10}$ , then  $n =$
- (A)  $\frac{1}{10}$   
(B)  $\frac{1}{5}$   
(C) 5  
(D) 10  
(E) 100
5. If  $d = 3.0641$  and  $\bar{d}$  is the number obtained by rounding  $d$  to the nearest hundredth, then  $d - \bar{d} =$
- (A) 0.0001  
(B) 0.0041  
(C) 0.0059  
(D) 0.0141  
(E) 0.0410

---

6. Mr. Jones drove from Town  $A$  to Town  $B$  in  $x$  hours. On the return trip over the same route, his average speed was twice as fast. Which of the following expresses the total number of driving hours for the round trip?

- (A)  $\frac{2}{3}x$
- (B)  $\frac{3}{2}x$
- (C)  $\frac{5}{3}x$
- (D)  $2x$
- (E)  $3x$

7. If 3 is the greatest common divisor of positive integers  $r$  and  $s$ , what is the greatest common divisor of  $2r$  and  $2s$ ?

- (A) 2
- (B) 3
- (C) 4
- (D) 6
- (E) 12

8. If  $x + y = 5$  and  $xy = 6$ , then  $\frac{1}{x} + \frac{1}{y} =$

- (A)  $\frac{1}{6}$
- (B)  $\frac{1}{5}$
- (C)  $\frac{5}{6}$
- (D)  $\frac{6}{5}$
- (E) 5

9. After 5 games, a rugby team had an average of 28 points per game. In order to increase the average by  $n$  points, how many points must be scored in a 6th game?

- (A)  $n$
- (B)  $6n$
- (C)  $28n$
- (D)  $28 + n$
- (E)  $28 + 6n$

10. On July 1, 1982, Ms. Fox deposited \$10,000 in a new account at the annual interest rate of 12 percent compounded monthly. If no additional deposits or withdrawals were made and if interest was credited on the last day of each month, what was the amount of money in the account on September 1, 1982?



- 
- (A) \$10,200
  - (B) \$10,201
  - (C) \$11,100
  - (D) \$12,100
  - (E) \$12,544

11. How many prime numbers are less than 25 and greater than 10?

- (A) Three
- (B) Four
- (C) Five
- (D) Six
- (E) Seven

12. Erica has \$460 in 5- and 10-dollar bills only. If she has fewer 10- than 5-dollar bills, what is the least possible number of 5-dollar bills she could have?

- (A) 32
- (B) 30
- (C) 29
- (D) 28
- (E) 27

13. Which of the following is equivalent to the statement that 0.5 is between  $\frac{2}{n}$  and  $\frac{3}{n}$ ?

- (A)  $1 < n < 6$
- (B)  $2 < n < 3$
- (C)  $2 < n < 5$
- (D)  $4 < n < 6$
- (E)  $n > 10$

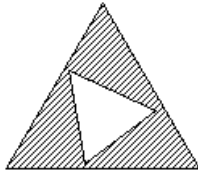
14. A corporation with 5,000,000 shares of publicly listed stock reported total earnings of \$7.20 per share for the first 9 months of operation. During the final quarter the number of publicly listed shares was increased to 10,000,000 shares, and fourth quarter earnings were reported as \$1.25 per share. What are the average annual earnings per share based on the number of shares at the end of the year?

- (A) \$1.83
- (B) \$2.43
- (C) \$4.85
- (D) \$8.45
- (E) \$9.70

15. In 1980 the government spent \$12 billion for direct cash payments to single parents with dependent children. If this was 2,000 percent of the amount spent in 1956, what was the amount spent in 1956? (1 billion = 1,000,000,000)

- (A) \$6 million
- (B) \$24 million
- (C) \$60 million
- (D) \$240 million

(E) \$600 million

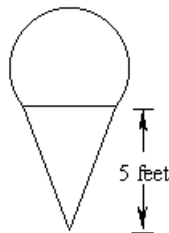


16. The triangles in the figure above are equilateral and the ratio of the length of a side of the larger triangle to the length of a side of the smaller triangle is  $\frac{2}{1}$ . If the area of the larger triangular region is  $K$ , what is the area of the shaded region in terms of  $K$ ?

- (A)  $\frac{3}{4}K$
- (B)  $\frac{2}{3}K$
- (C)  $\frac{1}{2}K$
- (D)  $\frac{1}{3}K$
- (E)  $\frac{1}{4}K$

17. Four cups of milk are to be poured into a 2-cup bottle and a 4-cup bottle. If each bottle is to be filled to the same fraction of its capacity, how many cups of milk should be poured into the 4-cup bottle?

- (A)  $\frac{2}{3}$
- (B)  $\frac{7}{3}$
- (C)  $\frac{5}{2}$
- (D)  $\frac{8}{3}$
- (E) 3



- 
18. The outline of a sign for an ice-cream store is made by placing  $\frac{3}{4}$  of the circumference of a circle with radius 2 feet on top of an isosceles triangle with height 5 feet, as shown above. What is the perimeter, in feet, of the sign?
- (A)  $3\pi + 3\sqrt{3}$   
(B)  $3\pi + 6\sqrt{3}$   
(C)  $3\pi + 2\sqrt{33}$   
(D)  $4\pi + 3\sqrt{3}$   
(E)  $4\pi + 6\sqrt{3}$
19. The sum of the first 100 positive integers is 5,050. What is the sum of the first 200 positive integers?
- (A) 10,100  
(B) 10,200  
(C) 15,050  
(D) 20,050  
(E) 20,100
20. A merchant purchased a jacket for \$60 and then determined a selling price that equalled the purchase price of the jacket plus a markup that was 25 percent of the selling price. During a sale, the merchant discounted the selling price by 20 percent and sold the jacket. What was the merchant's gross profit on this sale?
- (A) \$0  
(B) \$3  
(C) \$4  
(D) \$12  
(E) \$15

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**QUANTITATIVE REASONING 8**  
**20 Minutes (20 Questions)**

1. A certain club has 237 local branches, one national office, and one social service office. If each local branch has 2 officers, and each of the two other offices has 4 officers, how many officers does the club have altogether?

- (A) 482            (B) 476            (C) 474  
(D) 239            (E) 235

2. An employee is paid a salary of \$300 per month and earns a 6 percent commission on all her sales. What must her annual sales be in order for her to have a gross annual salary of exactly \$21,600?

- (A) \$22,896  
(B) \$26,712  
(C) \$300,000  
(D) \$330,000  
(E) \$360,000

3. Of the 1,000 students who entered College X as freshmen in September 1979, 112 did not graduate in May 1983. If 962 students graduated in May 1983, how many of the graduates did not enter College X as freshmen in September 1979?

- (A) 38            (B) 74            (C) 112  
(D) 150            (E) 188



4. On the number line above, what is the length of segment  $AB$ ?

- (A) 13  
(B) 1.4  
(C) 1.3  
(D) 0.13  
(E) 0.013

5. Which of the following has a value greater than 1?

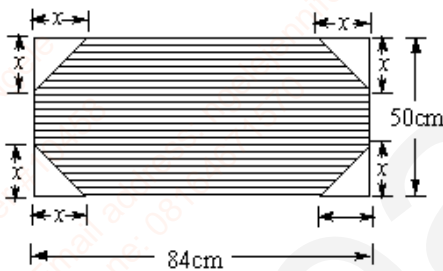
- (A)  $\frac{2}{\sqrt{3}}$   
(B)  $\frac{\sqrt{2}}{2}$   
(C)  $\left(\frac{3}{4}\right)^2$   
(D)  $\left(\frac{7}{8}\right)^3$

---

(E)  $2\left(\frac{3}{7}\right)$

6. If  $\frac{m^2 + m - 3}{3} = 1$ , then  $m$  could equal

- (A) -1
- (B) 0
- (C) 1
- (D) 2
- (E) 3



7. The figure above represents a rectangular desk blotter in a holder with dimensions shown. If  $x = 8$  centimeters, what is the area, in square centimeters, of the shaded portion of the blotter?

- (A) 4,200
- (B) 4,184
- (C) 4,124
- (D) 4,072
- (E) 3,944

8. The number 25 is 2.5 percent of which of the following?

- (A) 10
- (B) 62.5
- (C) 100
- (D) 625
- (E) 1,000

9. Cottages at a resort are rented for half the summer price in each of the 3 spring months and one-third the summer price in each of the 6 fall and winter months. If each cottage brings in a total of \$3,861 when rented for each of the 12 months of the year, what is the monthly rent for each of the 3 summer months?

- (A) \$297
- (B) \$594
- (C) \$702
- (D) \$858
- (E) \$1,782

---

10. In 1980 John's salary was \$15,000 a year and Don's salary was \$20,000 a year. If every year thereafter, John receives a raise of \$2,450 and Don receives a raise of \$2,000, the first year in which John's salary will be more than Don's salary is

- (A) 1987
- (B) 1988
- (C) 1991
- (D) 1992
- (E) 2000

11. Which of the following is equal to  $\frac{351}{558}$ ?

- (A)  $\frac{7}{11}$
- (B)  $\frac{39}{62}$
- (C)  $\frac{19}{31}$
- (D)  $\frac{117}{196}$
- (E)  $\frac{107}{186}$

12. On a certain airline, the price of a ticket is directly proportional to the number of miles to be traveled. If the ticket for a 900-mile trip on this airline costs \$120, which of the following gives the number of dollars charged for a  $k$ -mile trip on this airline?

- (A)  $\frac{2k}{15}$
- (B)  $\frac{2}{15k}$
- (C)  $\frac{15}{2k}$
- (D)  $\frac{15k}{2}$
- (E)  $\frac{40k}{3}$

13. If  $\frac{n}{41}$  is 1 more than  $\frac{m}{41}$ , then  $n =$

- 
- (A)  $m - 41$
  - (B)  $m + 1$
  - (C)  $m + 41$
  - (D)  $m + 42$
  - (E)  $41m$

14. A discount of 20 percent on an order of goods followed by a discount of 10 percent amounts to

- (A) less than one 15 percent discount
- (B) the same as one 15 percent discount
- (C) the same as one 30 percent discount
- (D) less than a discount of 10 percent followed by a discount of 20 percent
- (E) the same as a discount of 10 percent followed by a discount of 20 percent

15. If  $k$  is an even integer and  $p$  and  $r$  are odd integers, which of the following CANNOT be an integer?

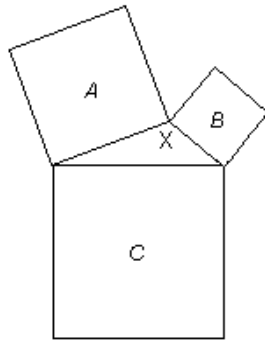
- (A)  $\frac{r}{k}$
- (B)  $\frac{k}{p}$
- (C)  $\frac{p}{r}$
- (D)  $\frac{kp}{r}$
- (E)  $\frac{kr}{p}$

16. Today Al is 3 times as old as Pat, In 13 years, Al will be one year less than twice as old as Pat will be then. How many years old is Al today?

- (A) 12
- (B) 33
- (C) 36
- (D) 42
- (E) 49

17. When the integer  $n$  is divided by 17, the quotient is  $x$  and the remainder is 5. When  $n$  is divided by 23, the quotient is  $y$  and the remainder is 14. Which of the following is true?

- (A)  $23x + 17y = 19$
- (B)  $17x - 23y = 9$
- (C)  $17x + 23y = 19$
- (D)  $14x + 5y = 6$
- (E)  $5x - 14y = -6$



Note: Figure not drawn to scale.

18. In the figure above, three squares and a triangle have areas of  $A$ ,  $B$ ,  $C$ , and  $X$  as shown. If  $A = 144$ ,  $B = 81$ , and  $C = 225$ , then  $X =$
- (A) 150  
 (B) 144  
 (C) 80  
 (D) 54  
 (E) 36
19. Three types of pencils,  $J$ ,  $K$ , and  $L$ , cost \$0.05, \$0.10, and \$0.25 each, respectively. If a box of 32 of these pencils costs a total of \$3.40 and if there are twice as many  $K$  pencils as  $L$  pencils in the box, how many  $J$  pencils are in the box?
- (A) 6  
 (B) 12  
 (C) 14  
 (D) 18  
 (E) 20
20. Forty percent of the rats included in an experiment were male rats. If some of the rats died during the experiment and 30 percent of the rats that died were male rats, what was the ratio of the death rate among the male rats to the death rate among the female rats?
- (A)  $\frac{9}{14}$  (B)  $\frac{3}{4}$  (C)  $\frac{9}{11}$   
 (D)  $\frac{6}{7}$  (E)  $\frac{7}{8}$



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**SECTION 9 - 20 \*Missing**

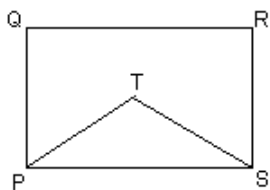
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QUANTITATIVE REASONING 21

20 Minutes 20 Questions

1. In Township  $K$  each property is taxed at 8 percent of its assessed value. If the assessed value of a property in Township  $K$  is increased from \$20,000 to \$24,000, by how much will the property tax increase?
- (A) \$32  
(B) \$50  
(C) \$320  
(D) \$400  
(E) \$500
2. One night 18 percent of the female officers on a police force were on duty. If 180 officers were on duty that night and half of these were female officers, how many female officers were on the police force?
- (A) 90  
(B) 180  
(C) 270  
(D) 500  
(E) 1,000
3. If an integer  $n$  is divisible by both 6 and 8, then it must also be divisible by which of the following?
- (A) 10  
(B) 12  
(C) 14  
(D) 16  
(E) 18
4. On the number line, if  $x$  is halfway between -5 and 3, and if  $y$  is halfway between -2 and 6, what number is halfway between  $x$  and  $y$ ?
- (A) -1  
(B)  $-\frac{1}{2}$   
(C) 0  
(D)  $\frac{1}{2}$   
(E) 1
5. In a certain company, the total monthly payroll for the 12 production workers is \$18,000 and the total monthly payroll for the 36 office workers is \$63,000. By how much does the average (arithmetic mean) monthly salary of an office worker exceed that of a production worker in this company?
- (A) \$62.50  
(B) \$187.50  
(C) \$250.00  
(D) \$375.00  
(E) \$500.00



Note: Not drawn to scale.

6. In the figure above, if the area of the rectangular region  $PQRS$  is 40, and if  $PT = TS$ , what is the area of the pentagonal region  $PQRST$ ?

- (A) 15
- (B) 20
- (C) 25
- (D) 30
- (E) It cannot be determined from the information given.

7. 
$$\frac{\frac{1}{100} - \frac{2}{1,000}}{\frac{1}{1,000} - \frac{2}{10,000}} =$$

- (A)  $\frac{1}{10}$
- (B)  $\frac{1}{8}$
- (C) 1
- (D) 8
- (E) 10

8. Which of the following is the prime factorization of 2,520?

- (A)  $2^2 \times 3^2 \times 5^2$
- (B)  $2^2 \times 3 \times 5^2 \times 7$
- (C)  $2^3 \times 3 \times 5 \times 7^2$
- (D)  $2^3 \times 3^2 \times 5 \times 7$
- (E)  $2^3 \times 3^2 \times 5^2 \times 7$

9. If  $\frac{2x}{3} = x - 1$ , then  $\frac{x}{6} =$

- (A)  $\frac{1}{2}$
- (B)  $\frac{1}{3}$
- (C)  $\frac{1}{4}$
- (D)  $\frac{1}{10}$

---

(E)  $\frac{1}{18}$

10. Out of their annual net income, a couple spent 25 percent for food, 13.5 percent for entertainment, 20 percent for housing, 8 percent for car expenses, 15 percent for clothing, and saved the rest. What was the ratio of the amount saved to the amount spent for entertainment?

(A)  $\frac{19}{27}$

(B)  $\frac{6}{5}$

(C)  $\frac{37}{27}$

(D)  $\frac{19}{9}$

(E)  $\frac{7}{3}$

11. If  $\frac{z+3}{z-1} + \frac{z+1}{z-3} = 2$ , then  $z =$

(A) 2

(B) 1

(C) -1

(D) -2

(E) -3

12. The population of city X increased from 325,000 in 1980 to 350,000 in 1990, and it is projected that the population will increase by the same number from 1990 to 2000. Approximately what is the projected percent increase in population from 1990 to 2000 ?

(A) 7.1%

(B) 7.7%

(C) 8.3%

(D) 14.3%

(E) 15.3%

13. A jar contains only  $x$  black balls and  $y$  white balls. One ball is drawn randomly from the jar and is not replaced. A second ball is then drawn randomly from the jar. What is the probability that the first ball drawn is black and the second ball drawn is white?

(A)  $\left(\frac{x}{x+y}\right)\left(\frac{y}{x+y}\right)$

(B)  $\left(\frac{x}{x+y}\right)\left(\frac{x-1}{x+y-1}\right)$

(C)  $\frac{xy}{x+y}$

- 
- (D)  $\left(\frac{x-1}{x+y}\right)\left(\frac{y-1}{x+y}\right)$   
(E)  $\left(\frac{x}{x+y}\right)\left(\frac{y}{x+y-1}\right)$

14. If  $y + |y| = 0$ , which of the following must be true?

- (A)  $y > 0$   
(B)  $y \geq 0$   
(C)  $y < 0$   
(D)  $y \leq 0$   
(E)  $y = 0$

15. Of the  $z$  students at a certain college,  $x$  are studying French and  $y$  are studying German. If  $w$  are studying both French and German, which of the following expresses the number of students at the college not studying either French or German ?

- (A)  $z + w - x - y$   
(B)  $z - w - x - y$   
(C)  $z - w - x + y$   
(D)  $w + x + y - z$   
(E)  $w - x - y - z$

16. Of the science books in a certain supply room, 50 are on botany, 65 are on zoology, 90 are on physics, 50 are on geology, and 110 are on chemistry. If science books are removed randomly from the supply room, how many must be removed to ensure that 80 of the books removed are on the same science?

- (A) 81  
(B) 159  
(C) 166  
(D) 285  
(E) 324

17. What is the greatest possible straight-line distance, in centimeters, between two vertices of the rectangular box shown above?

- (A)  $10\sqrt{2}$   
(B)  $10\sqrt{5}$   
(C)  $10\sqrt{6}$   
(D) 30  
(E) 40

18. A certain shade of gray paint is obtained by mixing 3 parts of white paint with 5 parts of black paint. If 2 gallons of the mixture is needed and the individual colors can be purchased only in one-gallon or half-gallon cans, what is the least amount of paint, in gallons, that must be purchased in order to measure out the portions needed for the mixture?

- (A) 2

---

(B)  $2\frac{1}{2}$

(C) 3

(D)  $3\frac{1}{2}$

(E) 4

19. A merchant paid \$300 for a shipment of  $x$  identical calculators. The merchant used 2 of the calculators as demonstrators and sold each of the others for \$5 more than the average (arithmetic mean) cost of the  $x$  calculators. If the total revenue from the sale of the calculators was \$120 more than the cost of the shipment, how many calculators were in the shipment?

(A) 24

(B) 25

(C) 26

(D) 28

(E) 30

20.  $5^{12} + 5^{13} =$

(A)  $5^{25}$

(B)  $10^{25}$

(C)  $6(5^{12})$

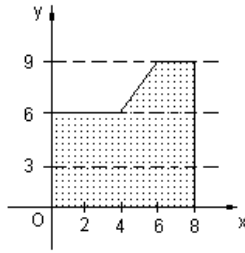
(D)  $10^{12} + 5$

(E)  $2(5^{12}) + 5$

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**QUANTITATIVE REASONING 22**  
**20 Minutes 20 Questions**

1. Tamara saves \$35 each week. If she now has \$100 saved, in how many weeks can she first have enough saved to buy a lawn mower that costs \$250 ?
- (A) 2    (B) 3    (C) 4    (D) 5    (E) 6
2.  $-2(-4 - (-3 + 5)) =$
- (A) -16  
(B) -10  
(C) 6  
(D) 12  
(E) 16
3. On a certain test, 3 students each had a score of 90, 9 students each had a score of 80, 4 students each had a score of 70, and 4 students each had a score of 60. What was the average (arithmetic mean) score for the 20 students ?
- (A) 70.5  
(B) 75.0  
(C) 75.5  
(D) 80.0  
(E) 80.5
4. If a hiker walks at a constant speed of  $2\frac{1}{2}$  miles per hour, how many miles can the hiker walk in 4 hours and 12 minutes ?
- (A) 10.0  
(B) 10.3  
(C) 10.4  
(D) 10.5  
(E) 10.8
5. In the manufacture of a certain product, 5 percent of the units produced are defective and 4 percent of the defective units are shipped for sale. What percent of the units produced are defective units that are shipped for sale?
- (A) 0.125%  
(B) 0.2%  
(C) 0.8%  
(D) 1.25%  
(E) 2.0%
6.  $x(x + 1)(x + 2) + x(x + 3) =$
- (A)  $x^3 + 4x^2 + 5x$   
(B)  $x^3 + 3x^2 + 2x$   
(C)  $x^3 + 6x^2 + 3x$   
(D)  $2x^3 + 3x^2 + 5x$   
(E)  $2x^2 + 6x + 2$



7. What is the area of the shaded region in the figure above ?

- (A) 72
- (B) 57
- (C) 55
- (D)  $54\frac{1}{2}$
- (E)  $49\frac{1}{2}$

8. Which of the following equals the ratio of  $3\frac{1}{3}$  to  $1\frac{1}{3}$  ?

- (A) 1 : 3
- (B) 2 : 5
- (C) 5 : 2
- (D) 3 : 1
- (E) 40 : 9

	Company X	Company Y
Prince	\$75	\$530
Surcharge as a Percent of Price	4%	3%
Installation Charge	\$82.50	\$93.00

9. The table above shows the various charges made by two companies for the same air conditioner. What is the total amount that can be saved on the purchase and installation of the air conditioner by dealing with the company that offers the lower total charge?

- (A) \$41.60
- (B) \$45.00
- (C) \$50.75
- (D) \$55.75
- (E) \$61.25

10. The numbers in which of the following pairs do NOT have a pair of distinct prime divisors in common ?

- (A) 10 and 20
- (B) 12 and 18
- (C) 24 and 32
- (D) 21 and 63
- (E) 22 and 88



- 
11. If the sum of two integers is 6, then it must be true that
- (A) both integers are even
  - (B) both integers are odd
  - (C) both integers are positive
  - (D) if one integer is negative, the other is positive
  - (E) if one integer is positive, the other is negative
12. A square picture frame has an outer perimeter of 36 inches and is 1 inch wide on all sides. What is the inner perimeter of the frame, in inches?
- (A) 27
  - (B)  $27\frac{1}{2}$
  - (C) 28
  - (D)  $31\frac{1}{2}$
  - (E) 32
13. If  $2 - x\left(\frac{1}{x} + 2\right) = 19 - 4x$ , then  $x =$
- (A) -3
  - (B) 3
  - (C) 4
  - (D) 5
  - (E) 9
14. For a group of  $n$  people,  $k$  of whom are of the same sex, the expression  $\frac{n-k}{n}$  yields an index for a certain phenomenon in group dynamics for members of that sex. For a group that consists of 20 people, 4 of whom are females, by how much does the index for the females exceed the index for the males in the group?
- (A) 0.05
  - (B) 0.0625
  - (C) 0.2
  - (D) 0.25
  - (E) 0.6
15. A certain used-book dealer sells paperback books at 3 times dealer's cost and hardback books at 4 times dealer's cost. Last week the dealer sold a total of 120 books, each of which had cost the dealer \$1. If the gross profit (sales revenue minus dealer's cost) on the sale of all of these books was \$300, how many of the books sold were paperbacks?
- (A) 40
  - (B) 60
  - (C) 75
  - (D) 90
  - (E) 100

$$d = \frac{3v^2}{20} \text{ and } t = \frac{2d}{v}, \text{ where}$$

d is the distance traveled, in meters,  
after the brakes are applied

v is the velocity, in meters per second,  
before the brakes are applied

t is the time, in seconds, it takes to stop  
after the brakes are applied

16. The formulas above are used to compute the distance a car travels after the brakes are applied. If the driver of a car applied the brakes just as a traffic light turned yellow and stopped exactly 6 seconds later, what is the value of  $v$  ?
- (A) 20  
(B)  $\frac{80}{3}$   
(C) 30  
(D) 40  
(E) 60
17. A certain fraction is equivalent to  $\frac{2}{5}$ . If the numerator of the fraction is increased by 4 and the denominator is doubled, the new fraction is equivalent to  $\frac{1}{3}$ . What is the sum of the numerator and denominator of the original fraction?
- (A) 49      (B) 35      (C) 28  
(D) 26      (E) 21
18. If all of the telephone extensions in a certain company must be even numbers, and if each of the extensions uses all four of the digits 1, 2, 3, and 6, what is the greatest number of four-digit extensions that the company can have?
- (A) 4      (B) 6      (C) 12  
(D) 16      (E) 24
19. The product of the first twelve positive integers is divisible by all of the following EXCEPT
- (A) 210  
(B) 88  
(C) 75  
(D) 60  
(E) 34
20. A car traveled 462 miles per tankful of gasoline on the highway and 336 miles per tankful of gasoline in the city. If the car traveled 6 fewer miles per gallon in the city than on the highway, how many miles per gallon did the car travel in the city?
- (A) 14  
(B) 16  
(C) 21

- 
- (D) 22
  - (E) 27

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**QUANTITATIVE REASONING 23**  
**20 Minutes 20 Questions**

1. The value of which of the following expressions is equal to 2 ?

I.  $\frac{2^2 + 2}{2}$

II.  $\frac{2^2 + 2^2}{2}$

III.  $\frac{2^4 + 2^4}{2^4}$

- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I, II, and III

2. If a survey shows that 28 citizens out of a sample of 200 support a particular Senate bill, what percent of the sample does not support the bill?

- (A) 56%
- (B) 64%
- (C) 72%
- (D) 82%
- (E) 86%

3. Joe went on a diet 6 months ago when he weighed 222 pounds. If he now weighs 198 pounds and continues to lose at the same average monthly rate, in approximately how many months will he weigh 180 pounds?

- (A) 3
- (B) 3.5
- (C) 4
- (D) 4.5
- (E) 5

4.  $\frac{\left(\frac{1}{2}\right)^3}{\left(\frac{1}{2}\right)^4} =$

- (A) 2
- (B)  $\frac{4}{3}$
- (C) 1
- (D)  $\frac{3}{4}$
- (E)  $\frac{1}{2}$

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5.  $3x^2 + 2x - 8 =$

- (A)  $(3x + 4)(x - 2)$
- (B)  $(3x - 4)(x + 2)$
- (C)  $(3x + 2)(x - 4)$
- (D)  $(3x - 2)(x + 4)$
- (E) none of the above

6. NOT SCORED

7. If the sum of 7 consecutive integers is 434, then the greatest of the 7 integers is

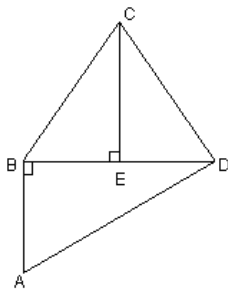
- (A) 71
- (B) 69
- (C) 67
- (D) 65
- (E) 62

8. At a certain college, 50 percent of the total number of students are freshmen. If 20 percent of the freshmen are enrolled in the school of liberal arts and, of these, 30 percent are psychology majors, what percent of the students at the college are freshmen psychology majors enrolled in the school of liberal arts?

- (A) 3%
- (B) 6%
- (C) 12%
- (D) 15%
- (E) 20%

9. A plane was originally flying at an altitude of  $x$  feet when it ascended 2,000 feet and then descended 5,000 feet. If the plane's altitude after these two changes was  $\frac{1}{3}$  its original altitude, then the solution of which of the following equations gives the plane's original altitude, in feet?

- (A)  $x + 2,000 = \frac{1}{3}(x - 3,000)$
- (B)  $\frac{1}{3}(x - 3,000) = x$
- (C)  $x + 3,000 = \frac{1}{3}x$
- (D)  $x - 7,000 = \frac{1}{3}x$
- (E)  $x - 3,000 = \frac{1}{3}x$



10. In the figure above,  $CE = 5$ ,  $BD = 8$ , and the area of quadrilateral  $ABCD$  is 36. What is the area of  $\triangle ABD$ ?

- (A) 4
- (B) 9
- (C) 16
- (D) 20
- (E) 56

11. If the remainder is 7 when positive integer  $n$  is divided by 18, what is the remainder when  $n$  is divided by 6?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

12. There are how many hours between  $x$  minutes past 12 noon and 8:10 p.m. of the same day, where  $x < 60$ ?

- (A)  $\frac{490 - x}{60}$
- (B)  $\frac{480 - x}{60}$
- (C)  $\frac{470 - x}{60}$
- (D)  $60(60 - x + 7)$
- (E)  $60(60 - x + 17)$

13. If  $x = 4$  and  $y = 16$ , then  $\sqrt{\frac{x+y}{xy}}$  is closest to which of the following?

- (A)  $\frac{1}{3}$
- (B)  $\frac{1}{2}$
- (C)  $\frac{3}{4}$

- 
- (D)  $\frac{7}{8}$   
(E) 1

14. A total of \$20,000 was invested in two certificates of deposit at simple annual interest rates of 6 percent and 8 percent, respectively. If the total interest on the two certificates was \$1,440 at the end of one year, what fractional part of the \$20,000 was invested at the higher rate?

- (A)  $\frac{3}{8}$   
(B)  $\frac{2}{5}$   
(C)  $\frac{1}{2}$   
(D)  $\frac{3}{5}$   
(E)  $\frac{3}{4}$

15. If the tens digit  $x$  and the units digit  $y$  of a positive integer  $n$  are reversed, the resulting integer is 9 more than  $n$ . What is  $y$  in terms of  $x$ ?

- (A)  $10 - x$   
(B)  $9 - x$   
(C)  $x + 9$   
(D)  $x - 1$   
(E)  $x + 1$

16. Beth received  $\frac{3}{10}$  of the votes cast in a certain election. What fraction of the other votes cast would she have needed in order to have received  $\frac{1}{2}$  of the votes cast?

- (A)  $\frac{1}{5}$   
(B)  $\frac{2}{7}$   
(C)  $\frac{3}{10}$   
(D)  $\frac{7}{20}$   
(E)  $\frac{1}{2}$

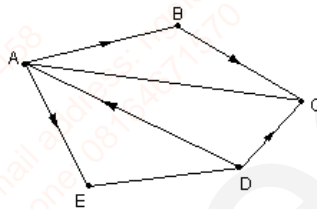
17. Kim bought a total of \$2.65 worth of postage stamps in four denominations. If she bought an equal number of 5-cent and 25-cent stamps and twice as many 10-cent stamps as 5-cent stamps, what is the least number of 1-cent stamps she could have bought?

- (A) 5

- (B) 10
- (C) 15
- (D) 20
- (E) 25

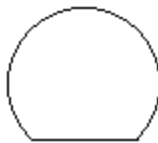
18. If  $x$  is an even integer and  $y$  is an odd integer, which of the following CANNOT be true?

- (A)  $x^y$  is an even integer.
- (B)  $y^x$  is an odd integer.
- (C)  $x$  is a multiple of  $y$ .
- (D)  $y$  is a multiple of  $x$ .
- (E)  $xy$  is an even integer.



19. In the diagram above, points  $A$ ,  $B$ ,  $C$ ,  $D$ , and  $E$  represent the five teams in a certain league in which each team must play each of the other teams exactly once. The segments connecting pairs of points indicate that the two corresponding teams have already played their game. The arrows on the segments point to the teams that lost; the lack of an arrow on a segment indicates that the game ended in a tie. After all games have been played, which of the following could NOT be the percent of games played that ended in a tie?

- (A) 10%
- (B) 20%
- (C) 30%
- (D) 40%
- (E) 50%



20. The figure above shows the shape of a tunnel entrance. If the curved portion is  $\frac{3}{4}$  of a circle and the base of the entrance is 12 feet across, what is the perimeter, in feet, of the curved portion of the entrance?

- (A)  $9\pi$
- (B)  $12\pi$
- (C)  $9\pi\sqrt{2}$
- (D)  $18\pi$



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(E)  $\frac{9\pi}{\sqrt{2}}$

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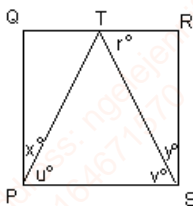
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**QUANTITATIVE REASONING 24****20 Minutes 20 Questions**

1. Of the 10 employees at a certain company, 5 had annual salaries of \$20,000, 4 had annual salaries of \$25,000, and 1 had an annual salary of \$30,000. If a bonus equal to 10 percent of annual salary was given to each employee, what was the total amount of the bonuses?

- (A) \$230,000  
(B) \$75,000  
(C) \$30,000  
(D) \$23,000  
(E) \$7,500



2. In the figure above, if  $PQRS$  is a square and  $QT = TR$ , which of the following statements is NOT true?

- (A)  $PT = TS$   
(B)  $x = y$   
(C)  $u = v$   
(D)  $r = y$   
(E) The area of  $\triangle PQT$  is equal to the area of  $\triangle RST$ .

3. If  $ab \neq 0$ , which of the following is equal to  $\frac{1}{\frac{a}{b}}$  ?

- (A)  $\frac{a}{b}$   
(B) 1  
(C)  $a$   
(D)  $b$   
(E)  $\frac{b}{a}$

4. What is the greatest integer  $k$  such that  $2^k \leq 100$  ?

- (A) 5 (B) 6 (C) 7 (D) 49 (E) 50

5. A certain electric-company plan offers customers reduced rates for electricity used between 8 p.m. and 8 a.m. weekdays and 24 hours a day Saturdays and Sundays. Under this plan, the reduced rates apply to

what fraction of a week?

- (A)  $\frac{1}{2}$   
 (B)  $\frac{5}{8}$   
 (C)  $\frac{9}{14}$   
 (D)  $\frac{16}{21}$   
 (E)  $\frac{9}{10}$

6. A certain mixture of nuts consists of 5 parts almonds to 2 parts walnuts, by weight. What is the number of pounds of almonds in 140 pounds of the mixture ?

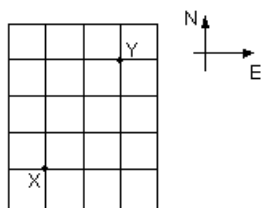
- (A) 100  
 (B) 84  
 (C) 40  
 (D) 28  
 (E) 20

7.  $(0.01)^2(0.014) + (0.01)(0.0026) =$

- (A) 0.0000166  
 (B) 0.0000274  
 (C) 0.00004  
 (D) 0.000166  
 (E) 0.0004

8. The pages of a report are numbered consecutively from 1 to 10. If the sum of the page numbers up to and including page number  $x$  of the report is equal to one more than the sum of the page numbers following page number  $x$ , then  $x =$

- (A) 4    (B) 5    (C) 6    (D) 7    (E) 8



Note: Figure not drawn to scale.

9. In City  $R$ , streets run either east-west or north-south, as shown on the map above. Blocks along east-west streets are 400 feet long and blocks along north-south streets are 200 feet long. If the width of the streets is ignored, what is the straight-line distance, in feet, from  $X$  to  $Y$  ?

- 
- (A)  $200\sqrt{5}$
  - (B) 1,000
  - (C) 1,200
  - (D)  $400\sqrt{10}$
  - (E) 1,600

10. If  $x(1 - \frac{1}{x}) = 1 - y$ , then  $y =$

- (A)  $\frac{1}{x}$
- (B)  $x$
- (C)  $x - 2$
- (D)  $1 - \frac{1}{x^2}$
- (E)  $2 - x$

11. A side of beef lost 35 percent of its weight in processing. If the side of beef weighed 546 pounds after processing, how many pounds did it weigh before processing?

- (A) 191
- (B) 355
- (C) 737
- (D) 840
- (E) 1,560

12. The total price of  $n$  ( $n > 1$ ) equally priced copies of a certain book is \$50. In terms of  $n$ , which of the following gives the total price of  $n - 1$  of these copies?

- (A)  $50(n - 1)$
- (B)  $\frac{50}{n - 1}$
- (C)  $\frac{50(n - 1)}{n}$
- (D)  $\frac{50n}{n - 1}$
- (E)  $\frac{50}{n(n - 1)}$

13. Of the following sums, which is greatest ?

- (A)  $\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}} + \frac{1}{\sqrt{4}} + \frac{1}{\sqrt{5}}$
- (B)  $\frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2}$
- (C)  $\frac{1}{2^2} + \frac{1}{2^3} + \frac{1}{2^4} + \frac{1}{2^5}$

---

(D)  $1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4}$

(E)  $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5}$

14. One millisecond is 0.001 of a second. The costs for a single run of a computer program are \$1.07 for operating-system overhead, \$0.023 per millisecond of computer time, and \$4.35 for the mounting of a data tape. What is the total of these three costs for 1 run of a program that requires 1.5 seconds of computer time ?

- (A) \$7.15  
(B) \$8.87  
(C) \$28.96  
(D) \$35.57  
(E) \$39.92

15. A certain theater has 100 balcony seats. For every \$2 increase in the price of a balcony seat above \$10, 5 fewer seats will be sold. If all the balcony seats are sold when the price of each seat is \$10, which of the following could be the price of a balcony seat if the revenue from the sale of balcony seats is \$1,360 ?

- (A) \$12  
(B) \$14  
(C) \$16  
(D) \$17  
(E) \$18

16. If  $n = (2^2)(3^4)(5^6)$ , the value of which of the following products is greater than  $\sqrt{n}$  ?

- I.  $(2)(3^3)(5^2)$   
II.  $(2)(3)(5^4)$   
III.  $(2^2)(3^2)(5^3)$

- (A) None  
(B) I only  
(C) II only  
(D) III only  
(E) II and III

17. If  $b$  and  $c$  are positive numbers and  $\frac{1}{b} = \frac{b}{c} = \frac{c}{8}$ , then  $b + c =$

- (A) 4  
(B) 6  
(C) 7  
(D) 8  
(E) 9

18. In a certain performance of a 3-act play, the first act was 18 minutes shorter than the third act and half as long as the second act. If the average (arithmetic mean) length of the 3 acts

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was 46 minutes, how many minutes long was the third act?

- (A) 30
- (B) 39
- (C) 46
- (D) 48
- (E) 66

19. In an office, 40 percent of the workers have at least 5 years of service, and a total of 16 workers have at least 10 years of service. If 90 percent of the workers have fewer than 10 years of service, how many of the workers have at least 5 but fewer than 10 years of service?

- (A) 48
- (B) 64
- (C) 50
- (D) 144
- (E) 160

20. If  $n$  and  $p$  are different positive prime numbers, which of the integers  $n^4$ ,  $p^3$ , and  $np$  has (have) exactly 4 positive divisors?

- (A)  $n^4$  only
- (B)  $p^3$  only
- (C)  $np$  only
- (D)  $n^4$  and  $np$
- (E)  $p^3$  and  $np$

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QUANTITATIVE REASONING 25

20 Minutes 20 Questions

- For each color copy, Print Shop X charges \$1.25 and Print Shop Y charges \$2.75. How much greater is the charge for 84 color copies at Print Shop Y than at Print Shop X?
  - \$84.00
  - \$105.00
  - \$126.00
  - \$231.00
  - \$336.00
- The sum of 25 percent of 36 and 75 percent of 56 equals
  - 23
  - 37
  - 41
  - 51
  - 69
- If  $x^2 < x$ , then  $x$  must be
  - less than 0
  - equal to 0
  - between 0 and 1
  - equal to 1
  - greater than 1
- If 15 people contributed a total of \$20.00 toward a gift and each of them contributed at least \$1.00, then the maximum possible amount any one person could have contributed is
  - \$1.00
  - \$1.25
  - \$5.00
  - \$6.00
  - \$20.00
- If the cost of a yearly membership in a certain club increased from \$199 to \$299, what was the approximate percent increase in cost?
  - $33\frac{1}{3}\%$
  - 50%
  - $66\frac{2}{3}\%$
  - 100%
  - 150%
- On the number line, the number  $p$  is twice as many units from  $-2$  as  $-2$  is from  $6$ . If  $p$  is less than  $-2$ , what is the value of  $p$ ?

- 
- (A) -18
  - (B) -10
  - (C) -6
  - (D) 10
  - (E) 14

7. A telephone call costs \$1.25 for the first minute and \$0.32 for each additional minute. What is the cost, in dollars, of a telephone call that lasts for  $x$  minutes, where  $x$  is an integer?

- (A)  $0.32 + 1.25x$
- (B)  $1.25 + 0.32x$
- (C)  $0.32 + 1.25(x - 1)$
- (D)  $1.25 + 0.32(x + 1)$
- (E)  $1.25 + 0.32(x - 1)$

8. If  $x$  and  $y$  are integers, then  $\frac{1}{x+y}$  CANNOT be equal to

- (A) -1
- (B)  $-\frac{1}{2}$
- (C) 0
- (D)  $\frac{1}{2}$
- (E) 1

9. The markup on a television set is 20 percent of the cost. The markup is what percent of the selling price?

(markup = selling price - cost)

- (A) 8%
- (B) 10%
- (C)  $12\frac{1}{2}\%$
- (D) 15%
- (E)  $16\frac{2}{3}\%$

10. If  $x$  and  $y$  are two-digit integers such that  $x > 40$  and  $y < 70$ , which of the following is closest to the maximum possible value of  $xy$  ?

- (A) 700
- (B) 2,800
- (C) 4,000
- (D) 7,000
- (E) 28,000

11. What is the diameter of a circular region that has area  $10\pi$  ?

- (A) 5
- (B) 10



- 
- (C) 20
  - (D)  $\sqrt{10}$
  - (E)  $2\sqrt{10}$

12. If  $3x + 2y = 7$  and  $2x - y = 7$ , what is the value of  $x$  ?

- (A) 0
- (B) 1
- (C)  $\frac{7}{5}$
- (D)  $\frac{21}{11}$
- (E) 3

13. Worldwide production of motor vehicles was 3.9 million vehicles in 1946 and 45.7 million in 1987. Of the following, which is closest to the average (arithmetic mean) annual increase, in millions, in worldwide production of motor vehicles during this period?

- (A) 0.08
- (B) 1.0
- (C) 1.1
- (D) 10.5
- (E) 41.8

14. Raymond took several days to mow a certain lawn. He mowed  $\frac{1}{3}$  of the lawn the first day,  $\frac{1}{2}$  of the remaining unmowed portion the second day, and  $\frac{3}{4}$  of the remaining unmowed portion the third day. What fraction of the lawn remained unmowed at the end of the third day?

- (A)  $\frac{1}{6}$
- (B)  $\frac{1}{8}$
- (C)  $\frac{1}{12}$
- (D)  $\frac{1}{16}$
- (E)  $\frac{1}{24}$

15. Of the votes cast on a certain proposal, 80 more were in favor of the proposal than were against it. If the number of votes against the proposal was 40 percent of the total vote, what was the total number of votes cast?

(Each vote cast was either in favor of the proposal or against it.)

- (A) 480
- (B) 400

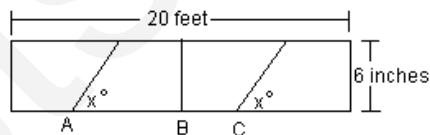
- (C) 300  
 (D) 240  
 (E) 160

16. If  $xy \neq 0$  and  $\frac{1}{x} - \frac{1}{y} = cx$ . Which of the following is equal to  $c$  ?

- (A)  $\frac{x}{y(1-x^2)}$   
 (B)  $\frac{1}{-x^2y}$   
 (C)  $\frac{y-x}{x^2y}$   
 (D)  $\frac{y-x}{y}$   
 (E)  $\frac{y}{y-x}$

17. Due to construction, the speed limit along an 8-mile section of highway is reduced from 55 miles per hour to 35 miles per hour. Approximately how many minutes more will it take to travel along this section of highway at the new speed limit than it would have taken at the old speed limit ?

- (A) 5  
 (B) 8  
 (C) 10  
 (D) 15  
 (E) 24



Note: Figure not drawn to scale.

18. The figure above shows the dimensions of a rectangular board that is to be cut into four identical pieces by making cuts at points  $A$ ,  $B$ , and  $C$ , as indicated. If  $x = 45$ , what is the length  $AB$  ?

- (1 foot = 12 inches)  
 (A) 5 ft 6 in  
 (B) 5 ft  $3\sqrt{2}$  in  
 (C) 5 ft 3 in  
 (D) 5 ft  
 (E) 4 ft 9 in

19. If  $x < y < z$  and  $y - x > 5$ , where  $x$  is an even integer and  $y$  and  $z$  are odd integers, what is the least possible value of  $z - x$  ?

- 
- (A) 6
  - (B) 7
  - (C) 8
  - (D) 9
  - (E) 10

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20. On the day of the performance of a certain play, each ticket that regularly sells for less than \$10.00 is sold for half price plus \$0.50, and each ticket that regularly sells for \$10.00 or more is sold for half price plus \$1.00. On the day of the performance, a person purchases a total of  $y$  tickets, of which  $x$  regularly sell for \$9.00 each and the rest regularly sell for \$12.00 each. What is the amount paid, in dollars, for the  $y$  tickets ?

- (A)  $7y - 2x$
- (B)  $12x - 7y$
- (C)  $\frac{9x+12y}{2}$
- (D)  $7y + 4x$
- (E)  $7y + 5x$

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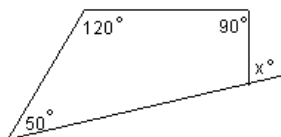
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**QUANTITATIVE REASONING 26****20 Minutes 20 Questions**

1. A car with a 12-gallon gas tank used  $\frac{1}{2}$  of a full tank of gas to make a 150-mile trip. How many miles per gallon did the car average on the trip?
- (A) 30  
(B) 25  
(C)  $12\frac{1}{2}$   
(D)  $8\frac{1}{3}$   
(E) 6
2. If  $5n + 4 = 11$ , what is the value of  $10n - 2$ ?
- (A) 68  
(B) 14  
(C) 12  
(D) 7  
(E) -1
3. At the beginning of each year, the price of item  $X$  is 10 percent higher than its price at the beginning of the previous year. During three consecutive years, if the price of item  $X$  is \$8 at the beginning of the first year, what is its price at the beginning of the third year?
- (A) \$8.80  
(B) \$9.60  
(C) \$9.68  
(D) \$10.00  
(E) \$16.00
4.  $\frac{\left(\frac{1}{2}\right)\left(\frac{1}{3}\right)}{\frac{1}{2} \div \frac{1}{3}} =$
- (A)  $\frac{1}{9}$   
(B)  $\frac{1}{4}$   
(C) 1  
(D)  $\frac{3}{2}$   
(E) 6



5. An association of mathematics teachers has 1,260 members. Only 525 of these members cast votes in the election for president of the association. What percent of the total membership voted for the winning candidate if the winning candidate received 60 percent of the votes cast?

(A) 75%  
(B) 58%  
(C) 42%  
(D) 34%  
(E) 25%

6. In the figure above, what is the value of  $x$  ?

(A) 50  
(B) 70  
(C) 80  
(D) 90  
(E) 100

7. Which of the following fractions, if written as a decimal, would have a 2 in the thousandths place ?

(A)  $\frac{3}{11}$   
(B)  $\frac{7}{9}$   
(C)  $\frac{1}{8}$   
(D)  $\frac{4}{7}$   
(E)  $\frac{1}{6}$

8. If  $P$  dollars is invested at an annual interest rate of 5 percent, which of the following gives the amount of simple interest, in dollars, earned after  $n$  months ?

(A)  $0.05P + n$   
(B)  $0.05P + \frac{n}{12}$   
(C)  $0.05P \times n$   
(D)  $0.05P \times \frac{1}{12n}$   
(E)  $0.05P \times \frac{n}{12}$

---

9. If a person purchases 15 of the 3,000 tickets sold in a raffle that awards one prize, what is the probability that this person will not win?

- (A) 0
- (B)  $\frac{1}{200}$
- (C)  $\frac{1}{2}$
- (D)  $\frac{199}{200}$
- (E) 1

10. Virginia, Adrienne, and Dennis have taught history for a combined total of 96 years. If Virginia has taught for 9 more years than Adrienne and for 9 fewer years than Dennis, for how many years has Dennis taught?

- (A) 23
- (B) 32
- (C) 35
- (D) 41
- (E) 44

11. Approximately 90 percent of the volume of a certain cube that is floating in a tank of water is beneath the surface. If 6.4 cubic centimeters of the cube is above the surface of the water, what is the approximate length, in centimeters, of an edge of the cube?

- (A) 10
- (B) 8
- (C) 6
- (D) 4
- (E) 2

12. If  $x = 2u$ , then the average (arithmetic mean) of  $x$  and  $u$ , in terms of  $u$ , is

- (A)  $\frac{u}{3}$
- (B)  $\frac{u}{2}$
- (C)  $\frac{2u}{3}$
- (D)  $\frac{3u}{4}$
- (E)  $\frac{3u}{2}$

13. If the sum of a set of ten different positive prime numbers is an even number, which of the following prime numbers CANNOT be in the set ?

- (A) 2
- (B) 3
- (C) 5

- 
- (D) 7  
(E) 11

14. A book dealer buys used books for prices ranging from \$0.75 to \$1.50 and then sells them for prices ranging from \$3.00 to \$5.50. If the dealer were to sell 20 of these books, the minimum gross profit from this sale would be

- (A) \$15  
(B) \$30  
(C) \$45  
(D) \$50  
(E) \$80

15. If  $x(a + b) = y$ , where  $y \neq 0$  and  $2a = 3b = 1$ , then  $\frac{y}{x} =$

- (A)  $\frac{1}{6}$   
(B)  $\frac{1}{3}$   
(C)  $\frac{2}{3}$   
(D)  $\frac{5}{6}$   
(E)  $\frac{6}{5}$

16. A certain Social Security recipient will receive an annual benefit of \$12,000 provided he has annual earnings of \$9,360 or less, but the benefit will be reduced by \$1 for every \$3 of annual earnings over \$9,360. What amount of total annual earnings would result in a 50 percent reduction in the recipient's annual Social Security benefit? (Assume Social Security benefits are not counted as part of annual earnings.)

- (A) \$15,360  
(B) \$17,360  
(C) \$18,000  
(D) \$21,360  
(E) \$27,360

17.  $\frac{1}{2^{10}} + \frac{1}{2^{11}} + \frac{1}{2^{12}} + \frac{1}{2^{12}} =$

- (A)  $\frac{1}{2^7}$   
(B)  $\frac{1}{2^8}$   
(C)  $\frac{1}{2^9}$   
(D)  $\frac{1}{2^{13}}$



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(E)  $\frac{1}{2^{45}}$

18. If it would take one machine 10 minutes to fill a large production order and another machine 12 minutes to fill the same order, how many minutes would it take both machines working together, at their respective rates, to fill the order?

(A)  $4\frac{1}{60}$

(B) 5

(C)  $5\frac{5}{11}$

(D)  $5\frac{1}{2}$

(E) 11

19. If  $\frac{m}{7}$  is an integer, then each of the following must be an integer EXCEPT

(A)  $\frac{m-28}{7}$

(B)  $\frac{m+21}{7}$

(C)  $\frac{14m}{98}$

(D)  $\frac{m^2-49}{49}$

(E)  $\frac{m+14}{14}$

20. Not Scored

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**QUANTITATIVE REASONING 27****25 minutes 16 Questions**

1. A project scheduled to be carried out over a single fiscal year has a budget of \$12,600, divided into 12 equal monthly allocations. At the end of the 4th month of that fiscal year, the total amount actually spent on the project was \$4,580. By how much was the project over its budget ?
- (A) \$380  
(B) \$540  
(C) \$1,050  
(D) \$1,380  
(E) \$1,430
2. For which of the following values of  $n$  is  $\frac{100+n}{n}$  NOT an integer ?
- (A) 1  
(B) 2  
(C) 3  
(D) 4  
(E) 5
3. Rectangular floors  $X$  and  $Y$  have equal area. If floor  $X$  is 12 feet by 18 feet and floor  $Y$  is 9 feet wide, what is the length of floor  $Y$ , in feet ?
- (A)  $13\frac{1}{2}$   
(B) 18  
(C)  $18\frac{3}{4}$   
(D) 21  
(E) 24
4. A case contains  $c$  cartons. Each carton contains  $b$  boxes and each box contains 100 paper clips. How many paper clips are contained in 2 cases ?
- (A)  $100bc$   
(B)  $\frac{100b}{c}$   
(C)  $200bc$   
(D)  $\frac{200b}{c}$   
(E)  $\frac{200}{bc}$
5. In a certain city, 60 percent of the registered voters are Democrats and the rest are Republicans. In a mayoral race, if 75 percent of the registered voters who are Democrats and 20 percent of the registered voters who are Republicans are expected to vote for Candidate A, what percent of the registered voters are expected to vote for Candidate A ?
- (A) 50%

- 
- (B) 53%
  - (C) 54%
  - (D) 55%
  - (E) 57%

6. if  $\left(\frac{3x-5}{2}\right)^y = y$  and  $y \neq 0$ , then  $x =$

- (A)  $\frac{2}{3}$
- (B)  $\frac{5}{3}$
- (C)  $\frac{7}{3}$
- (D) 1
- (E) 4

7. If  $x + 5 > 2$  and,  $x - 3 < 7$ , the value of  $x$  must be between which of the following pairs of numbers ?

- (A) -3 and 10
- (B) -3 and 4
- (C) 2 and 7
- (D) 3 and 4
- (E) 3 and 10

8. A certain company retirement plan has a "rule of 70" provision that allows an employee to retire when the employee's age plus years of employment with the company total at least 70. In what year could a female employee hired in 1986 on her 32nd birthday first be eligible to retire under this provision ?

- (A) 2003
- (B) 2004
- (C) 2005
- (D) 2006
- (E) 2007

9.  $\frac{1}{2} + \left[ \left( \frac{2}{3} \times \frac{3}{8} \right) \div 4 \right] - \frac{9}{16} =$

- (A)  $\frac{29}{16}$
- (B)  $\frac{19}{16}$
- (C)  $\frac{15}{16}$
- (D)  $\frac{9}{13}$
- (E) 0

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10. The sum of the prime numbers that are greater than 60 and less than 70 is

- (A) 67
- (B) 128
- (C) 191
- (D) 197
- (E) 260

11. Water consists of hydrogen and oxygen, and the approximate ratio, by mass, of hydrogen to oxygen is 2 : 16. Approximately how many grams of oxygen are there in 144 grams of water ?

- (A) 16
- (B) 72
- (C) 112
- (D) 128
- (E) 142

12. If  $x(2x + 1) = 0$  and  $(x + \frac{1}{2})(2x - 3) = 0$ , then  $x =$

- (A) -3
- (B)  $-\frac{1}{2}$
- (C) 0
- (D)  $\frac{1}{2}$
- (E)  $\frac{3}{2}$

13. A rainstorm increased the amount of water stored in State J reservoirs from 124 billion gallons to 138 billion gallons. If the storm increased the amount of water in the reservoirs to 82 percent of total capacity, approximately how many billion gallons of water were the reservoirs short of total capacity prior to the storm?

- (A) 9      (B) 14      (C) 25
- (D) 30      (E) 44

14. If  $s_1, s_2, s_3, \dots$  is the sequence such that  $s_n = \frac{n}{n+1}$  for all positive integers  $n$ , then the product of the first 10 terms of this sequence is

- (A)  $\frac{1}{(10)(11)}$       (B)  $\frac{1}{11}$
- (C)  $\frac{1}{10}$       (D)  $\frac{9}{10}$
- (E)  $\frac{10}{11}$

15. On a scale that measures the intensity of a certain phenomenon, a reading of  $n + 1$

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corresponds to an intensity that is 10 times the intensity corresponding to a reading of  $n$ . On that scale, the intensity corresponding to a reading of 8 is how many times as great as the intensity corresponding to a reading of 3 ?

- (A) 5    (B) 50    (C)  $10^5$   
(D)  $5^{10}$     (E)  $8^{10} - 3^{10}$

16. John and Mary were each paid  $x$  dollars in advance to do a certain job together, John worked on the job for 10 hours and Mary worked 2 hours less than John. If Mary gave John  $y$  dollars of her payment so that they would have received the same hourly wage, what was the dollar amount, in terms of  $y$ , that John was paid in advance ?

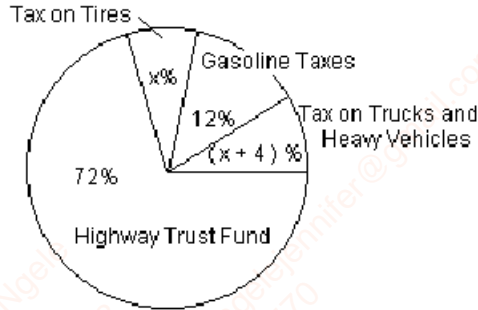
- (A)  $4y$     (B)  $5y$     (C)  $6y$   
(D)  $8y$     (E)  $9y$

Jennifer Ngele  
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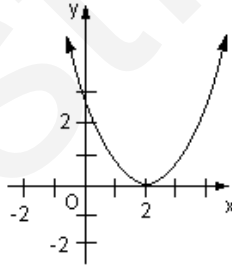
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QUANTITATIVE REASONING 28  
25 Minutes 16 Questions

SOURCES OF FUNDS FOR HIGHWAY  
MAINTENANCE IN STATE X IN 1983



1. According to the graph above, what percent of the funds for highway maintenance came from the tax on tires?
- (A) 3 %  
(B) 6 %  
(C) 8 %  
(D) 10%  
(E) 16%



2. According to the graph above, when  $x = 3$ ,  $y$  most nearly ?
- (A) -1  
(B)  $-\frac{1}{2}$   
(C) 0  
(D)  $\frac{1}{2}$   
(E) 1
3. A gym class can be divided into 8 teams with an equal number of players on each team or into 12 teams with an equal number of players on each team. What is the least possible number of students in the class?
- (A) 20

- 
- (B) 24
  - (C) 36
  - (D) 48
  - (E) 96

4. At least  $\frac{2}{3}$  of the 40 members of a committee must vote in favor of a resolution for it to pass. What is the greatest number of members who could vote against the resolution and still have it pass ?

- (A) 19
- (B) 17
- (C) 16
- (D) 14
- (E) 13

5. When  $\frac{1}{10}$  percent of 5,000 is subtracted from  $\frac{1}{10}$  of 5,000 the difference is

- (A) 0
- (B) 50
- (C) 450
- (D) 495
- (E) 500

6. A poll reveals that the average (arithmetic mean) income of 10 households is \$25,000. If 6 of the households have incomes of \$30,000 each, what is the average income of the other 4 households?

- (A) \$21,500
- (B) \$20,000
- (C) \$17,500
- (D) \$7,500
- (E) \$7,000

7.  $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}} =$

- (A)  $\frac{4}{7}$
- (B)  $\frac{4}{3}$
- (C)  $\frac{11}{8}$
- (D)  $\frac{11}{7}$
- (E)  $\frac{7}{4}$

---

8. If  $T = \frac{5}{9}(k - 32)$ , and if  $T = 290$ , then  $K =$

(A)  $\frac{1,738}{9}$

(B) 322

(C) 490

(D) 554

(E)  $\frac{2,898}{5}$

9. The water from one outlet, flowing at a constant rate, can fill a swimming pool in 9 hours. The water from a second outlet, flowing at a constant rate, can fill the same pool in 5 hours. If both outlets are used at the same time, approximately what is the number of hours required to fill the pool ?

(A) 0.22

(B) 0.31

(C) 2.50

(D) 3.21

(E) 4.56

10. Diana bought a stereo for \$530, which was the retail price plus a 6 percent sales tax. How much money could she have saved if she had bought the stereo at the same retail price in a neighboring state where she would have paid a sales tax of 5 percent?

(A) \$1.00

(B) \$2.65

(C) \$4.30

(D) \$5.00

(E) \$5.30

11. If a square mirror has a 20-inch diagonal, what is the approximate perimeter of the mirror, in inches?

(A) 40

(B) 60

(C) 80

(D) 100

(E) 120

12. Which of the following is the value of  $\sqrt[3]{0.000064}$  ?

(A) 0.004

(B) 0.008

(C) 0.02

(D) 0.04

(E) 0.2

13. The present ratio of students to teachers at a certain school is 30 to 1. If the student enrollment were to increase by 50 students and the number of teachers were to increase by 5, the ratio of students to teachers would then be 25 to 1. What is the present number



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of teachers ?

- (A) 5
- (B) 8
- (C) 10
- (D) 12
- (E) 15

14. What is the smallest integer  $n$  for which  $25^n > 5^{12}$ ?

- (A) 6
- (B) 7
- (C) 8
- (D) 9
- (E) 10

15. Raffle tickets numbered consecutively from 101 through 350 are placed in a box. What is the probability that a ticket selected at random will have a number with a hundreds digit of 2?

- (A)  $\frac{2}{5}$
- (B)  $\frac{2}{7}$
- (C)  $\frac{33}{83}$
- (D)  $\frac{99}{250}$
- (E)  $\frac{100}{249}$

16. If  $x$  and  $y$  are different prime numbers, each greater than 2, which of the following must be true ?

- I.  $x + y \neq 91$
- II.  $x - y$  is an even integer.
- III.  $\frac{x}{y}$  is not an integer.

- (A) II only
- (B) I and II only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III

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**QUANTITATIVE REASONING 29****25 Minutes 16 Questions**

1. As a salesperson, Phyllis can choose one of two methods of annual payment: either an annual salary of \$35,000 with no commission or an annual salary of \$10,000 plus a 20 percent commission on her total annual sales. What must her total annual sales be to give her the same annual pay with either method ?
- (A) \$100,000  
(B) \$120,000  
(C) \$125,000  
(D) \$130,000  
(E) \$132,000
2. A restaurant buys fruit in cans containing  $3\frac{1}{2}$  cups of fruit each. If the restaurant uses  $\frac{1}{2}$  cup of the fruit in each serving of its fruit compote, what is the least number of cans needed to prepare 60 servings of the compote ?
- (A) 7  
(B) 8  
(C) 9  
(D) 10  
(E) 12
3. If  $x > 3,000$ , then the value of  $\frac{x}{2x+1}$  is closest to
- (A)  $\frac{1}{6}$   
(B)  $\frac{1}{3}$   
(C)  $\frac{10}{21}$   
(D)  $\frac{1}{2}$   
(E)  $\frac{3}{2}$
4. Machine A produces 100 parts twice as fast as machine B does. Machine B produces 100 parts in 40 minutes. If each machine produces parts at a constant rate, how many parts does machine A produce in 6 minutes ?
- (A) 30  
(B) 25  
(C) 20  
(D) 15  
(E) 7.5

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5. If 18 is 15 percent of 30 percent of a certain number, what is the number ?

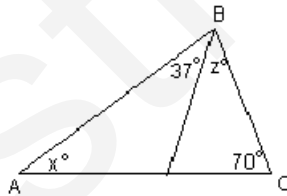
- (A) 9
- (B) 36
- (C) 40
- (D) 81
- (E) 400

6. A necklace is made by stringing  $N$  individual beads together in the repeating pattern red bead, green bead, white bead, blue bead, and yellow bead. If the necklace design begins with a red bead and ends with a white bead, then  $N$  could equal.

- (A) 16
- (B) 32
- (C) 41
- (D) 54
- (E) 68

7. If  $x = (0.08)^2$ ,  $y = \frac{1}{(0.08)^2}$ , and  $z = (1 - 0.08)^2 - 1$ , which of the following is true ?

- (A)  $x = y = z$
- (B)  $y < z < x$
- (C)  $z < x < y$
- (D)  $y < x$  and  $x = z$
- (E)  $x < y$  and  $x = z$



8. In  $\triangle ABC$  above, what is  $x$  in terms of  $z$  ?

- (A)  $z + 73$
- (B)  $z - 73$
- (C)  $70 - z$
- (D)  $z - 70$
- (E)  $73 - z$

9. In 1990 a total of  $x$  earthquakes occurred worldwide, some but not all of which occurred in Asia. If  $m$  of these earthquakes occurred in Asia, which of the following represents the ratio of the number of earthquakes that occurred in Asia to the number that did not occur in Asia ?

- (A)  $\frac{x}{m}$
- (B)  $\frac{m}{x}$

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(C)  $\frac{m}{x-m}$

(D)  $\frac{x}{x-m}$

(E)  $1 - \frac{m}{x}$

10. If  $\frac{x+y}{xy} = 1$ , then  $y =$

(A)  $\frac{x}{x-1}$

(B)  $\frac{x}{x+1}$

(C)  $\frac{x-1}{x}$

(D)  $\frac{x+1}{x}$

(E)  $x$

11. If  $\frac{1}{2}$  of the air in a tank is removed with each stroke of a vacuum pump, what fraction of the original amount of air has been removed after 4 strokes ?

(A)  $\frac{15}{16}$

(B)  $\frac{7}{8}$

(C)  $\frac{1}{4}$

(D)  $\frac{1}{8}$

(E)  $\frac{1}{16}$

12. Last year Department Store X had a sales total for December that was 4 times the average (arithmetic mean) of the monthly sales totals for January through November. The sales total for December was what fraction of the sales total for the year ?

(A)  $\frac{1}{4}$

(B)  $\frac{4}{15}$

(C)  $\frac{1}{3}$

(D)  $\frac{4}{11}$

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(E)  $\frac{4}{5}$

13. How many integers  $n$  are there such that  $1 < 5n + 5 < 25$  ?

- (A) Five
- (B) Four
- (C) Three
- (D) Two
- (E) One

14. If the two-digit integers  $M$  and  $N$  are positive and have the same digits, but in reverse order, which of the following CANNOT be the sum of  $M$  and  $N$  ?

- (A) 181
- (B) 163
- (C) 121
- (D) 99
- (E) 44

15. Working alone, printers  $X$ ,  $Y$ , and  $Z$  can do a certain printing job, consisting of a large number of pages, in 12, 15, and 18 hours, respectively. What is the ratio of the time it takes printer  $X$  to do the job, working alone at its rate, to the time it takes printers  $Y$  and  $Z$  to do the job, working together at their individual rates ?

- (A)  $\frac{4}{11}$
- (B)  $\frac{1}{2}$
- (C)  $\frac{15}{22}$
- (D)  $\frac{22}{15}$
- (E)  $\frac{11}{4}$

16. In 1985 a company sold a brand of shoes to retailers for a fixed price per pair. In 1986 the number of pairs of the shoes that the company sold to retailers decreased by 20 percent, while the price per pair increased by 20 percent. If the company's revenue from the sale of the shoes in 1986 was \$3.0 million, what was the approximate revenue from the sale of the shoes in 1985 ?

- (A) \$2.4 million
- (B) \$2.9 million
- (C) \$3.0 million
- (D) \$3.1 million
- (E) \$3.6 million

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**QUANTITATIVE REASONING 30****25 Minutes 16 Questions**

1.  $\frac{(3)(0.072)}{0.54} =$
- (A) 0.04  
(B) 0.3  
(C) 0.4  
(D) 0.8  
(E) 4.0
2. A car dealer sold  $x$  used cars and  $y$  new cars during May. If the number of used cars sold was 10 greater than the number of new cars sold. Which of the following expresses this relationship?
- (A)  $x > 10y$   
(B)  $x > y + 10$   
(C)  $x > y - 10$   
(D)  $x = y + 10$   
(E)  $x = y - 10$
3. What is the maximum number of  $1\frac{1}{4}$ -foot pieces of wire that can be cut from a wire that is 24 feet long?
- (A) 11  
(B) 18  
(C) 19  
(D) 20  
(E) 30
4. If each of the two lines  $l_1$  and  $l_2$  is parallel to line  $l_3$ , which of the following must be true?
- (A) Lines  $l_1$ ,  $l_2$ , and  $l_3$  lie in the same plane.  
(B) Lines  $l_1$ ,  $l_2$ , and  $l_3$  lie in different planes.  
(C) Line  $l_1$  is parallel to line  $l_2$ .  
(D) Line  $l_1$  is the same line as line  $l_2$ .  
(E) Line  $l_1$  is the same line as line  $l_3$ .
5.  $\frac{61.24 \times (0.998)^2}{\sqrt{403}}$  The expression above is approximately equal to
- (A) 1      (B) 3      (C) 4  
(D) 5      (E) 6
6. Car  $X$  and car  $Y$  traveled the same 80-mile route. If car  $X$  took 2 hours and car  $Y$  traveled at

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an average speed that was 50 percent faster than the averages speed of car  $X$ , how many hours did it take car  $Y$  to travel the route ?

- (A)  $\frac{2}{3}$
- (B) 1
- (C)  $1\frac{1}{3}$
- (D)  $1\frac{3}{5}$
- (E) 3

7. If the numbers  $\frac{17}{24}$ ,  $\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{3}{4}$ , and  $\frac{9}{16}$  were ordered from greatest to least, the middle number of the resulting sequence would be

- (A)  $\frac{17}{24}$
- (B)  $\frac{1}{2}$
- (C)  $\frac{3}{8}$
- (D)  $\frac{3}{4}$
- (E)  $\frac{9}{16}$

8. If a 10 percent deposit that has been paid toward the purchase of a certain product is \$110, how much more remains to be paid?

- (A) \$880
- (B) \$900
- (C) \$1,000
- (D) \$1,100
- (E) \$1,210

9. Kim purchased  $n$  items from a catalog for \$8 each. Postage and handling charges consisted of \$3 for the first item and \$1 for each additional item. Which of the following gives the total dollar amount of Kim's purchase, including postage and handling, in terms of  $n$  ?

- (A)  $8n + 2$
- (B)  $8n + 4$
- (C)  $9n + 2$
- (D)  $9n + 3$
- (E)  $9n + 4$

10.  $(\sqrt{7} + \sqrt{7})^2 =$

- (A) 98
- (B) 49
- (C) 28

- 
- (D) 21  
(E) 14

11. If the average (arithmetic mean) of the four numbers  $K$ ,  $2K + 3$ ,  $3K - 5$ , and  $5K + 1$  is 63, what is the value of  $K$ ?

- (A) 11  
(B)  $15\frac{3}{4}$   
(C) 22  
(D) 23  
(E)  $25\frac{3}{10}$

12. A rabbit on a controlled diet is fed daily 300 grams of a mixture of two foods, food  $X$  and food  $Y$ . Food  $X$  contains 10 percent protein and food  $Y$  contains 15 percent protein. If the rabbit's diet provides exactly 38 grams of protein daily, how many grams of food  $X$  are in the mixture?

- (A) 100  
(B) 140  
(C) 150  
(D) 160  
(E) 200

13. A company that ships boxes to a total of (12) distribution centers uses color coding to identify each center. If either a single color or a pair of two different colors is chosen to represent each center and if each center is uniquely represented by that choice of one or two colors, what is the minimum number of colors needed for the coding? (Assume that the order of the colors in a pair does not matter.)

- (A) 4 (B) 5 (C) 6 (D) 12 (E) 24

14. If  $x + y = a$  and  $x - y = b$ , then  $2xy =$

- (A)  $\frac{a^2 - b^2}{2}$   
(B)  $\frac{b^2 - a^2}{2}$   
(C)  $\frac{a - b}{2}$   
(D)  $\frac{ab}{2}$   
(E)  $\frac{a^2 + b^2}{2}$

15. A rectangular circuit board is designed to have width  $w$  inches, perimeter  $p$  inches, and area  $k$  square inches. Which of the following equations must be true?



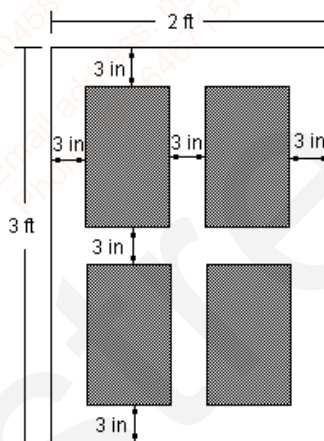
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- (A)  $w^2 + pw + k = 0$   
(B)  $w^2 - pw + 2k = 0$   
(C)  $2w^2 + pw + 2k = 0$   
(D)  $2w^2 - pw - 2k = 0$   
(E)  $2w^2 - pw + 2k = 0$

16. On a certain road, 10 percent of the motorists exceed the posted speed limit and receive speeding tickets, but 20 percent of the motorists who exceed the posted speed limit do not receive speeding tickets. What percent of the motorists on that road exceed the posted speed limit ?

- (A)  $10\frac{1}{2}\%$       (B)  $12\frac{1}{2}\%$   
(C) 15%          (D) 22%  
(E) 30%

**QUANTITATIVE REASONING 31**  
**25 Minutes 16 Questions**

1. If  $x$  is 11 percent greater than 80, then  $x =$
- (A) 70.9  
(B) 71.2  
(C) 88.0  
(D) 88.8  
(E) 91.0
2. A certain car uses 12 gallons of gasoline in traveling 240 miles. In order for the car to travel the same distance using 10 gallons of gasoline, by how many miles per gallon must the car's gas mileage be increased?
- (A) 2    (B) 4    (C) 6    (D) 8    (E) 10



3. The figure above represents a window, with the shaded regions representing the openings for the glass. If all line segments in the figure are either horizontal or vertical and the openings are all the same size, what are the dimensions, in inches, of each opening (1 foot = 12 inches)?
- (A) 12.0 by 18.0  
(B) 10.5 by 16.5  
(C) 9.0 by 15.0  
(D) 8.0 by 10.0  
(E) 7.5 by 13.5
4. A farmer used 1,034 acres of land for beans, wheat, and corn in the ratio of 5 : 2 : 4, respectively. How many acres were used for corn?
- (A) 188  
(B) 258  
(C) 376  
(D) 470  
(E) 517

5. If  $2x^2 + 4x - 5 = x^2 + 2x + x^2 + 5$ , then  $x^2 =$
- (A) 0
  - (B) 4
  - (C) 10
  - (D) 25
  - (E) 100
6.  $\sqrt{80} + \sqrt{125} =$
- (A)  $9\sqrt{5}$
  - (B)  $20\sqrt{5}$
  - (C)  $41\sqrt{5}$
  - (D)  $\sqrt{205}$
  - (E) 100
7. A circle graph shows how the budget of a certain company was spent: 63 percent for salaries, 12 percent for research and development, 6 percent for utilities, 5 percent for equipment, 4 percent for supplies, and the remainder for transportation. If the area of each sector of the graph is proportional to the percent of the budget it represents, how many degrees of the circle are used to represent transportation?
- (A)  $10^\circ$
  - (B)  $18^\circ$
  - (C)  $36^\circ$
  - (D)  $90^\circ$
  - (E)  $324^\circ$
8. What is the area of a square with perimeter  $P$  ?
- (A)  $16P^2$
  - (B)  $4P$
  - (C)  $\frac{P^2}{4}$
  - (D)  $\frac{P}{16}$
  - (E)  $\frac{P^2}{16}$
9. A certain ball was dropped from a window 8 meters above a sidewalk. On each bounce it rose straight up exactly one-half the distance of the previous fall. After the third bounce the ball was caught when it reached a height of exactly 1 meter above the sidewalk. How many meters did the ball travel in all?
- (A) 21
  - (B) 19
  - (C) 17
  - (D) 15
  - (E) 13

10. A certain store sells all maps at one price and all books at another price. On Monday the store sold 12 maps and 10 books for a total of \$38.00, and on Tuesday the store sold 20 maps and 15 books for a total of \$60.00. At this store, how much less does a map sell for than a book?
- (A) \$0.25  
(B) \$0.50  
(C) \$0.75  
(D) \$1.00  
(E) \$1.25
11. Which of the following procedures is always equivalent to adding 5 given numbers and then dividing the sum by 5 ?
- I. Multiplying the 5 numbers and then finding the 5th root of the product.  
II. Adding the 5 numbers, doubling the sum, and then moving the decimal point one place to the left.  
III. Ordering the 5 numbers numerically and then selecting the middle number.
- (A) None  
(B) I only  
(C) II only  
(D) III only  
(E) I and III
12. A certain company has records stored with a record-storage firm in 15-inch by 12-inch by 10-inch boxes. The boxes occupy 1.08 million cubic inches of space. If the company pays \$0.25 per box per month for record storage, what is the total amount that the company pays each month for record storage?
- (A) \$150  
(B) \$300  
(C) \$600  
(D) \$1,200  
(E) \$2,400
13. If a 3-digit integer is selected at random from the integers 100 through 199, inclusive, what is the probability that the first digit and the last digit of the integer are each equal to one more than the middle digit?
- (A)  $\frac{2}{225}$   
(B)  $\frac{1}{111}$   
(C)  $\frac{1}{110}$   
(D)  $\frac{1}{100}$   
(E)  $\frac{1}{50}$
14. Mr. Kramer, the losing candidate in a two-candidate election, received 942,568 votes, which was exactly 40 percent of all the votes cast. Approximately what percent of the

remaining votes would he need to have received in order to have won at least 50 percent of all the votes cast?

- (A) 10%
- (B) 12%
- (C) 15%
- (D) 17%
- (E) 20%

15. Which of the following inequalities is equivalent to  $-2 < x < 4$  ?

- (A)  $|x - 2| < 4$
- (B)  $|x - 1| < 3$
- (C)  $|x + 1| < 3$
- (D)  $|x + 2| < 4$
- (E) None of the above

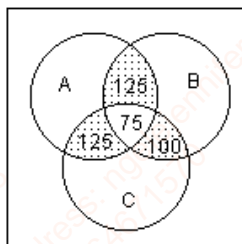
16. If the average (arithmetic mean) of 5 positive temperatures is  $x$  degrees Fahrenheit, then the sum of the 3 greatest of these temperatures, in degrees Fahrenheit, could be

- (A)  $6x$
- (B)  $4x$
- (C)  $\frac{5x}{3}$
- (D)  $\frac{3x}{2}$
- (E)  $\frac{3x}{5}$

**QUANTITATIVE REASONING 32**  
**25 Minutes 16 Questions**

1. A certain taxi fare consists of an initial charge of \$1.25 and an additional charge of \$0.25 for each  $\frac{1}{5}$  mile traveled. What is the total fare for a trip of 2.4 miles?
- (A) \$4.25  
(B) \$3.00  
(C) \$2.25  
(D) \$1.85  
(E) \$1.75
2. If  $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = ad - bc$  for all numbers  $a, b, c,$  and  $d,$  then  $\begin{vmatrix} 3 & 5 \\ -2 & 4 \end{vmatrix} =$
- (A)  $-22$   
(B)  $-2$   
(C)  $2$   
(D)  $7$   
(E)  $22$
3. If the area of a square region having sides of length 6 centimeters is equal to the area of a rectangular region having width 2.5 centimeters, then the length of the rectangle, in centimeters, is
- (A) 8.5  
(B) 9.5  
(C) 9.6  
(D) 10.5  
(E) 14.4
4. The total cost for Company  $X$  to produce a batch of tools is \$10,000 plus \$3 per tool. Each tool sells for \$8. The gross profit earned from producing and selling these tools is the total income from sales minus the total production cost. If a batch of 20,000 tools is produced and sold, then Company  $X$ 's gross profit per tool is
- (A) \$3.00  
(B) \$3.75  
(C) \$4.50  
(D) \$5.00  
(E) \$5.50
5. Of the following, which is most nearly equal to  $\sqrt{10}$  ?
- (A) 3.1  
(B) 3.2  
(C) 3.3  
(D) 3.4  
(E) 3.5

6. Exactly  $\frac{1}{3}$  of the children in a certain class are girls. If there are 18 boys in the class, how many girls are in the class?
- (A) 6  
 (B) 9  
 (C) 12  
 (D) 24  
 (E) 27



Questions 7-8: refer to the following information

In a marketing survey for products  $A$ ,  $B$ , and  $C$ , 1,000 people were asked which of the products, if any, they use. The three circular regions in the diagram above represent the numbers of people who use products  $A$ ,  $B$ , and  $C$ , according to the survey results. Of the people surveyed, a total of 400 use  $A$ , a total of 400 use  $B$ , and a total of 450 use  $C$ .

7. How many of the people surveyed use exactly one of the products?
- (A) 75  
 (B) 100  
 (C) 150  
 (D) 250  
 (E) 325
8. What percent of the people surveyed use product  $A$  or product  $B$  or both, but not product  $C$ ?
- (A) 12.5%  
 (B) 17.5%  
 (C) 30%  
 (D) 40%  
 (E) 60%
9. If  $x = \frac{a}{2} + \frac{b}{2^3} + \frac{c}{2^4}$ , where  $a$ ,  $b$ , and  $c$  are each equal to 0 or 1, then  $x$  could be each of the following EXCEPT
- (A)  $\frac{1}{16}$   
 (B)  $\frac{3}{16}$

- (C)  $\frac{5}{16}$   
 (D)  $\frac{10}{16}$   
 (E)  $\frac{11}{16}$

10. The equation  $\frac{M+6}{36} = \frac{P-7}{21}$  relates two temperature scales, where  $M$  is the number of degrees on one scale and  $P$  is the number of degrees on the other scale. Which of the following equations can be used to convert temperatures from the  $P$  scale to the  $M$  scale?

- (A)  $M = \frac{7}{12}P + 13$   
 (B)  $M = \frac{7}{12}P + 21$   
 (C)  $M = \frac{7}{12}P - 12$   
 (D)  $M = \frac{7}{12}P - 13$   
 (E)  $M = \frac{7}{12}P - 18$

11. If  $x$  is a positive number and  $\frac{1}{2}$  the square root of  $x$  is equal to  $2x$ , then  $x =$

- (A)  $\frac{1}{16}$   
 (B)  $\frac{1}{4}$   
 (C)  $\frac{1}{2}$   
 (D) 2  
 (E) 8

Score	Number of Students
83	5
70	6
92	3
	5
64	1

12. The incomplete table above shows a distribution of scores for a class of 20 students. If the average (arithmetic mean) score for the class is 78, what score is missing from the table ?



- (A) 73
- (B) 75
- (C) 77
- (D) 79
- (E) 81

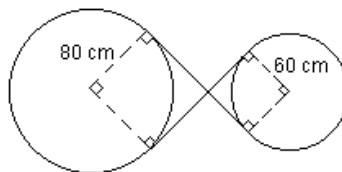
13. Carl drove from his home to the beach at an average speed of 80 kilometers per hour and returned home by the same route at an average speed of 70 kilometers per hour. If the trip home took  $\frac{1}{2}$  hour longer than the trip to the beach, how many kilometers did Carl drive each way?

- (A) 350
- (B) 345
- (C) 320
- (D) 280
- (E) 240

14. If  $5x = 6y$  and  $xy \neq 0$ , what is the ratio of

$\frac{1}{5}x$  to  $\frac{1}{6}y$  ?

- (A)  $\frac{25}{6}$
- (B)  $\frac{36}{25}$
- (C)  $\frac{6}{5}$
- (D)  $\frac{5}{6}$
- (E)  $\frac{25}{36}$



15. The figure above shows a cord around two circular disks. If the radii of the two disks are 80 centimeters and 60 centimeters, respectively, what is the total length, in centimeters, of the cord?

- (A)  $210 \pi$
- (B)  $210 \pi + 280$
- (C)  $280 \pi$
- (D)  $280 \pi + 80$
- (E)  $280 \pi + 280$

16. If  $x$ ,  $y$ , and  $z$  are positive integers and  $3x = 4y = 7z$ , then the least possible value of  $x + y + z$  is

- (A) 33
- (B) 40
- (C) 49
- (D) 61
- (E) 84

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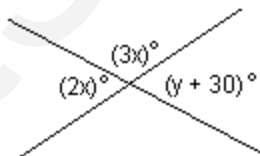
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### QUANTITATIVE REASONING 33

25 Minutes 16 Questions

1. If  $p$  is an even integer and  $q$  is an odd integer, which of the following must be an odd integer?
  - (A)  $\frac{p}{q}$
  - (B)  $pq$
  - (C)  $2p + q$
  - (D)  $2(p + q)$
  - (E)  $\frac{3p}{q}$
2. A certain college has a student-to-teacher ratio of 11 to 1. The average (arithmetic mean) annual salary for teachers is \$26,000. If the college pays a total of \$3,380,000 in annual salaries to its teachers, how many students does the college have ?
  - (A) 130
  - (B) 169
  - (C) 1,300
  - (D) 1,430
  - (E) 1,560
3. Last year if 97 percent of the revenues of a company came from domestic sources and the remaining revenues, totaling \$450,000, came from foreign sources, what was the total of the company's revenues ?
  - (A) \$ 1,350,000
  - (B) \$ 1,500,000
  - (C) \$ 4,500,000
  - (D) \$ 15,000,000
  - (E) \$ 150,000,000
4. Drum X is  $\frac{1}{2}$  full of oil and drum Y, which has twice the capacity of drum X, is  $\frac{2}{J}$  full of oil. If all of the oil in drum X is poured into drum Y, then drum Y will be filled to what fraction of its capacity ?
  - (A)  $\frac{3}{4}$
  - (B)  $\frac{5}{6}$
  - (C)  $\frac{11}{12}$
  - (D)  $\frac{7}{6}$
  - (E)  $\frac{11}{6}$

5. In a certain population, there are 3 times as many people aged twenty-one or under as there are people over twenty-one. The ratio of those twenty-one or under to the total population is
- (A) 1 to 2  
 (B) 1 to 3  
 (C) 1 to 4  
 (D) 2 to 3  
 (E) 3 to 4
6.  $\frac{2+2\sqrt{6}}{2} =$
- (A)  $\sqrt{6}$   
 (B)  $2\sqrt{6}$   
 (C)  $1+\sqrt{6}$   
 (D)  $1+2\sqrt{6}$   
 (E)  $2+\sqrt{6}$
7. A certain telescope increases the visual range at a particular location from 90 kilometers to 150 kilometers. By what percent is the visual range increased by using the telescope ?
- (A) 30%  
 (B)  $33\frac{1}{2}\%$   
 (C) 40%  
 (D) 60%  
 (E)  $66\frac{2}{3}\%$



Note: Figure not drawn to scale.

8. In the figure above, the value of  $y$  is
- (A) 6  
 (B) 12  
 (C) 24  
 (D) 36  
 (E) 42
9. A part-time employee whose hourly wage was increased by 25 percent decided to reduce the number of hours worked per week so that the employee's total weekly income would remain unchanged. By what percent should the number of hours worked be reduced?
- (A) 12.5%  
 (B) 20%

- (C) 25%
- (D) 50%
- (E) 75%

10. If  $x > 0$ ,  $\frac{x}{50} + \frac{x}{25}$  is what percent of  $x$ ?

- (A) 6%
- (B) 25%
- (C)  $37\frac{1}{2}$  %
- (D) 60%
- (E) 75%

11. If the operation  $\otimes$  is defined for all  $a$  and  $b$  by the equation  $a \otimes b = \frac{a^2 b}{3}$ , then

$$2 \otimes (3 \otimes -1) =$$

- (A) 4
- (B) 2
- (C)  $-\frac{4}{3}$
- (D) -2
- (E) -4

12. A factory that employs 1,000 assembly-line workers pays each of these workers \$5 per hour for the first 40 hours worked during a week and  $1\frac{1}{2}$  times that rate for hours in excess of 40. What was the total payroll for the assembly-line workers for a week in which 30 percent of them worked 20 hours, 50 percent worked 40 hours, and the rest worked 50 hours?

- (A) \$180,000
- (B) \$185,000
- (C) \$190,000
- (D) \$200,000
- (E) \$205,000

13. If  $x \neq 2$ , then  $\frac{3x^2(x-2) - x + 2}{x-2} =$

- (A)  $3x^2 - x + 2$
- (B)  $3x^2 + 1$
- (C)  $3x^2$
- (D)  $3x^2 - 1$
- (E)  $3x^2 - 2$

14. In a certain school, 40 more than  $\frac{1}{3}$  of all the students are taking a science course and

$\frac{1}{4}$  of those taking a science course are taking physics. If  $\frac{1}{8}$  of all the students in the school are taking physics, how many students are in the school ?

- (A) 240
- (B) 300
- (C) 480
- (D) 720
- (E) 960

15. If  $d > 0$  and  $0 < 1 - \frac{c}{d} < 1$ , which of the following must be true ?

- I.  $c > 0$
- II.  $\frac{c}{d} < 1$
- III.  $c^2 + d^2 > 1$

- (A) I only
- (B) II only
- (C) I and II only
- (D) II and III only
- (E) I, II, and III

16. The inside dimensions of a rectangular wooden box are 6 inches by 8 inches by 10 inches. A cylindrical cannister is to be placed inside the box so that it stands upright when the closed box rests on one of its six faces. Of all such cannisters that could be used, what is the radius, in inches, of the one that has maximum volume?

- (A) 3
- (B) 4
- (C) 5
- (D) 6
- (E) 8

**QUANTITATIVE REASONING 34****25 Minutes 16 Questions**

1.  $\frac{\frac{1}{2}}{\frac{1}{4} + \frac{1}{6}} =$

(A)  $\frac{6}{5}$

(B)  $\frac{5}{6}$

(C)  $\frac{5}{24}$

(D)  $\frac{1}{5}$

(E)  $\frac{1}{12}$

2. Kelly and Chris packed several boxes with books. If Chris packed 60 percent of the total number of boxes, what was the ratio of the number of boxes Kelly packed to the number of boxes Chris packed?

(A) 1 to 6

(B) 1 to 4

(C) 2 to 5

(D) 3 to 5

(E) 2 to 3

3. A train travels from New York City to Chicago, a distance of approximately 840 miles, at an average rate of 60 miles per hour and arrives in Chicago at 6:00 in the evening, Chicago time. At what hour in the morning, New York City time, did the train depart for Chicago? (Note: Chicago time is one hour earlier than New York City time.)

(A) 4:00

(B) 5:00

(C) 6:00

(D) 7:00

(E) 8:00

4. Of the following, which is the closest approximation of  $\frac{50.2 \times 0.49}{199.8}$  ?

(A)  $\frac{1}{10}$

(B)  $\frac{1}{8}$

(C)  $\frac{1}{4}$

- (D)  $\frac{5}{4}$
- (E)  $\frac{25}{2}$

5. Last year Manfred received 26 paychecks. Each of his first 6 paychecks was \$750; each of his remaining paychecks was \$30 more than each of his first 6 paychecks. To the nearest dollar, what was the average (arithmetic mean) amount of his paychecks for the year ?

- (A) \$752
- (B) \$755
- (C) \$765
- (D) \$773
- (E) \$775

6. A certain pair of used shoes can be repaired for \$12.50 and will last for 1 year. A pair of the same kind of shoes can be purchased new for \$28.00 and will last for 2 years. The average cost per year of the new shoes is what percent greater than the cost of repairing the used shoes?

- (A) 3%
- (B) 5%
- (C) 12%
- (D) 15%
- (E) 24%

7. In a certain brick wall, each row of bricks above the bottom row contains one less brick than the row just below it. If there are 5 rows in all and a total of 75 bricks in the wall, how many bricks does the bottom row contain ?

- (A) 14
- (B) 15
- (C) 16
- (D) 17
- (E) 18

8. If 25 percent of  $p$  is equal to 10 percent of  $q$ , and  $pq \neq 0$ , then  $p$  is what percent of  $q$  ?

- (A) 2.5%
- (B) 15%
- (C) 20%
- (D) 35%
- (E) 40%

9. If the length of an edge of cube  $X$  is twice the length of an edge of cube  $Y$ , what is the ratio of the volume of cube  $Y$  to the volume of cube  $X$  ?

- (A)  $\frac{1}{2}$
- (B)  $\frac{1}{4}$



- (C)  $\frac{1}{6}$
- (D)  $\frac{1}{8}$
- (E)  $\frac{1}{11}$

10.  $(\sqrt{2} + 1)(\sqrt{2} - 1)(\sqrt{3} + 1)(\sqrt{3} - 1) =$

- (A) 2
- (B) 3
- (C)  $2\sqrt{6}$
- (D) 5
- (E) 6

11. In a certain calculus class, the ratio of the number of mathematics majors to the number of students who are not mathematics majors is 2 to 5. If 2 more mathematics majors were to enter the class, the ratio would be 1 to 2. How many students are in the class?

- (A) 10
- (B) 12
- (C) 21
- (D) 28
- (E) 35

12. Machines  $A$  and  $B$  always operate independently and at their respective constant rates. When working alone, machine  $A$  can fill a production lot in 5 hours, and machine  $B$  can fill the same lot in  $x$  hours. When the two machines operate simultaneously to fill the production lot, it takes them 2 hours to complete the job. What is the value of  $x$ ?

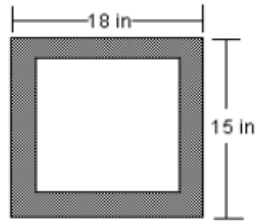
- (A)  $3\frac{1}{3}$
- (B) 3
- (C)  $2\frac{1}{2}$
- (D)  $2\frac{1}{3}$
- (E)  $1\frac{1}{2}$

13. In the  $xy$ -coordinate system, if  $(a, b)$  and  $(a + 3, b + k)$  are two points on the line defined by the equation  $x = 3y - 7$ , then  $k =$

- (A) 9
- (B) 3
- (C)  $\frac{7}{3}$
- (D) 1
- (E)  $\frac{1}{3}$

14. What is the units digit of  $(13)^4(17)^2(29)^3$

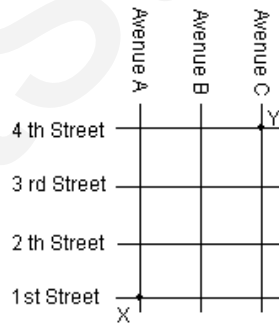
- (A) 9    (B) 7    (C) 5    (D) 3    (E) 1



Note : Figure not drawn to scale.

15. The shaded region in the figure above represents a rectangular frame with length 18 inches and width 15 inches. The frame encloses a rectangular picture that has the same area as the frame itself. If the length and width of the picture have the same ratio as the length and width of the frame, what is the length of the picture, in inches?

- (A)  $9\sqrt{2}$   
 (B)  $\frac{3}{2}$   
 (C)  $\frac{9}{\sqrt{2}}$   
 (D)  $15\left(1 - \frac{1}{\sqrt{2}}\right)$   
 (E)  $\frac{9}{2}$



16. Pat will walk from intersection X to intersection Y along a route that is confined to the square grid of four streets and three avenues shown in the map above. How many routes from X to Y can Pat take that have the minimum possible length?

- (A) 6  
 (B) 8  
 (C) 10  
 (D) 14  
 (E) 16

## QUANTITATIVE REASONING 35

25 Minutes 16 Questions

1. If  $\frac{4}{5 - \frac{a}{b}} = 1$ , which of the following must be true ?

- (A)  $a = 0$
- (B)  $b = 0$
- (C)  $a = 1$
- (D)  $b = 1$
- (E)  $a = b$

2.  $y = kx + 3$

In the equation above,  $k$  is a constant. If  $y = 17$  when  $x = 2$ , what is the value of  $y$  when  $x = 4$  ?

- (A) 34
- (B) 31
- (C) 14
- (D) 11
- (E) 7

3. In 1989 the price of a new model  $S$  car was  $x$  dollars. If the price of the model  $S$  car increased each year by 10 percent of the previous year's price, what was the price of the car, in dollars, in 1991 ?

- (A)  $1.10x$
- (B)  $1.20x$
- (C)  $1.21x$
- (D)  $1.25x$
- (E)  $1.33x$

4. If  $n$  is a prime number greater than 3, what is the remainder when  $n^2$  is divided by 12?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 5

5. NOT SCORED

6. If a subscription for 10 issues of a magazine costs \$24.00 and represents a saving of 20 percent of the cover prices, what is the cover price per issue?

- (A) \$1.98
- (B) \$2.40
- (C) \$2.80
- (D) \$2.86
- (E) \$3.00

7. Each edge of a cubical block of wood measures 2 inches. What is the surface area of the block in square inches ?

- (A) 4
- (B) 8
- (C) 12
- (D) 16
- (E) 24

CREATE YOUR OWN SUNDAE
12 Ice Cream Flavors
10 Kinds of Candies
8 Liquid Toppings
5 Kinds of Nuts
With or Without Whipped Cream

8. If a customer makes exactly one selection from each of the five categories shown in the table above, what is the greatest possible number of different ice cream sundaes that a customer can create ?

- (A) 9,600
- (B) 4,800
- (C) 2,400
- (D) 800
- (E) 400

9. The average (arithmetic mean) of 4 positive integers is 50. If the average of 2 of these integers is 45, what is the greatest possible value that one of the other 2 integers can have ?

- (A) 55
- (B) 65
- (C) 100
- (D) 109
- (E) 115

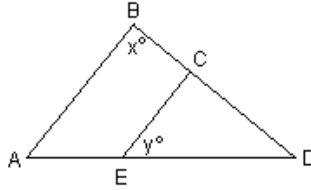
10. Machine A working alone can complete a job in  $3\frac{1}{2}$  hours. Machine B working alone can do the same job in  $4\frac{2}{3}$  hours. How long will it take both machines working together at their respective constant rates to complete the job?

- (A) 1 hr 10 min
- (B) 2 hr
- (C) 4 hr 5 min
- (D) 7 hr
- (E) 8 hr 10 min

11. What is the smallest positive integer  $n$  for which 324 is a factor of  $6^n$  ?

- (A) 2
- (B) 3
- (C) 4
- (D) 5

(E) 6



Note: Figure not drawn to scale.

12. In the figure above, if  $AB \parallel CE$ ,  $CE = DE$ , and  $y = 45$ , then  $x =$

- (A) 45
- (B) 60
- (C) 67.5
- (D) 112.5
- (E) 135

From \ To	A	B	C	D	E	F
A		3	3	2	7	3
B	3		3	4	5	5
C	3	3		1	2	4
D	2	4	1		5	5
E	7	5	2	5		6
F	3	5	4	5	6	

13. The table above shows the cost, in dollars, of traveling to and from cities  $A, B, C, D, E,$  and  $F$ . A sales representative wants to leave from  $A$ , travel to  $C, E,$  and  $F$ , and return to  $A$ . If the first city that the sales representative travels to must be  $E$ , what is the minimum possible cost for the entire trip?

- (A) \$ 13
- (B) \$ 14
- (C) \$ 16
- (D) \$ 18
- (E) \$ 20

14. A retailer sold an appliance for 30 percent above cost, which represented a gross profit of \$21.00. For what price did the retailer sell the appliance?

- (A) \$27.30,
- (B) \$51.00
- (C) \$63.00
- (D) \$70.00
- (E) \$91.00

15. How many integers between 324,700 and 458,600 have tens digit 1 and units digit 3?

- (A) 10,300
- (B) 10,030
- (C) 1,353
- (D) 1,352

(E) 1,339

16. A breakfast that consists of 1 ounce of corn puffs and 8 ounces of fruit  $X$  provides 257 calories. When 8 ounces of fruit  $Y$  is substituted for the 8 ounces of fruit  $X$ , the total number of calories is reduced to 185. If fruit  $X$  provides 1.8 times as many calories as fruit  $Y$ , how many calories does 8 ounces of fruit  $Y$  alone provide ?

- (A) 11.25
- (B) 72
- (C) 90
- (D) 95
- (E) 129.6

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QUANTITATIVE REASONING 36

25 Minutes 16 Questions

1. Of the people who responded to a market survey, 120 preferred Brand  $X$  and the rest preferred Brand  $Y$ . If the respondents indicated a preference for Brand  $X$  over Brand  $Y$  by a ratio of 3 to 1, how many people responded to the survey ?

- (A) 80
- (B) 160
- (C) 240
- (D) 360
- (E) 480

2.  $(x + 3y)^2 =$

- (A)  $x^2 + 3y^2$
- (B)  $x^2 + 9y^2$
- (C)  $x^2 + 3xy + 3y^2$
- (D)  $x^2 + 3xy + 9y^2$
- (E)  $x^2 + 6xy + 9y^2$

3. At Company  $K$ , 15 percent of the employees are secretaries and 60 percent are salespeople. If there are 45 other employees of Company  $K$ , how many employees does Company  $K$  have?

- (A) 160
- (B) 180
- (C) 190
- (D) 200
- (E) 400

4.  $\frac{1}{1 + \frac{1}{3}} - \frac{1}{1 + \frac{1}{2}} =$

- (A)  $-\frac{1}{3}$
- (B)  $-\frac{1}{6}$
- (C)  $-\frac{1}{12}$
- (D)  $\frac{1}{12}$
- (E)  $\frac{1}{3}$

5. If  $x$  and  $y$  are negative integers, which of the following must be true?

- I.  $x - y < 0$

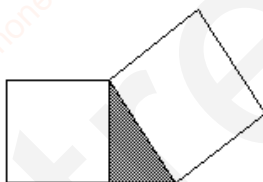
II.  $\frac{x}{y} > y$

III.  $x^2 > y$

- (A) I only
- (B) II only
- (C) III only
- (D) I and III
- (E) II and III

6. A certain hotel has 1,400 single rooms and 420 double rooms. Each room is cleaned by one person. If one person can clean a single room every 15 minutes and a double room every 20 minutes, how many cleaning persons are needed to clean all the rooms if each person works for exactly 7 hours?

- (A) 65
- (B) 70
- (C) 80
- (D) 90
- (E) 265



7. In the figure above, the two square regions have areas 16 and 25, respectively. What is the area of the shaded triangular region?

- (A) 6
- (B) 8
- (C) 9
- (D) 12
- (E) 15

8. If the consumer price index for a sample of goods and services purchased in Dallas rose from 100 at the end of 1967 to  $x$  at the end of 1985, what was the average (arithmetic mean) annual increase in the index over this period ?

- (A)  $\frac{x+100}{18}$
- (B)  $\frac{x}{18}$
- (C)  $\frac{100-x}{18}$
- (D)  $\frac{x-100}{18}$
- (E)  $\frac{100x}{18}$



9. At a certain instant in time, the number of cars,  $N$ , traveling on a portion of a certain highway can be estimated by the formula  $N = \frac{20Ld}{600 + s^2}$ , where  $L$  is the number of lanes in the same direction,  $d$  is the length of the portion of the highway, in feet, and  $s$  is the average speed of the cars, in miles per hour. Based on the formula, what is the estimated number of cars traveling on a  $\frac{1}{2}$  mile portion of the highway if the highway has 2 lanes in the same direction and the average speed of the cars is 40 miles per hour?  
(5,280 feet = 1 mile)
- (A) 155  
(B) 96  
(C) 80  
(D) 48  
(E) 24
10. In how many different ways can 3 people be assigned to fill 3 different positions so that each person is assigned to exactly one position?
- (A) Twelve  
(B) Nine  
(C) Six  
(D) Three  
(E) One
11. A point on the edge of a fan blade that is rotating in a plane is 10 centimeters from the center of the fan. What is the distance traveled, in centimeters, by this point in 15 seconds when the fan runs at the rate of 300 revolutions per minute ?
- (A)  $750 \pi$   
(B)  $1,500 \pi$   
(C)  $1,875 \pi$   
(D)  $3,000 \pi$   
(E)  $7,500 \pi$
12. A 2-year certificate of deposit is purchased for  $k$  dollars. If the certificate earns interest at an annual rate of 6 percent compounded quarterly, which of the following represents the value, in dollars, of the certificate at the end of the 2 years ?
- (A)  $(1.06)^2 k$   
(B)  $(1.06)^8 k$   
(C)  $(1.015)^2 k$   
(D)  $(1.015)^8 k$   
(E)  $(1.03)^4 k$
13. If the sum of the first  $n$  positive integers is  $S$ , what is the sum of the first  $n$  positive even integers, in terms of  $S$  ?
- (A)  $\frac{S}{2}$   
(B)  $S$

- (C)  $2S$
- (D)  $2S + 2$
- (E)  $4S$

14. If  $x$  and  $y$  are positive numbers and  $z = xy^2$ , a 50 percent increase in  $x$  and a 20 percent decrease in  $y$  would result in which of the following changes in  $z$ ?

- (A) A decrease of 4%
- (B) A decrease of 14%
- (C) An increase of 4%
- (D) An increase of 20%
- (E) An increase of 30%

15. If it is 6:27 in the evening on a certain day, what time in the morning was it exactly 2,880,717 minutes earlier? (Assume standard time in one location.)

- (A) 6:22
- (B) 6:24
- (C) 6:27
- (D) 6:30
- (E) 6:32

16. If  $n$  is an integer, which of the following CANNOT be a factor of  $3n + 4$  ?

- (A) 4
- (B) 5
- (C) 6
- (D) 7
- (E) 8

**QUANTITATIVE REASONING 37**  
**25 Minutes 16 Questions**

1. A bakery opened yesterday with its daily supply of 40 dozen rolls. Half of the rolls were sold by noon, and 80 percent of the remaining rolls were sold between noon and closing time. How many dozen rolls had not been sold when the bakery closed yesterday ?
- (A) 1  
(B) 2  
(C) 3  
(D) 4  
(E) 5
2. What is the combined area, in square inches, of the front and back of a rectangular sheet of paper measuring  $8\frac{1}{2}$  inches by 11 inches ?
- (A) 38  
(B) 44  
(C) 88  
(D) 176  
(E) 187
3. 150 is what percent of 30 ?
- (A) 5%  
(B) 20%  
(C) 50%  
(D) 200%  
(E) 500%
4.  $\frac{7}{1} + \frac{5}{1} =$
- (A)  $\frac{35}{74}$   
(B)  $\frac{74}{35}$   
(C) 35  
(D) 70  
(E) 74
5. From January 1, 1991, to January 1, 1993, the number of people enrolled in health maintenance organizations increased by 15 percent. The enrollment on January 1, 1993, was 45 million. How many million people, to the nearest million, were enrolled in health maintenance organizations on January 1, 1991 ?
- (A) 38  
(B) 39  
(C) 40  
(D) 41

(E) 42

6. If  $\frac{p}{q} < 1$ , and  $p$  and  $q$  are positive integers, which of the following must be greater than 1?

(A)  $\sqrt{\frac{p}{q}}$

(B)  $\frac{p}{q^2}$

(C)  $\frac{p}{2q}$

(D)  $\frac{q}{p^2}$

(E)  $\frac{q}{p}$

7. If a 2-digit positive integer has its digits reversed, the resulting integer differs from the original by 27. By how much do the two digits differ?

(A) 3

(B) 4

(C) 5

(D) 6

(E) 7

8. It would take one machine 4 hours to complete a large production order and another machine 3 hours to complete the same order. How many hours would it take both machines, working simultaneously at their respective constant rates, to complete the order?

(A)  $\frac{7}{12}$

(B)  $1\frac{1}{2}$

(C)  $1\frac{5}{7}$

(D)  $3\frac{1}{2}$

(E) 7

9.  $R$  is the set of positive odd integers less than 50, and  $S$  is the set of the squares of the integers in  $R$ . How many elements does the intersection of  $R$  and  $S$  contain?

(A) None

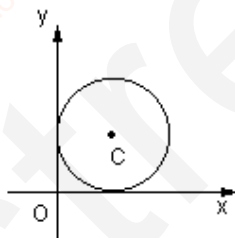
(B) Two

(C) Four

(D) Five

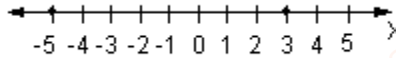
(E) Seven

10. To mail a package, the rate is  $x$  cents for the first pound and  $y$  cents for each additional pound, where  $x > y$ . Two packages weighing 3 pounds and 5 pounds, respectively, can be mailed separately or combined as one package. Which method is cheaper, and how much money is saved ?
- (A) Combined, with a saving of  $x - y$  cents  
 (B) Combined, with a saving of  $y - x$  cents  
 (C) Combined, with a saving of  $x$  cents  
 (D) Separately, with a saving of  $x - y$  cents  
 (E) Separately, with a saving of  $y$  cents
11. If money is invested at  $r$  percent interest, compounded annually, the amount of the investment will double in approximately  $\frac{70}{r}$  years. If Pat's parents invested \$5,000 in a long-term bond that pays 8 percent interest, compounded annually, what will be the approximate total amount of the investment 18 years later, when Pat is ready for college ?
- (A) \$20,000  
 (B) \$15,000  
 (C) \$12,000  
 (D) \$10,000  
 (E) \$9,000



12. The circle with center  $C$  shown above is tangent to both axes. If the distance from  $O$  to  $C$  is equal to  $k$ , what is the radius of the circle, in terms of  $k$  ?
- (A)  $k$   
 (B)  $\frac{k}{\sqrt{2}}$   
 (C)  $\frac{k}{\sqrt{3}}$   
 (D)  $\frac{k}{2}$   
 (E)  $\frac{k}{3}$
13. On a recent trip, Cindy drove her car 290 miles, rounded to the nearest 10 miles, and used 12 gallons of gasoline, rounded to the nearest gallon. The actual number of miles per gallon that Cindy's car got on this trip must have been between
- (A)  $\frac{290}{12.5}$  and  $\frac{290}{11.5}$   
 (B)  $\frac{295}{12}$  and  $\frac{285}{11.5}$

- (C)  $\frac{285}{12}$  and  $\frac{295}{12}$   
 (D)  $\frac{285}{12.5}$  and  $\frac{295}{11.5}$   
 (E)  $\frac{295}{12.5}$  and  $\frac{285}{11.5}$



14. Which of the following inequalities is an algebraic expression for the shaded part of the number line above?

- (A)  $|x| \leq 3$   
 (B)  $|x| \leq 5$   
 (C)  $|x - 2| \leq 3$   
 (D)  $|x - 1| \leq 4$   
 (E)  $|x + 1| \leq 4$

15. In an electric circuit, two resistors with resistances  $x$  and  $y$  are connected in parallel. In this case, if  $r$  is the combined resistance of these two resistors, then the reciprocal of  $r$  is equal to the sum of the reciprocals of  $x$  and  $y$ . What is  $r$  in terms of  $x$  and  $y$ ?

- (A)  $xy$   
 (B)  $x + y$   
 (C)  $\frac{1}{x + y}$   
 (D)  $\frac{xy}{x + y}$   
 (E)  $\frac{x + y}{xy}$

16. Xavier, Yvonne, and Zelda each try independently to solve a problem. If their individual probabilities for success are  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{5}{8}$ , respectively, what is the probability that Xavier and Yvonne, but not Zelda, will solve the problem?

- (A)  $\frac{11}{8}$   
 (B)  $\frac{7}{8}$   
 (C)  $\frac{9}{64}$   
 (D)  $\frac{5}{64}$   
 (E)  $\frac{3}{64}$

## QUANTITATIVE REASONING 38

25 Minutes 16 Questions

1. A retail appliance store priced a video recorder at 20 percent above the wholesale cost of \$200. If a store employee applied the 10 percent employee discount to the retail price to buy the recorder, how much did the employee pay for the recorder?
- (A) \$198  
(B) \$216  
(C) \$220  
(D) \$230  
(E) \$240
2. The ratio 2 to  $\frac{1}{3}$  is equal to the ratio
- (A) 6 to 1  
(B) 5 to 1  
(C) 3 to 2  
(D) 2 to 3  
(E) 1 to 6
3.  $y = 248 - 398x$
- Which of the following values of  $x$  gives the greatest value of  $y$  in the equation above?
- (A) 200  
(B) 100  
(C) 0.5  
(D) 0  
(E) -1
4. A factory has 500 workers, 15 percent of whom are women. If 50 additional workers are to be hired and all of the present workers remain, how many of the additional workers must be women in order to raise the percent of women employees to 20 percent?
- (A) 3  
(B) 10  
(C) 25  
(D) 30  
(E) 35
5. If  $\frac{1}{x} - \frac{1}{x+1} = \frac{1}{x+4}$ , then  $x$  could be
- (A) 0  
(B) -1  
(C) -2  
(D) -3  
(E) -4
6. In a small snack shop, the average (arithmetic mean) revenue was \$400 per day over a 10-day period. During this period, if the average daily revenue was \$360 for the first 6

days, what was the average daily revenue for the last 4 days?

- (A) \$420
- (B) \$440
- (C) \$450
- (D) \$460
- (E) \$480

7. A certain country had a total annual expenditure of  $\$1.2 \times 10^{12}$  last year. If the population of the country was 240 million last year, what was the per capita expenditure ?

- (A) \$500
- (B) \$1,000
- (C) \$2,000
- (D) \$3,000
- (E) \$5,000

8. A certain rectangular window is twice as long as it is wide. If its perimeter is 10 feet, then its dimensions in feet are

- (A)  $\frac{3}{2}$  by  $\frac{7}{2}$
- (B)  $\frac{5}{3}$  by  $\frac{10}{3}$
- (C) 2 by 4
- (D) 3 by 6
- (E)  $\frac{10}{3}$  by  $\frac{20}{3}$



9. The diagram above shows the various paths along which a mouse can travel from point  $X$ , where it is released, to point  $Y$ , where it is rewarded with a food pellet. How many different paths from  $X$  to  $Y$  can the mouse take if it goes directly from  $X$  to  $Y$  without retracing any point along a path?

- (A) 6
- (B) 7
- (C) 12
- (D) 14
- (E) 17



10. The rectangular region above contains two circles and a semicircle, each with a radius of



7. If  $\frac{22}{7}$  is used as an approximation for  $\pi$ , then the area of the shaded region is approximately
- (A) 105  
 (B) 210  
 (C) 380  
 (D) 385  
 (E) 405
11. If the operation  $\odot$  is defined by  $x \odot y = \sqrt{xy}$  for all positive numbers  $x$  and  $y$ , then  $(5 \odot 45) \odot 60 =$
- (A) 30  
 (B) 60  
 (C) 90  
 (D)  $30\sqrt{15}$   
 (E)  $60\sqrt{15}$
12. A bar over a sequence of digits in a decimal indicates that the sequence repeats indefinitely. What is the value of  $(10^4 - 10^2)(0.00\overline{12})$ ?
- (A) 0  
 (B)  $0.\overline{12}$   
 (C) 1.2  
 (D) 10  
 (E) 12
13. At a loading dock, each worker on the night crew loaded  $\frac{3}{4}$  as many boxes as each worker on the day crew. If the night crew has  $\frac{4}{5}$  as many workers as the day crew, what fraction of all the boxes loaded by the two crews did the day crew load?
- (A)  $\frac{1}{2}$   
 (B)  $\frac{2}{5}$   
 (C)  $\frac{3}{5}$   
 (D)  $\frac{4}{5}$   
 (E)  $\frac{5}{8}$
14.  $\left(\frac{1}{2}\right)^{-3} \left(\frac{1}{4}\right)^{-2} \left(\frac{1}{16}\right)^{-1} =$

- (A)  $\left(\frac{1}{2}\right)^{-18}$
- (B)  $\left(\frac{1}{2}\right)^{-11}$
- (C)  $\left(\frac{1}{2}\right)^{-6}$
- (D)  $\left(\frac{1}{8}\right)^{-11}$
- (E)  $\left(\frac{1}{8}\right)^{-6}$

15. In a certain game, a large container is filled with red, yellow, green, and blue beads worth, respectively, 7, 5, 3, and 2 points each. A number of beads are then removed from the container. If the product of the point values of the removed beads is 147,000, how many red beads were removed?

- (A) 5
- (B) 4
- (C) 3
- (D) 2
- (E) 0

16. Seed mixture  $X$  is 40 percent ryegrass and 60 percent bluegrass by weight; seed mixture  $Y$  is 25 percent ryegrass and 75 percent fescue. If a mixture of  $X$  and  $Y$  contains 30 percent ryegrass, what percent of the weight of this mixture is  $X$  ?

- (A) 10%
- (B)  $33\frac{1}{3}\%$
- (C) 40%
- (D) 50%
- (E)  $66\frac{2}{3}\%$

**QUANTITATIVE REASONING 39****25 Minutes 16 Questions**

1.  $\sqrt{784} =$
- (A) 28  
(B) 32  
(C) 38  
(D) 56  
(E) 112
2. A total of  $x$  tourists were transported by bus to a certain museum. If there were  $y$  tourists on each bus, which of the following expresses the number of buses used?
- (A)  $xy$   
(B)  $\frac{x}{y}$   
(C)  $\frac{y}{x}$   
(D)  $x - y$   
(E)  $y^x$
3. If  $n$  is an integer, which of the following must be even ?
- (A)  $n + 1$   
(B)  $n + 2$   
(C)  $2n$   
(D)  $2n + 1$   
(E)  $n^2$
4.  $\frac{1}{0.75 - 1} =$
- (A) -4  
(B) -0.25  
(C) 0.25  
(D) 0.75  
(E) 4
5. Sixty percent of the members of a study group are women, and 45 percent of those women are lawyers. If one member of the study group is to be selected at random, what is the probability that the member selected is a woman lawyer?
- (A) 0.10  
(B) 0.15  
(C) 0.27  
(D) 0.33  
(E) 0.45
6. The dimensions of a rectangular floor are 16 feet by 20 feet. When a rectangular rug is placed on the floor, a strip of floor 3 feet wide is exposed on all sides. What are the dimensions of the rug, in feet?

- (A) 10 by 14
- (B) 10 by 17
- (C) 13 by 14
- (D) 13 by 17
- (E) 14 by 16

7. Harry started a 6-mile hike with a full 10-cup canteen of water and finished the hike in 2 hours with 1 cup of water remaining in the canteen. If the canteen leaked at the rate of 1 cup per hour and Harry drank 3 cups of water during the last mile, how many cups did he drink per mile during the first 5 miles of the hike?

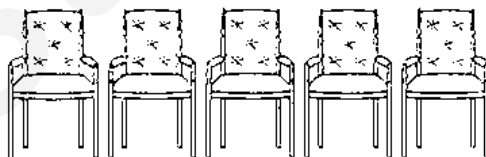
- (A)  $\frac{4}{5}$
- (B)  $\frac{5}{6}$
- (C) 1
- (D)  $\frac{6}{5}$
- (E)  $\frac{5}{4}$

8. The original retail price of an appliance was 60 percent more than its wholesale cost. If the appliance was actually sold for 20 percent less than the original retail price, then it was sold for what percent more than its wholesale cost?

- (A) 20%
- (B) 28%
- (C) 36%
- (D) 40%
- (E) 42%

9. If  $y$  is an integer, then the least possible value of  $|23 - 5y|$  is

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5



10. The president of a country and 4 other dignitaries are scheduled to sit in a row on the 5 chairs represented above. If the president must sit in the center chair, how many different seating arrangements are possible for the 5 people?

- (A) 4
- (B) 5
- (C) 20
- (D) 24
- (E) 120

11. If the sum of two positive integers is 24 and the difference of their squares is 48, what is the product of the two integers?

- (A) 108
- (B) 119
- (C) 128
- (D) 135
- (E) 143

12. The volume of a sphere with radius  $r$  is  $\frac{4}{3}\pi r^3$  and the surface area is  $4\pi r^2$ . If a spherical balloon has a volume of  $972\pi$  cubic centimeters, what is the surface area of the balloon in square centimeters?

- (A) 324
- (B) 729
- (C)  $243\pi$
- (D)  $324\pi$
- (E)  $729\pi$

13. On a certain scale of intensity, each increment of 10 in magnitude represents a tenfold increase in intensity. On this scale, an intensity corresponding to a magnitude of 165 is how many times an intensity corresponding to a magnitude of 125?

- (A) 40
- (B) 100
- (C) 400
- (D) 1,000
- (E) 10,000

14. If the perimeter of square region S and the perimeter of circular region C are equal, then the ratio of the area of S to the area of C is closest to

- (A)  $\frac{3}{2}$
- (B)  $\frac{4}{3}$
- (C)  $\frac{3}{4}$
- (D)  $\frac{2}{3}$
- (E)  $\frac{1}{2}$

15. On a Saturday night, each of the rooms at a certain motel was rented for either \$40 or \$60. If 10 of the rooms that were rented for \$60 had instead been rented for \$40, then the total rent the motel charged for that night would have been reduced by 25 percent. What was the total rent the motel actually charged for that night ?

- (A) \$600
- (B) \$800
- (C) \$1,000
- (D) \$1,600
- (E) \$2,400

16. If  $n$  and  $k$  are integers whose product is 400, which of the following statements must be true?

- (A)  $n + k > 0$
- (B)  $n \neq k$
- (C) Either  $n$  or  $k$  is a multiple of 10.
- (D) If  $n$  is even, then  $k$  is odd.
- (E) If  $n$  is odd, then  $k$  is even.

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Teststreams

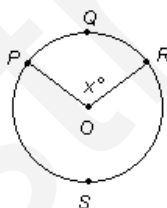
**QUANTITATIVE REASONING 40**  
**25 Minutes 16 Questions**

1. If  $x$  is negative, which of the following must be positive ?

- I.  $x^2$
  - II.  $(-1)x$
  - III.  $\frac{1}{x}$
- (A) I only  
(B) I and II only  
(C) I and III only  
(D) II and III only  
(E) I, II, and III

2. The employees of Smith Enterprises received wage increases ranging from 30 cents to  $87\frac{1}{2}$  cents per hour. What was the maximum wage increase for a 40-hour week?

- (A) \$12.00  
(B) \$23.00  
(C) \$34.80  
(D) \$35.00  
(E) \$35.20



3. If  $O$  is the center of the circle above and the length of arc  $RSP$  is twice the length of arc  $PQR$ , then  $x$  equals

- (A) 60  
(B) 100  
(C) 120  
(D) 150  
(E) 240

4. The sum of 3 hours 45 minutes and 2 hours 55 minutes is approximately what percent of a day ?

- (A) 14%  
(B) 16%  
(C) 24%  
(D) 28%  
(E) 72%

5. A salesman makes a 20 percent commission on the selling price of each set of

encyclopedias he sells. If he sells 12 identical sets of encyclopedias and makes \$1,800 in commissions, what is the selling price of each set?

- (A) \$300
- (B) \$600
- (C) \$750
- (D) \$900
- (E) \$1,080

6. If  $x < 12$ , then it must be true that

- (A)  $-x < -12$
- (B)  $-x - 2 < 14$
- (C)  $-x + 2 < -10$
- (D)  $x + 2 < 10$
- (E)  $x - 2 < 11$

7. The 10 households on a certain street have household incomes that range from \$34,000 to \$150,000 and an average (arithmetic mean) household income of \$60,000. If the household with the highest income and the one with the lowest income are excluded, what is the average household income for the remaining 8 households?

- (A) \$41,600
- (B) \$47,000
- (C) \$52,000
- (D) \$61,000
- (E) \$75,000

8. If  $x = y + 4$  and  $x = 20 - y$ , then  $x^2 - y^2 =$

- (A) 16
- (B) 80
- (C) 144
- (D) 256
- (E) 384

9. On level farmland, two runners leave at the same time from the intersection of two country roads. One runner jogs due north at a constant rate of 8 miles per hour while the second runner jogs due east at a constant rate that is 4 miles per hour faster than the first runner's rate. How far apart, to the nearest mile, will they be after  $\frac{1}{2}$  hour?

- (A) 6
- (B) 7
- (C) 8
- (D) 12
- (E) 14

10. A square playground has the same area as a rectangular playground that is 30 meters longer but 20 meters narrower. What is the length, in meters, of a side of the square playground?

- (A)  $10\sqrt{5}$



- (B)  $10\sqrt{6}$
- (C) 25
- (D) 50
- (E) 60

11. The price of a dress was first discounted by a certain percent and later by 25 percent of the discounted price. If these two discounts are equivalent to a single discount of 40 percent of the original price, what was the first discount ?

- (A) 10%
- (B) 15%
- (C) 20%
- (D) 30%
- (E) 65%

12. If it is assumed that each of the  $n$  production workers in a factory assembles one instrument every  $t$  minutes, how many instruments does the factory assemble in 7.5 hours of production?

- (A)  $\frac{450n}{t}$
- (B)  $\frac{450t}{n}$
- (C)  $450nt$
- (D)  $\frac{7.5tn}{60}$
- (E)  $\frac{7.5n}{60t}$

13. What is the difference between the sixth and the fifth terms of the sequence 2, 4, 7, ..... whose  $n$ th term is  $n + 2^{n-1}$  ?

- (A) 2
- (B) 3
- (C) 6
- (D) 16
- (E) 17

14. Which of the following could be the sum of the reciprocals of two different prime numbers?

- (A)  $\frac{7}{13}$
- (B)  $\frac{10}{21}$
- (C)  $\frac{11}{30}$
- (D)  $\frac{23}{50}$

(E)  $\frac{19}{77}$

15. The rear wheels of a car crossed a certain line 0.5 second after the front wheels crossed the same line. If the centers of the front and rear wheels are 20 feet apart and the car traveled in a straight line at a constant speed, which of the following gives the speed of the car in miles per hour? (5,280 feet = 1 mile)

(A)  $\left(\frac{20}{5,280}\right)\left(\frac{60^2}{0.5}\right)$

(B)  $\left(\frac{20}{5,280}\right)\left(\frac{60}{0.5}\right)$

(C)  $\left(\frac{20}{5,280}\right)\left(\frac{0.5}{60^2}\right)$

(D)  $\frac{(20)(5,280)}{(60^2)(0.5)}$

(E)  $\frac{(20)(5,280)}{(60)(0.5)}$

16. Working alone, a small pump takes twice as long as a large pump takes to fill an empty tank. Working together at their respective constant rates, the pumps can fill the tank in 6 hours. How many hours would it take the small pump to fill the tank working alone ?

(A) 8

(B) 9

(C) 12

(D) 15

(E) 18

## QUANTITATIVE REASONING 41

25 Minutes 16 Questions

1. A study based on a random sample revealed that, on average, 2 out of 5 adults have high blood pressure. If these results hold true for the 580,000 adults in City A, approximately how many adults in City A have high blood pressure ?
  - (A) 116,000
  - (B) 145,000
  - (C) 232,000
  - (D) 250,000
  - (E) 290,000
2. The sum  $\frac{7}{8} + \frac{1}{9}$  is between
  - (A)  $\frac{1}{2}$  and  $\frac{3}{4}$
  - (B)  $\frac{3}{4}$  and 1
  - (C) 1 and  $1\frac{1}{4}$
  - (D)  $1\frac{1}{4}$  and  $1\frac{1}{2}$
  - (E)  $1\frac{1}{2}$  and 2
3. A certain state legislature consists of 124 members, each of whom is either a Democrat or a Republican. If there are 18 more Republicans than Democrats, how many Republicans are in the legislature ?
  - (A) 44
  - (B) 53
  - (C) 71
  - (D) 80
  - (E) 106
4. A certain psychologist charges \$30 more for the first hour of therapy than for each additional hour. If the total charge to a patient who receives 6 hours of therapy is \$300, what is the total charge to a patient who receives only 3 hours of therapy ?
  - (A) \$120
  - (B) \$135
  - (C) \$150
  - (D) \$165
  - (E) \$192
5. If  $x + y = 1$  and  $x - y = -1$ , what is the value of  $xy$ ?
  - (A) -2
  - (B) -1
  - (C) 0

- (D) 1
- (E) 2

6. NOT SCORED

7. If  $(x^2 + 6x + 9) + 6(x + 3) + 9 = 0$ , then  $x =$

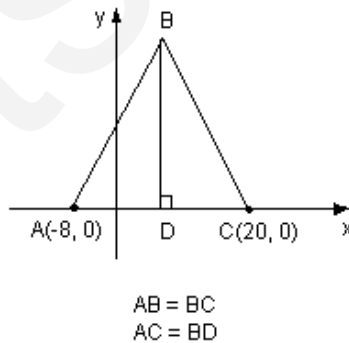
- (A) -6
- (B) -3
- (C) 0
- (D) 3
- (E) 6

8. In 1982 and 1983, Company  $B$ 's operating expenses were \$12.0 million and \$14.0 million, respectively, and its revenues were \$15.6 million and \$18.8 million, respectively. What was the percent increase in Company  $B$ 's profit (revenues minus operating expenses) from 1982 to 1983 ?

- (A) 3%
- (B)  $16\frac{2}{3}$  %
- (C) 25%
- (D)  $33\frac{1}{3}$  %
- (E) 60%

9. If  $a$  and  $b$  are integers and  $b \neq 0$ , which of the following CANNOT equal 0 ?

- (A)  $ab$
- (B)  $a - b$
- (C)  $a + b$
- (D)  $ab - b^2$
- (E)  $a^2 + b^2$



10. What are the coordinates of point  $B$  in the  $xy$ -plane above ?

- (A) (6, 12)
- (B) (6, 28)
- (C) (8, 20)
- (D) (12, 20)
- (E) (14, 28)

11. Last year 31 percent of Ace Book Company's sales revenue came from the sale of novels.

Of the remaining revenue,  $\frac{1}{3}$  was from the sale of biographies. The company's revenue from the sale of novels was approximately how many times its revenue from the sale of biographies?

- (A) 1.3
- (B) 1.5
- (C) 2.1
- (D) 2.5
- (E) 3.1

12. Three musical tones have frequencies  $x$ ,  $y$ , and  $z$ , respectively. If  $x$ ,  $y$ , and  $z$  are positive,

$$\frac{x}{y} = \frac{y}{z}, \text{ and } 2x = z, \text{ what is } y \text{ in terms of } x ?$$

- (A) 2
- (B)  $(\sqrt{2})x$
- (C)  $\frac{1}{\sqrt{2}}x$
- (D)  $\frac{1}{2}x$
- (E)  $\frac{\sqrt{2}}{3}x$

LEAGUE RESULTS

Team	Number of Games Won
A	4
B	7
C	9
D	2
E	2
X	

13. According to the incomplete table above, if each of the 6 teams in the league played each of the other teams exactly twice and there were no ties, how many games did team X win? (Only 2 teams play in a game.)

- (A) 4
- (B) 5
- (C) 6
- (D) 8
- (E) 10

14. When the integer  $k$  is divided by 12, the remainder is 3. Which of the following, when divided by 12, will have a remainder of 6 ?

- I.  $2k$
- II.  $6k$

III.  $4k + 6$

- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I, II, and III

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Teststreams

15. A rectangular tabletop consists of a piece of laminated wood bordered by a thin metal strip along its four edges. The surface area of the tabletop is  $x$  square feet, and the total length of the strip before it was attached was  $x$  feet. If the tabletop is 3 feet wide, what is its approximate length, in feet ?

- (A) 12
- (B) 10
- (C) 9
- (D) 8
- (E) 6

16. For all real numbers  $v$ , the operation  $v^*$  is defined by the equation  $v^* = v - \frac{v}{3}$ . If  $(v^*)^* =$

8, then  $v =$

- (A) 15
- (B) 18
- (C) 21
- (D) 24
- (E) 27

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Teststream's

**QUANTITATIVE REASONING 42**  
**25 Minutes 16 Questions**

1. Which of the following fractions is equal to 0.16 ?

- (A)  $\frac{1}{4}$
- (B)  $\frac{4}{25}$
- (C)  $\frac{5}{8}$
- (D)  $\frac{8}{5}$
- (E)  $\frac{25}{4}$

2. There is a total of 120 marbles in a box, each of which is red, green, blue, or white. If one marble is drawn from the box at random, the probability that it will be white is  $\frac{1}{4}$  and the probability that it will be green is  $\frac{1}{3}$ . What is the probability that the marble will be either red or blue ?

- (A)  $\frac{1}{6}$
- (B)  $\frac{1}{4}$
- (C)  $\frac{2}{7}$
- (D)  $\frac{1}{3}$
- (E)  $\frac{5}{12}$

3. If  $x$  is a positive number less than 10, which of the following is least ?

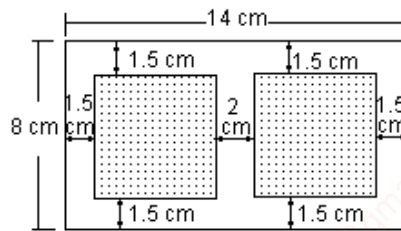
- (A)  $x - 20$
- (B)  $x$
- (C) 0
- (D)  $-x$
- (E)  $20 - x$

4. A computer programmer needs to print 148 documents. The documents have an average (arithmetic mean) length of 10 pages and the printer takes 15 seconds to print each page. Approximately how many hours will it take to print all the documents if they are printed without interruptions?

- (A)  $\frac{1}{2}$  hr
- (B) 2 hr



- (C)  $2\frac{1}{2}$  hr  
 (D) 6 hr  
 (E) 24 hr



5. The figure above represents a frame; the shaded regions represent the openings in the frame. If all line segments in the figure are either horizontal or vertical and the openings are the same size, what are the dimensions of each opening ?
- (A) 4.5 cm by 5 cm  
 (B) 4.5 cm by 6.5 cm  
 (C) 5 cm by 5.5 cm  
 (D) 5 cm by 9 cm  
 (E) 5 cm by 11 cm
6. In the first hour of a two-hour trip, a car traveled  $d$  kilometers, and in the second hour of the trip, the car traveled one-half that distance. What is the average rate at which the car traveled during the trip, in kilometers per hour?
- (A)  $d$   
 (B)  $\frac{1}{3}d$   
 (C)  $\frac{1}{2}d$   
 (D)  $\frac{3}{4}d$   
 (E)  $\frac{3}{2}d$
7. Jaime earned enough money by selling seashells at 25 cents each to buy several used paperback books at 55 cents each. If he spent all of the money he earned selling seashells to buy the books, what is the least number of seashells he could have sold ?
- (A) 5  
 (B) 11  
 (C) 17  
 (D) 25  
 (E) 30
8. In a certain sequence, the first term is 1, and each successive term is 1 more than the reciprocal of the term that immediately precedes it. What is the fifth term of the sequence?
- (A)  $\frac{3}{5}$

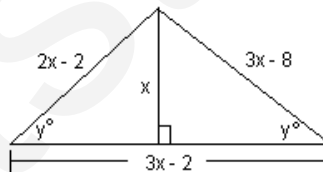
- (B)  $\frac{5}{8}$
- (C)  $\frac{8}{5}$
- (D)  $\frac{5}{3}$
- (E)  $\frac{9}{2}$

9. A wildlife preserve is being planned for 3,000 rhinoceroses. The preserve is to contain a total of 10,000 acres of watering area, plus 100 acres of grazing area for each rhinoceros. If the number of rhinoceroses is expected to increase by 10 percent, how many thousand acres should the preserve have in order to provide for the increased population?

- (A) 340
- (B) 330
- (C) 320
- (D) 310
- (E) 300

10. For the positive numbers  $n$ ,  $n + 1$ ,  $n + 2$ ,  $n + 4$  and  $n + 8$ , the mean is how much greater than the median?

- (A) 0
- (B) 1
- (C)  $n + 1$
- (D)  $n + 2$
- (E)  $n + 3$



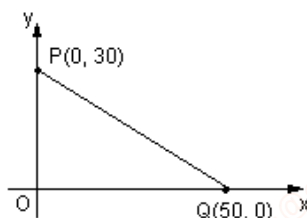
11. The figure above shows the dimensions of an isosceles triangle in terms of  $x$ . What is the area of the triangle?

- (A) 24
- (B) 30
- (C) 48
- (D) 60
- (E) 96

12. In a certain animal population, for each of the first 3 months of life, the probability that an animal will die during that month is  $\frac{1}{10}$ . For a group of 200 newborn members of the population, approximately how many would be expected to survive the first 3 months of life?

- (A) 140

- (B) 146
- (C) 152
- (D) 162
- (E) 170



13. In the figure above, how many of the points on line segment  $PQ$  have coordinates that are both integers?
- (A) 5
  - (B) 8
  - (C) 10
  - (D) 11
  - (E) 20
14. What is the least number of digits (including repetitions) needed to express  $10^{100}$  in decimal notation?
- (A) 4
  - (B) 100
  - (C) 101
  - (D) 1,000
  - (E) 1,001
15. A group of 12 people plan to rent a van and agree to share equally the total cost of the rental, which is  $E$  dollars. If  $n$  of the people decide not to participate at the last minute, by how many dollars will each remaining person's share of the total cost increase?
- (A)  $\frac{E}{12-n}$
  - (B)  $\frac{12-n}{E}$
  - (C)  $\frac{E}{12(12-n)}$
  - (D)  $\frac{nE}{12(12-n)}$
  - (E)  $\frac{(12-n)E}{12n}$

16. The concentration of a certain chemical in a full water tank depends on the depth of the water. At a depth that is  $x$  feet below the top of the tank, the concentration is  $3 + \frac{4}{\sqrt{5-x}}$  parts per million, where  $0 < x < 4$ . To the nearest 0.1 foot, at what depth is the

concentration equal to 6 parts per million?

- (A) 2.4 ft
- (B) 2.5 ft
- (C) 2.8 ft
- (D) 3.0 ft
- (E) 3.2 ft

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## Passage 1

Recent years have brought minority-owned businesses in the United States unprecedented opportunities—as well as new and significant risks. Civil rights activists have long argued that one of the principal reasons why Blacks, Hispanics, and other minority groups have difficulty establishing themselves in business is that they lack access to the sizable orders and subcontracts that are generated by large companies. Now Congress, in apparent agreement, has required by law that businesses awarded federal contracts of more than \$500,000 do their best to find minority subcontractors and record their efforts to do so on forms filed with the government. Indeed, some federal and local agencies have gone so far as to set specific percentage goals for apportioning parts of public works contracts to minority enterprises.

Corporate response appears to have been substantial. According to figures collected in 1977, the total of corporate contracts with minority businesses rose from \$77 million in 1972 to \$1.1 billion in 1977. The projected total of corporate contracts with minority businesses for the early 1980's is estimated to be over 53 billion per year with no letup anticipated in the next decade.

Promising as it is for minority businesses, this increased patronage poses dangers for them, too. First, minority firms risk expanding too fast and overextending themselves financially, since most are small concerns and, unlike large businesses, they often need to make substantial investments in new plants, staff, equipment, and the like in order to perform work subcontracted to them. If, thereafter, their subcontracts are for some reason reduced, such firms can face potentially crippling fixed expenses. The world of corporate purchasing can be frustrating for small entrepreneurs who get requests for elaborate formal estimates and bids. Both consume valuable time and resources, and a small company's efforts must soon result in orders, or both the morale and the financial health of the business will suffer.

A second risk is that White-owned companies may seek to cash in on the increasing apportionments through formation of joint ventures with minority-owned concerns. Of course, in many instances there are legitimate reasons for joint ventures; clearly, White and minority enterprises can team up to acquire business that neither could acquire alone. But civil rights groups and minority business owners have complained to Congress about minorities being set up as "fronts" with White backing, rather than being accepted as full partners in legitimate joint ventures.

Third, a minority enterprise that secures the business of one large corporate customer often runs the danger of becoming—and remaining—dependent. Even in the best of circumstances, fierce competition from larger, more established companies

- (60) makes it difficult for small concerns to broaden their customer bases: when such firms have nearly guaranteed orders from a single corporate benefactor, they may truly have to struggle against complacency arising from their current success.
1. The primary purpose of the passage is to
    - (A) present a commonplace idea and its inaccuracies
    - (B) describe a situation and its potential drawbacks
    - (C) propose a temporary solution to a problem
    - (D) analyze a frequent source of disagreement
    - (E) explore the implications of a finding
  2. The passage supplies information that would answer which of the following questions?
    - (A) What federal agencies have set percentage goals for the use of minority-owned businesses in public works contracts?
    - (B) To which government agencies must businesses awarded federal contracts report their efforts to find minority subcontractors?
    - (C) How widespread is the use of minority-owned concerns as "fronts" by White backers seeking to obtain subcontracts?
    - (D) How many more minority-owned businesses were there in 1977 than in 1972?
    - (E) What is one set of conditions under which a small business might find itself financially overextended?
  3. According to the passage, civil rights activists maintain that one disadvantage under which minority-owned businesses have traditionally had to labor is that they have
    - (A) been especially vulnerable to governmental mismanagement of the economy
    - (B) been denied bank loans at rates comparable to those afforded larger competitors
    - (C) not had sufficient opportunity to secure business created by large corporations
    - (D) not been able to advertise in those media that reach large numbers of potential customers
    - (E) not had adequate representation in the centers of government power
  4. The passage suggests that the failure of a large business to have its bids for subcontracts result quickly in orders might cause it to
    - (A) experience frustration but not serious financial harm
    - (B) face potentially crippling fixed expenses
    - (C) have to record its efforts on forms filed with the government
    - (D) increase its spending with minority subcontractors
    - (E) revise its procedure for making bids for federal contracts and subcontracts
  5. The author implies that a minority-owned concern

that does the greater part of its business with one large corporate customer should

- (A) avoid competition with larger, more established concerns by not expanding
  - (B) concentrate on securing even more business from that corporation
  - (C) try to expand its customer base to avoid becoming dependent on the corporation
  - (D) pass on some of the work to be done for the corporation to other minority-owned concerns
  - (E) use its influence with the corporation to promote subcontracting with other minority concerns
6. It can be inferred from the passage that, compared with the requirements of law, the percentage goals set by "some federal and local agencies "(lines 14-15) are
- (A) more popular with large corporations
  - (B) more specific
  - (C) less controversial
  - (D) less expensive to enforce
  - (E) easier to comply with
7. Which of the following, if true, would most weaken the author's assertion that, in the 1970's, corporate response to federal requirements (lines 18-19) was substantial
- (A) Corporate contracts with minority-owned businesses totaled \$2 billion in 1979.
  - (B) Between 1970 and 1972, corporate contracts with minority-owned businesses declined by 25 percent.
  - (C) The figures collected in 1977 underrepresented the extent of corporate contracts with minority-owned businesses.
  - (D) The estimate of corporate spending with minority-owned businesses in 1980 is approximately \$10 million too high.
  - (E) The \$1.1 billion represented the same percentage of total corporate spending in 1977 as did \$77 million in 1972.
8. The author would most likely agree with which of the following statements about corporate response to working with minority subcontractors?
- (A) Annoyed by the proliferation of "front" organizations, corporations are likely to reduce their efforts to work with minority-owned subcontractors in the near future.
  - (B) Although corporations showed considerable interest in working with minority businesses in the 1970's, their aversion to government paperwork made them reluctant to pursue many government contracts.
  - (C) The significant response of corporations in the 1970's is likely to be sustained and conceivably be increased throughout the 1980's.
  - (D) Although corporations are eager to cooperate with minority-owned businesses, a shortage of capital in the 1970's made substantial response



impossible.

- (E) The enormous corporate response has all but eliminated the dangers of overexpansion that used to plague small minority-owned businesses.

## Passage 2

- Woodrow Wilson was referring to the liberal idea of the economic market when he said that the free enterprise system is the most efficient economic system. Maximum freedom means
- (5) maximum productiveness; our "openness" is to be the measure of our stability. Fascination with this ideal has made Americans defy the "Old World" categories of settled possessiveness *versus* unsettling deprivation, the cupidity of retention
- (10) *versus* the cupidity of seizure, a "status quo" defended or attacked. The United States, it was believed, had no *status quo ante*. Our only "station" was the turning of a stationary wheel, spinning faster and faster. We did not base our
- (15) system on property but opportunity---which meant we based it not on stability but on mobility. The more things changed, that is, the more rapidly the wheel turned, the steadier we would be. The conventional picture of class politics is
- (20) composed of the Haves, who want a stability to keep what they have, and the Have-Nots, who want a touch of instability and change in which to scramble for the things they have not. But Americans imagined a condition in which spec-
- (25) ulators, self-makers, runners are always using the new opportunities given by our land. These economic leaders (front-runners) would thus be mainly agents of change. The nonstarters were considered the ones who wanted stability, a
- (30) strong referee to give them some position in the race, a regulative hand to calm manic speculation; an authority that can call things to a halt, begin things again from compensatorily staggered "starting lines."
- (35) "Reform" in America has been sterile because it can imagine no change except through the extension of this metaphor of a race, wider inclusion of competitors, "a piece of the action," as it were, for the disenfranchised. There is no
- (40) attempt to call off the race. Since our only stability is change, America seems not to honor the quiet work that achieves social interdependence and stability. There is, in our legends, no heroism of the office clerk, no stable industrial work
- (45) force of the people who actually make the system work. There is no pride in being an employee (Wilson asked for a return to the time when everyone was an employer). There has been no boasting about our social workers---they are
- (50) merely signs of the system's failure, of opportunity denied or not taken, of things to be eliminated. We have no pride in our growing interdependence, in the fact that our system can

serve others, that we are able to help those in  
(55) need; empty boasts from the past make us  
ashamed of our present achievements, make us  
try to forget or deny them, move away from  
them. There is no honor but in the Wonderland  
race we must all run, all trying to win, none  
(60) winning in the end (for there is no end).

1. The primary purpose of the passage is to
  - (A) criticize the inflexibility of American economic mythology
  - (B) contrast "Old World" and "New World" economic ideologies
  - (C) challenge the integrity of traditional political leaders
  - (D) champion those Americans whom the author deems to be neglected
  - (E) suggest a substitute for the traditional metaphor of a race
2. According to the passage, "Old World" values were based on
  - (A) ability
  - (B) property
  - (C) family connections
  - (D) guild hierarchies
  - (E) education
3. In the context of the author's discussion of regulating change, which of the following could be most probably regarded as a "strong referee" (line 30) in the United States?
  - (A) A school principal
  - (B) A political theorist
  - (C) A federal court judge
  - (D) A social worker
  - (E) A government inspector
4. The author sets off the word "Reform" (line 35) with quotation marks in order to
  - (A) emphasize its departure from the concept of settled possessiveness
  - (B) show his support for a systematic program of change
  - (C) underscore the flexibility and even amorphousness of United States society.
  - (D) indicate that the term was one of Wilson's favorites
  - (E) assert that reform in the United States has not been fundamental
5. It can be inferred from the passage that the author most probably thinks that giving the disenfranchised "a piece of the action" (line 38) is
  - (A) a compassionate, if misdirected, legislative measure
  - (B) an example of Americans' resistance to profound social change
  - (C) an innovative program for genuine social reform
  - (D) a monument to the efforts of industrial reformers
  - (E) a surprisingly "Old World" remedy for social ills

6. Which of the following metaphors could the author most appropriately use to summarize his own assessment of the American economic system (lines 35-60)?
- (A) A windmill
  - (B) A waterfall
  - (C) A treadmill
  - (D) A gyroscope
  - (E) A bellows
7. It can be inferred from the passage that Woodrow Wilson's ideas about the economic market
- (A) encouraged those who "make the system work" (lines 45-46)
  - (B) perpetuated traditional legends about America
  - (C) revealed the prejudices of a man born wealthy
  - (D) foreshadowed the stock market crash of 1929
  - (E) began a tradition of presidential proclamations on economics
8. The passage contains information that would answer which of the following questions?
- I .What techniques have industrialists used to manipulate a free market?
  - II .In what ways are " New World" and " Old World" economic policies similar?
  - III. Has economic policy in the United States tended to reward independent action?
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and II only
  - (E) II and III only
9. Which of the following best expresses the author's main point?
- (A) Americans' pride in their jobs continues to give them stamina today.
  - (B) The absence of a *status quo ante* has undermined United States economic structure.
  - (C) The free enterprise system has been only a useless concept in the United States
  - (D) The myth of the American free enterprise system is seriously flawed.
  - (E) Fascination with the ideal of "openness" has made Americans a progressive people.

### Passage 3

- No very satisfactory account of the mechanism that caused the formation of the ocean basins has yet been given. The traditional view supposes that the upper mantle of the earth behaves as a
- (5) liquid when it is subjected to small forces for long periods and that differences in temperature under oceans and continents are sufficient to produce convection in the mantle of the earth

with rising convection currents under the mid-  
(10) ocean ridges and sinking currents under the continents. Theoretically, this convection would carry the continental plates along as though they were on a conveyor belt and would provide the forces needed to produce the split that occurs  
(15) along the ridge. This view may be correct: it has the advantage that the currents are driven by temperature differences that themselves depend on the position of the continents. Such a back-coupling, in which the position of the moving  
(20) plate has an impact on the forces that move it, could produce complicated and varying motions.

On the other hand, the theory is implausible because convection does not normally occur along lines. and it certainly does not occur along  
(25) lines broken by frequent offsets or changes in direction, as the ridge is. Also it is difficult to see how the theory applies to the plate between the Mid-Atlantic Ridge and the ridge in the Indian Ocean. This plate is growing on both sides, and  
(30) since there is no intermediate trench, the two ridges must be moving apart. It would be odd if the rising convection currents kept exact pace with them. An alternative theory is that the sinking part of the plate, which is denser than the  
(35) hotter surrounding mantle, pulls the rest of the plate after it. Again it is difficult to see how this applies to the ridge in the South Atlantic, where neither the African nor the American plate has a sinking part.

(40) Another possibility is that the sinking plate cools the neighboring mantle and produces convection currents that move the plates. This last theory is attractive because it gives some hope of explaining the enclosed seas, such as the Sea of  
(45) Japan. These seas have a typical oceanic floor, except that the floor is overlaid by several kilometers of sediment. Their floors have probably been sinking for long periods. It seems possible that a sinking current of cooled mantle material  
(50) on the upper side of the plate might be the cause of such deep basins. The enclosed seas are an important feature of the earth's surface, and seriously require explanation in because, addition to the enclosed seas that are developing at present behind island arcs, there are a number of  
(55) older ones of possibly similar origin, such as the Gulf of Mexico, the Black Sea, and perhaps the North Sea.

1. According to the traditional view of the origin of the ocean basins, which of the following is sufficient to move the continental plates?

- (A) Increases in sedimentation on ocean floors
- (B) Spreading of ocean trenches
- (C) Movement of mid-ocean ridges
- (D) Sinking of ocean basins
- (E) Differences in temperature under oceans and continents

2. It can be inferred from the passage that, of the following, the deepest sediments would be found in the
  - (A) Indian Ocean
  - (B) Black Sea
  - (C) Mid-Atlantic
  - (D) South Atlantic
  - (E) Pacific
  
3. The author refers to a "conveyor belt " in line 13 in order to
  - (A) illustrate the effects of convection in the mantle
  - (B) show how temperature differences depend on the positions of the continents
  - (C) demonstrate the linear nature of the Mid-Atlantic Ridge
  - (D) describe the complicated motions made possible by back-coupling
  - (E) account for the rising currents under certain mid-ocean ridges
  
4. The author regards the traditional view of the origin of the oceans with
  - (A) slight apprehension
  - (B) absolute indifference
  - (C) indignant anger
  - (D) complete disbelief
  - (E) guarded skepticism
  
5. According to the passage, which of the following are separated by a plate that is growing on both sides?
  - (A) The Pacific Ocean and the Sea of Japan
  - (B) The South Atlantic Ridge and the North Sea Ridge
  - (C) The Gulf of Mexico and the South Atlantic Ridge
  - (D) The Mid-Atlantic Ridge and the Indian Ocean Ridge
  - (E) The Black Sea and the Sea of Japan
  
6. Which of the following, if it could be demonstrated, would most support the traditional view of ocean formation?
  - (A) Convection usually occurs along lines.
  - (B) The upper mantle behaves as a dense solid.
  - (C) Sedimentation occurs at a constant rate.
  - (D) Sinking plates cool the mantle.
  - (E) Island arcs surround enclosed seas.
  
7. According to the passage, the floor of the Black Sea can best be compared to a
  - (A) rapidly moving conveyor belt
  - (B) slowly settling foundation
  - (C) rapidly expanding balloon
  - (D) violently erupting volcano
  - (E) slowly eroding mountain
  
8. Which of the following titles would best describe the content of the passage?
  - (A) A Description of the Oceans of the World
  - (B) Several Theories of Ocean Basin Formation
  - (C) The Traditional View of the Oceans

- (D) Convection and Ocean Currents
- (E) Temperature Differences Among the Oceans of the World

### Passage 4

The fossil remains of the first flying vertebrates, the pterosaurs, have intrigued paleontologists for more than two centuries. How such large creatures, which weighed in some cases as much as a piloted hang-glider (5) and had wingspans from 8 to 12 meters, solved the problems of powered flight, and exactly what these creatures were--reptiles or birds--are among the questions scientists have puzzled over.

Perhaps the least controversial assertion about the (10) pterosaurs is that they were reptiles. Their skulls, pelvises, and hind feet are reptilian. The anatomy of their wings suggests that they did not evolve into the class of birds. In pterosaurs a greatly elongated fourth finger of each forelimb supported a winglike membrane. (15) The other fingers were short and reptilian, with sharp claws. In birds the second finger is the principal strut of the wing, which consists primarily of feathers. If the pterosaurs walked on all fours, the three short fingers may have been employed for grasping. When a (20) pterosaur walked or remained stationary, the fourth finger, and with it the wing, could only turn upward in an extended inverted V-shape along each side of the animal's body.

The pterosaurs resembled both birds and bats in (25) their overall structure and proportions. This is not surprising because the design of any flying vertebrate is subject to aerodynamic constraints. Both the pterosaurs and the birds have hollow bones, a feature that represents a savings in weight. In the birds, however, these (30) bones are reinforced more massively by internal struts.

Although scales typically cover reptiles, the pterosaurs probably had hairy coats. T.H. Huxley reasoned that flying vertebrates must have been warm-blooded because flying implies a high rate of (35) metabolism, which in turn implies a high internal temperature. Huxley speculated that a coat of hair would insulate against loss of body heat and might streamline the body to reduce drag in flight. The recent discovery of a pterosaur specimen covered in long, dense, and (40) relatively thick hairlike fossil material was the first clear evidence that his reasoning was correct.

Efforts to explain how the pterosaurs became airborne have led to suggestions that they launched themselves by jumping from cliffs, by dropping from trees. (45) or even by rising into light winds from the crests of waves. Each hypothesis has its difficulties. The first wrongly assumes that the pterosaurs' hind feet resembled a bat's and could serve as hooks by which the animal could hang in preparation for flight. The second (50) hypothesis seems unlikely because large pterosaurs could not have landed in trees without damaging their wings. The third calls for high waves to channel updrafts. The wind that made such waves however, might have been too strong for the pterosaurs to

(55) control their flight once airborne.

1. It can be inferred from the passage that scientists now generally agree that the
  - (A) enormous wingspan of the pterosaurs enabled them to fly great distances
  - (B) structure of the skeleton of the pterosaurs suggests a close evolutionary relationship to bats
  - (C) fossil remains of the pterosaurs reveal how they solved the problem of powered flight
  - (D) pterosaurs were reptiles
  - (E) pterosaurs walked on all fours
2. The author views the idea that the pterosaurs became airborne by rising into light winds created by waves as
  - (A) revolutionary
  - (B) unlikely
  - (C) unassailable
  - (D) probable
  - (E) outdated
3. According to the passage, the skeleton of a pterosaur can be distinguished from that of a bird by the
  - (A) size of its wingspan
  - (B) presence of hollow spaces in its bones
  - (C) anatomic origin of its wing strut
  - (D) presence of hooklike projections on its hind feet
  - (E) location of the shoulder joint joining the wing to its body
4. The ideas attributed to T.H. Huxley in the passage suggest that he would most likely agree with which of the following statements?
  - (A) An animal's brain size has little bearing on its ability to master complex behaviors.
  - (B) An animal's appearance is often influenced by environmental requirements and physical capabilities.
  - (C) Animals within a given family group are unlikely to change their appearance dramatically over a period of time.
  - (D) The origin of flight in vertebrates was an accidental development rather than the outcome of specialization or adaptation.
  - (E) The pterosaurs should be classified as birds, not reptiles.
5. It can be inferred from the passage that which of the following is characteristic of the pterosaurs?
  - (A) They were unable to fold their wings when not in use.
  - (B) They hung upside down from branches as bats do before flight.
  - (C) They flew in order to capture prey.
  - (D) They were an early stage in the evolution of the birds.
  - (E) They lived primarily in a forestlike habitat.
6. Which of the following best describes the organization

of the last paragraph of the passage?

- (A) New evidence is introduced to support a traditional point of view.
  - (B) Three explanations for a phenomenon are presented, and each is disputed by means of specific information.
  - (C) Three hypotheses are outlined, and evidence supporting each is given.
  - (D) Recent discoveries are described, and their implications for future study are projected
  - (E) A summary of the material in the preceding paragraphs is presented, and conclusions are drawn.
7. It can be inferred from the passage that some scientists believe that pterosaurs
- (A) lived near large bodies of water
  - (B) had sharp teeth for tearing food
  - (C) were attacked and eaten by larger reptiles
  - (D) had longer tails than many birds
  - (E) consumed twice their weight daily to maintain their body temperature

### Passage 5

- How many really suffer as a result of labor market problems? This is one of the most critical yet contentious social policy questions. In many ways, our social statistics exaggerate the degree of hardship.
- (5) Unemployment does not have the same dire consequences today as it did in the 1930's when most of the unemployed were primary breadwinners, when income and earnings were usually much closer to the margin of subsistence, and when there
- (10) were no countervailing social programs for those failing in the labor market. Increasing affluence, the rise of families with more than one wage earner, the growing predominance of secondary earners among the unemployed, and improved social welfare pro-
- (15) tection have unquestionably mitigated the consequences of joblessness. Earnings and income data also overstate the dimensions of hardship. Among the millions with hourly earnings at or below the minimum wage level, the overwhelming majority
- (20) are from multiple-earner, relatively affluent families. Most of those counted by the poverty statistics are elderly or handicapped or have family responsibilities which keep them out of the labor force, so the poverty statistics are by no means an
- (25) accurate indicator of labor market pathologies.

- Yet there are also many ways our social statistics underestimate the degree of labor-market-related hardship. The unemployment counts exclude the millions of fully employed workers whose wages are
- (30) so low that their families remain in poverty. Low wages and repeated or prolonged unemployment frequently interact to undermine the capacity for self-support. Since the number experiencing joblessness at some time during the year is several times
- (35) the number unemployed in any month, those who



suffer as a result of forced idleness can equal or exceed average annual unemployment, even though only a minority of the jobless in any month really suffer. For every person counted in the monthly (40) unemployment tallies, there is another working part-time because of the inability to find full-time work, or else outside the labor force but wanting a job. Finally, income transfers in our country have always focused on the elderly, disabled, and dependent, neglecting the needs of the working poor, so (45) that the dramatic expansion of cash and in-kind transfers does not necessarily mean that those failing in the labor market are adequately protected.

As a result of such contradictory evidence, it is (50) uncertain whether those suffering seriously as a result of thousands or the tens of millions, and, hence, whether high levels of joblessness can be tolerated or must be countered by job creation and (55) economic stimulus. There is only one area of agreement in this debate---that the existing poverty, employment, and earnings statistics are inadequate for one their primary applications, measuring the consequences of labor market problems.

1. Which of the following is the principal topic of the passage?
  - (A) What causes labor market pathologies that result in suffering
  - (B) Why income measures are imprecise in measuring degrees of poverty
  - (C) Which of the currently used statistical procedures are the best for estimating the incidence of hardship that is due to unemployment
  - (D) Where the areas of agreement are among poverty, employment, and earnings figures
  - (E) How social statistics give an unclear picture of the degree of hardship caused by low wages and insufficient employment opportunities
  
2. The author uses "labor market problems" in lines 1-2 to refer to which of the following?
  - (A) The overall causes of poverty
  - (B) Deficiencies in the training of the work force
  - (C) Trade relationships among producers of goods
  - (D) Shortages of jobs providing adequate income
  - (E) Strikes and inadequate supplies of labor
  
3. The author contrasts the 1930's with the present in order to show that
  - (A) more people were unemployed in the 1930's
  - (B) unemployment now has less severe effects
  - (C) social programs are more needed now
  - (D) there now is a greater proportion of elderly and handicapped people among those in poverty
  - (E) poverty has increased since the 1930's
  
4. Which of the following proposals best responds to the issues raised by the author?
  - (A) Innovative programs using multiple approaches should be set up to reduce the level of

- unemployment.
- (B) A compromise should be found between the positions of those who view joblessness as an evil greater than economic control and those who hold the opposite view.
  - (C) New statistical indices should be developed to measure the degree to which unemployment and inadequately paid employment cause suffering.
  - (D) Consideration should be given to the ways in which statistics can act as partial causes of the phenomena that they purport to measure.
  - (E) The labor force should be restructured so that it corresponds to the range of job vacancies.
5. The author's purpose in citing those who are repeatedly unemployed during a twelve-month period is most probably to show that
- (A) there are several factors that cause the payment of low wages to some members of the labor force
  - (B) unemployment statistics can underestimate the hardship resulting from joblessness
  - (C) recurrent inadequacies in the labor market can exist and can cause hardships for individual workers
  - (D) a majority of those who are jobless at any one time do not suffer severe hardship
  - (E) there are fewer individuals who are without jobs at some time during a year than would be expected on the basis of monthly unemployment figures
6. The author states that the mitigating effect of social programs involving income transfers on the income level of low-income people is often not felt by
- (A) the employed poor
  - (B) dependent children in single-earner families
  - (C) workers who become disabled
  - (D) retired workers
  - (E) full-time workers who become unemployed
7. According to the passage, one factor that causes unemployment and earnings figures to overpredict the amount of economic hardship is the
- (A) recurrence of periods of unemployment for a group of low-wage workers
  - (B) possibility that earnings may be received from more than one job per worker
  - (C) fact that unemployment counts do not include those who work for low wages and remain poor
  - (D) establishment of a system of record-keeping that makes it possible to compile poverty statistics
  - (E) prevalence, among low-wage workers and the unemployed, of members of families in which others are employed
8. The conclusion stated in lines 33-39 about the number of people who suffer as a result of forced idleness depends primarily on the point that
- (A) in times of high unemployment, there are some people who do not remain unemployed for long

- (B) the capacity for self-support depends on receiving moderate-to-high wages
  - (C) those in forced idleness include, besides the unemployed, both underemployed part-time workers and those not actively seeking work
  - (D) at different times during the year, different people are unemployed
  - (E) many of those who are affected by unemployment are dependents of unemployed workers
9. Which of the following, if true, is the best criticism of the author's argument concerning why poverty statistics cannot properly be used to show the effects of problems in the labor market?
- (A) A short-term increase in the number of those in poverty can indicate a shortage of jobs because the basic number of those unable to accept employment remains approximately constant.
  - (B) For those who are in poverty as a result of joblessness, there are social programs available that provide a minimum standard of living.
  - (C) Poverty statistics do not consistently agree with earnings statistics, when each is taken as a measure of hardship resulting from unemployment.
  - (D) The elderly and handicapped categories include many who previously were employed in the labor market.
  - (E) Since the labor market is global in nature, poor workers in one country are competing with poor workers in another with respect to the level of wages and the existence of jobs.

### Passage 6

- In the eighteenth century, Japan's feudal overlords, from the shogun to the humblest samurai, found themselves under financial stress. In part, this stress can be attributed to
- (5) the overlords' failure to adjust to a rapidly expanding economy, but the stress was also due to factors beyond the overlords' control. Concentration of the samurai in castle-towns had acted as a stimulus to trade. Commercial efficiency, in
  - (10) turn, had put temptations in the way of buyers. Since most samurai had been reduced to idleness by years of peace, encouraged to engage in scholarship and martial exercises or to perform administrative tasks that took little time, it is
  - (15) not surprising that their tastes and habits grew expensive. Overlords' income, despite the increase in rice production among their tenant farmers, failed to keep pace with their expenses. Although shortfalls in overlords' income re-
  - (20) sulted almost as much from laxity among their tax collectors (the nearly inevitable outcome of hereditary officeholding) as from their higher standards of living, a misfortune like a fire or flood, bringing an increase in expenses or a drop
  - (25) in revenue, could put a domain in debt to the city rice-brokers who handled its finances. Once

in debt, neither the individual samurai nor the shogun himself found it easy to recover.

- It was difficult for individual samurai over-
- (30) lords to increase their income because the amount of rice that farmers could be made to pay in taxes was not unlimited, and since the income of Japan's central government consisted in part of taxes collected by the shogun from his
- (35) huge domain, the government too was constrained. Therefore, the Tokugawa shoguns began to look to other sources for revenue. Cash profits from government-owned mines were already on the decline because the most
- (40) easily worked deposits of silver and gold had been exhausted, although debasement of the coinage had compensated for the loss. Opening up new farmland was a possibility, but most of what was suitable had already been exploited
- (45) and further reclamation was technically unfeasible. Direct taxation of the samurai themselves would be politically dangerous. This left the shoguns only commerce as a potential source of government income.
- (50) Most of the country's wealth, or so it seemed, was finding its way into the hands of city merchants. It appeared reasonable that they should contribute part of that revenue to ease the shogun's burden of financing the state. A means
- (55) of obtaining such revenue was soon found by levying forced loans, known as *goyo-kin*; although these were not taxes in the strict sense, since they were irregular in timing and arbitrary in amount, they were high in yield. Unfortunately,
- (60) they pushed up prices. Thus, regrettably, the Tokugawa shoguns' search for solvency for the government made it increasingly difficult for individual Japanese who lived on fixed stipends to make ends meet.

1. The passage is most probably an excerpt from
  - (A) an economic history of Japan
  - (B) the memoirs of a samurai warrior
  - (C) a modern novel about eighteenth-century Japan
  - (D) an essay contrasting Japanese feudalism with its Western counterpart
  - (E) an introduction to a collection of Japanese folktales
2. Which of the following financial situations is most analogous to the financial situation in which Japan's Tokugawa shoguns found themselves in the eighteenth century?
  - (A) A small business borrows heavily to invest in new equipment, but is able to pay off its debt early when it is awarded a lucrative government contract.
  - (B) Fire destroys a small business, but insurance covers the cost of rebuilding.
  - (C) A small business is turned down for a loan at a local bank because the owners have no credit history?
  - (D) A small business has to struggle to meet operating

- expenses when its profits decrease.
- (E) A small business is able to cut back sharply on spending through greater commercial efficiency and thereby compensate for a loss of revenue.
3. Which of the following best describes the attitude of the author toward the samurai discussed in lines 11-16?
- (A) Warmly approving  
(B) Mildly sympathetic  
(C) Bitterly disappointed  
(D) Harshly disdainful  
(E) Profoundly shocked
4. According to the passage, the major reason for the financial problems experienced by Japan's feudal overlords in the eighteenth century was that
- (A) spending had outdistanced income  
(B) trade had fallen off  
(C) profits from mining had declined  
(D) the coinage had been sharply debased  
(E) the samurai had concentrated in castle-towns
5. The passage implies that individual samurai did not find it easy to recover from debt for which of the following reasons?
- (A) Agricultural production had increased.  
(B) Taxes were irregular in timing and arbitrary in amount.  
(C) The Japanese government had failed to adjust to the needs of a changing economy.  
(D) The domains of samurai overlords were becoming smaller and poorer as government revenues increased.  
(E) There was a limit to the amount in taxes that farmers could be made to pay.
6. The passage suggests that, in eighteenth-century Japan, the office of tax collector
- (A) was a source of personal profit to the officeholder  
(B) was regarded with derision by many Japanese  
(C) remained within families  
(D) existed only in castle-towns  
(E) took up most of the officeholder's time
7. Which of the following could best be substituted for the word "This " in line 47 without changing the meaning of the passage?
- (A) The search of Japan's Tokugawa shoguns for solvency  
(B) The importance of commerce in feudal Japan  
(C) The unfairness of the tax structure in eighteenth-century Japan  
(D) The difficulty of increasing government income by other means  
(E) The difficulty experienced by both individual samurai and the shogun himself in extricating themselves from debt

8. The passage implies that which of the following was the primary reason why the Tokugawa shoguns turned to city merchants for help in financing the state?
- (A) A series of costly wars had depleted the national treasury.
  - (B) Most of the country's wealth appeared to be in city merchants' hands.
  - (C) Japan had suffered a series of economic reversals due to natural disasters such as floods.
  - (D) The merchants were already heavily indebted to the shoguns.
  - (E) Further reclamation of land would not have been economically advantageous.
9. According to the passage, the actions of the Tokugawa shoguns in their search for solvency for the government were regrettable because those actions
- (A) raised the cost of living by pushing up prices
  - (B) resulted in the exhaustion of the most easily worked deposits of silver and gold
  - (C) were far lower in yield than had originally been anticipated
  - (D) did not succeed in reducing government spending
  - (E) acted as a deterrent to trade

### Passage 7

Between the eighth and eleventh centuries A.D., the Byzantine Empire staged an almost unparalleled economic and cultural revival, a recovery that is all the more striking because it followed a long period of severe (5) internal decline. By the early eighth century, the empire had lost roughly two-thirds of the territory it had possessed in the year 600, and its remaining area was being raided by Arabs and Bulgarians, who at times threatened to take Constantinople and extinguish the (10) empire altogether. The wealth of the state and its subjects was greatly diminished, and artistic and literary production had virtually ceased. By the early eleventh century, however, the empire had regained almost half of its lost possessions, its new frontiers were secure, and its (15) influence extended far beyond its borders. The economy had recovered, the treasury was full, and art and scholarship had advanced.

To consider the Byzantine military, cultural, and economic advances as differentiated aspects of a single (20) phenomenon is reasonable. After all, these three forms of progress have gone together in a number of states and civilizations. Rome under Augustus and fifth-century Athens provide the most obvious examples in antiquity. Moreover, an examination of the apparent sequential (25) connections among military, economic, and cultural forms of progress might help explain the dynamics of historical change.

The common explanation of these apparent connections in the case of Byzantium would run like this: (30) when the empire had turned back enemy raids on its own territory and had begun to raid and conquer enemy

territory, Byzantine resources naturally expanded and more money became available to patronize art and literature. Therefore, Byzantine military achievements led to (35) economic advances, which in turn led to cultural revival.

No doubt this hypothetical pattern did apply at times during the course of the recovery. Yet it is not clear that military advances invariably came first, economic advances second, and intellectual advances third. In the (40) 860's the Byzantine Empire began to recover from Arab incursions so that by 872 the military balance with the Abbasid Caliphate had been permanently altered in the empire's favor. The beginning of the empire's economic revival, however, can be placed between 810 and 830. (45) Finally, the Byzantine revival of learning appears to have begun even earlier. A number of notable scholars and writers appeared by 788 and, by the last decade of the eighth century, a cultural revival was in full bloom, a revival that lasted until the fall of Constantinople in (50) 1453. Thus the commonly expected order of military revival followed by economic and then by cultural recovery was reversed in Byzantium. In fact, the revival of Byzantine learning may itself have influenced the subsequent economic and military expansion.

1. Which of the following best states the central idea of the passage?
  - (A) The Byzantine Empire was a unique case in which the usual order of military and economic revival preceding cultural revival was reversed.
  - (B) The economic, cultural, and military revival in the Byzantine Empire between the eighth and eleventh centuries was similar in its order to the sequence of revivals in Augustan Rome and fifth-century Athens.
  - (C) After 810 Byzantine economic recovery spurred a military and, later, cultural expansion that lasted until 1453.
  - (D) The eighth-century revival of Byzantine learning is an inexplicable phenomenon, and its economic and military precursors have yet to be discovered.
  - (E) The revival of the Byzantine Empire between the eighth and eleventh centuries shows cultural rebirth preceding economic and military revival, the reverse of the commonly accepted order of progress.
  
2. The primary purpose of the second paragraph is which of the following?
  - (A) To establish the uniqueness of the Byzantine revival
  - (B) To show that Augustan Rome and fifth-century Athens are examples of cultural, economic, and military expansion against which all subsequent cases must be measured
  - (C) To suggest that cultural, economic, and military advances have tended to be closely interrelated in different societies.
  - (D) To argue that, while the revivals of Augustan Rome and fifth-century Athens were similar, they are unrelated to other historical examples

- (E) To indicate that, wherever possible, historians should seek to make comparisons with the earliest chronological examples of revival
3. It can be inferred from the passage that by the eleventh century the Byzantine military forces
- (A) had reached their peak and begun to decline
  - (B) had eliminated the Bulgarian army
  - (C) were comparable in size to the army of Rome under Augustus
  - (D) were strong enough to withstand the Abbasid Caliphate's military forces
  - (E) had achieved control of Byzantine governmental structures
4. It can be inferred from the passage that the Byzantine Empire sustained significant territorial losses
- (A) in 600
  - (B) during the seventh century
  - (C) a century after the cultural achievements of the Byzantine Empire had been lost
  - (D) soon after the revival of Byzantine learning
  - (E) in the century after 873
5. In the third paragraph, the author most probably provides an explanation of the apparent connections among economic, military, and cultural development in order to
- (A) suggest that the process of revival in Byzantium accords with this model
  - (B) set up an order of events that is then shown to be not generally applicable to the case of Byzantium
  - (C) cast aspersions on traditional historical scholarship about Byzantium
  - (D) suggest that Byzantium represents a case for which no historical precedent exists
  - (E) argue that military conquest is the paramount element in the growth of empires
6. Which of the following does the author mention as crucial evidence concerning the manner in which the Byzantine revival began?
- (A) The Byzantine military revival of the 860's led to economic and cultural advances.
  - (B) The Byzantine cultural revival lasted until 1453.
  - (C) The Byzantine economic recovery began in the 900's.
  - (D) The revival of Byzantine learning began toward the end of the eighth century.
  - (E) By the early eleventh century the Byzantine Empire had regained much of its lost territory.
7. According to the author, "The common explanation" (line 28) of connections between economic, military, and cultural development is
- (A) revolutionary and too new to have been applied to the history of the Byzantine Empire
  - (B) reasonable, but an antiquated theory of the nature of progress
  - (C) not applicable to the Byzantine revival as a whole,



- but does perhaps accurately describe limited periods during the revival
- (D) equally applicable to the Byzantine case as a whole and to the history of military, economic, and cultural advances in ancient Greece and Rome
- (E) essentially not helpful, because military, economic, and cultural advances are part of a single phenomenon

### Passage 8

Virtually everything astronomers know about objects outside the solar system is based on the detection of photons—quanta of electromagnetic radiation. Yet there is another form of radiation that permeates the universe:

(5) neutrinos. With (as its name implies) no electric charge, and negligible mass, the neutrino interacts with other particles so rarely that a neutrino can cross the entire universe, even traversing substantial aggregations of matter, without being absorbed or even deflected. Neu-

(10) trinos can thus escape from regions of space where light and other kinds of electromagnetic radiation are blocked by matter. Furthermore, neutrinos carry with them information about the site and circumstances of their production: therefore, the detection of cosmic neutrinos

(15) could provide new information about a wide variety of cosmic phenomena and about the history of the universe.

But how can scientists detect a particle that interacts so infrequently with other matter? Twenty-five years

(20) passed between Pauli's hypothesis that the neutrino existed and its actual detection: since then virtually all research with neutrinos has been with neutrinos created artificially in large particle accelerators and studied under neutrino microscopes. But a neutrino telescope,

(25) capable of detecting cosmic neutrinos, is difficult to construct. No apparatus can detect neutrinos unless it is extremely massive, because great mass is synonymous with huge numbers of nucleons (neutrons and protons), and the more massive the detector, the greater the pro-

(30) bability of one of its nucleons reacting with a neutrino. In addition, the apparatus must be sufficiently shielded from the interfering effects of other particles.

Fortunately, a group of astrophysicists has proposed a means of detecting cosmic neutrinos by harnessing the

(35) mass of the ocean. Named DUMAND, for Deep Underwater Muon and Neutrino Detector, the project calls for placing an array of light sensors at a depth of five kilometers under the ocean surface. The detecting medium is the seawater itself: when a neutrino interacts with a

(40) particle in an atom of seawater, the result is a cascade of electrically charged particles and a flash of light that can be detected by the sensors. The five kilometers of seawater above the sensors will shield them from the interfering effects of other high-energy particles raining down

(45) through the atmosphere.

The strongest motivation for the DUMAND project is that it will exploit an important source of information

about the universe. The extension of astronomy from visible light to radio waves to x-rays and gamma rays (50) never failed to lead to the discovery of unusual objects such as radio galaxies, quasars, and pulsars. Each of these discoveries came as a surprise. Neutrino astronomy will doubtless bring its own share of surprises.

1. Which of the following titles best summarizes the passage as a whole?
  - (A) At the Threshold of Neutrino Astronomy
  - (B) Neutrinos and the History of the Universe
  - (C) The Creation and Study of Neutrinos
  - (D) The DUMAND System and How It Works
  - (E) The Properties of the Neutrino
  
2. With which of the following statements regarding neutrino astronomy would the author be most likely to agree?
  - (A) Neutrino astronomy will supersede all present forms of astronomy.
  - (B) Neutrino astronomy will be abandoned if the DUMAND project fails.
  - (C) Neutrino astronomy can be expected to lead to major breakthroughs in astronomy.
  - (D) Neutrino astronomy will disclose phenomena that will be more surprising than past discoveries.
  - (E) Neutrino astronomy will always be characterized by a large time lag between hypothesis and experimental confirmation.
  
3. In the last paragraph, the author describes the development of astronomy in order to
  - (A) suggest that the potential findings of neutrino astronomy can be seen as part of a series of astronomical successes
  - (B) illustrate the role of surprise in scientific discovery
  - (C) demonstrate the effectiveness of the DUMAND apparatus in detecting neutrinos
  - (D) name some cosmic phenomena that neutrino astronomy will illuminate
  - (E) contrast the motivation of earlier astronomers with that of the astrophysicists working on the DUMAND project
  
4. According to the passage, one advantage that neutrinos have for studies in astronomy is that they
  - (A) have been detected for the last twenty-five years
  - (B) possess a variable electric charge
  - (C) are usually extremely massive
  - (D) carry information about their history with them
  - (E) are very similar to other electromagnetic particles
  
5. According to the passage, the primary use of the apparatus mentioned in lines 24-32 would be to
  - (A) increase the mass of a neutrino
  - (B) interpret the information neutrinos carry with them
  - (C) study the internal structure of a neutrino
  - (D) see neutrinos in distant regions of space
  - (E) detect the presence of cosmic neutrinos

6. The passage states that interactions between neutrinos and other matter are
- (A) rare
  - (B) artificial
  - (C) undetectable
  - (D) unpredictable
  - (E) hazardous
7. The passage mentions which of the following as a reason that neutrinos are hard to detect?
- (A) Their pervasiveness in the universe
  - (B) Their ability to escape from different regions of space
  - (C) Their inability to penetrate dense matter
  - (D) The similarity of their structure to that of nucleons
  - (E) The infrequency of their interaction with other matter
8. According to the passage, the interaction of a neutrino with other matter can produce
- (A) particles that are neutral and massive
  - (B) a form of radiation that permeates the universe
  - (C) inaccurate information about the site and circumstances of the neutrino's production
  - (D) charged particles and light
  - (E) a situation in which light and other forms of electromagnetic radiation are blocked
9. According to the passage, one of the methods used to establish the properties of neutrinos was
- (A) detection of photons
  - (B) observation of the interaction of neutrinos with gamma rays
  - (C) observation of neutrinos that were artificially created
  - (D) measurement of neutrinos that interacted with particles of seawater
  - (E) experiments with electromagnetic radiation

### Passage 9

Most economists in the United States seem captivated by the spell of the free market. Consequently, nothing seems good or normal that does not accord with the requirements of the free market.

- (5) A price that is determined by the seller or, for that matter, established by anyone other than the aggregate of consumers seems pernicious. Accordingly, it requires a major act of will to think of price-fixing (the determination of prices by the
- (10) seller) as both "normal" and having a valuable economic function. In fact, price-fixing is normal in all industrialized societies because the industrial system itself provides, as an effortless consequence of its own development, the price-fixing
- (15) that it requires. Modern industrial planning requires and rewards great size. Hence, a comparatively small number of large firms will be competing for the same group of consumers.

That each large firm will act with consideration of  
(20) its own needs and thus avoid selling its products for more than its competitors charge is commonly recognized by advocates of free-market economic theories. But each large firm will also act with full consideration of the needs that it has in  
(25) common with the other large firms competing for the same customers. Each large firm will thus avoid significant price-cutting, because price-cutting would be prejudicial to the common interest in a stable demand for products. Most economists  
(30) do not see price-fixing when it occurs because they expect it to be brought about by a number of explicit agreements among large firms; it is not.

Moreover, those economists who argue that allowing the free market to operate without inter-  
(35) ference is the most efficient method of establishing prices have not considered the economies of non-socialist countries other than the United States. These economies employ intentional price-fixing, usually in an overt fashion. Formal price-fixing  
(40) by cartel and informal price-fixing by agreements covering the members of an industry are commonplace. Were there something peculiarly efficient about the free market and inefficient about price-fixing, the countries that have avoided the first  
(45) and used the second would have suffered drastically in their economic development. There is no indication that they have.

Socialist industry also works within a framework of controlled prices. In the early 1970's,  
(50) the Soviet Union began to give firms and industries some of the flexibility in adjusting prices that a more informal evolution has accorded the capitalist system. Economists in the United States have hailed the change as a return to the free market.  
(55) But Soviet firms are no more subject to prices established by a free market over which they exercise little influence than are capitalist firms; rather, Soviet firms have been given the power to fix prices.

1. The primary purpose of the passage is to
  - (A) refute the theory that the free market plays a useful role in the development of industrialized societies
  - (B) suggest methods by which economists and members of the government of the United States can recognize and combat price-fixing by large firms
  - (C) show that in industrialized societies price-fixing and the operation of the free market are not only compatible but also mutually beneficial
  - (D) explain the various ways in which industrialized societies can fix prices in order to stabilize the free market
  - (E) argue that price-fixing, in one form or another, is an inevitable part of and benefit to the economy of any industrialized society
2. The passage provides information that would answer

which of the following questions about price-fixing?

- I .What are some of the ways in which prices can be fixed?
  - II . For what products is price-fixing likely to be more profitable than the operation of the free market?
  - III.Is price-fixing more common in socialist industrialized societies or in nonsocialist industrialized societies?
- (A) I only  
(B) III only  
(C) I and II only  
(D) II and III only  
(E) I , II ,and III
3. The author's attitude toward "Most economists in the United States"(line 1) can best be described as  
(A) spiteful and envious  
(B) scornful and denunciatory  
(C) critical and condescending  
(D) ambivalent but deferential  
(E) uncertain but interested
4. It can be inferred from the author's argument that a price fixed by the seller "seems pernicious"(line 7) because  
(A) people do not have confidence in large firms  
(B) people do not expect the government to regulate prices  
(C) most economists believe that consumers as a group should determine prices  
(D) most economists associate fixed prices with communist and socialist economies  
(E) most economists believe that no one group should determine prices
5. The suggestion in the passage that price-fixing in industrialized societies is normal arises from the author's statement that price-fixing is  
(A) a profitable result of economic development  
(B) an inevitable result of the industrial system  
(C) the result of a number of carefully organized decisions  
(D) a phenomenon common to industrialized and nonindustrialized societies  
(E) a phenomenon best achieved cooperatively by government and industry
6. According to the author, price-fixing in nonsocialist countries is often  
(A) accidental but productive  
(B) illegal but useful  
(C) legal and innovative  
(D) traditional and rigid  
(E) intentional and widespread
7. According to the author, what is the result of the Soviet Union's change in economic policy in the 1970's  
(A) Soviet firms show greater profit.  
(B) Soviet firms have less control over the free market.

- (C) Soviet firms are able to adjust to technological advances.
- (D) Soviet firms have some authority to fix prices.
- (E) Soviet firms are more responsive to the free market.
8. With which of the following statements regarding the behavior of large firms in industrialized societies would the author be most likely to agree?
- (A) The directors of large firms will continue to anticipate the demand for products
- (B) The directors of large firms are less interested in achieving a predictable level of profit than in achieving a large profit.
- (C) The directors of large firms will strive to reduce the costs of their products
- (D) Many directors of large firms believe that the government should establish the prices that will be charged for products
- (E) Many directors of large firms believe that the price charged for products is likely to increase annually.
9. In the passage, the author is primarily concerned with
- (A) predicting the consequences of a practice
- (B) criticizing a point of view
- (C) calling attention to recent discoveries
- (D) proposing a topic for research
- (E) summarizing conflicting opinions

### Passage 10

- Caffeine, the stimulant in coffee, has been called "the most widely used psychoactive substance on Earth." Synder, Daly and Bruns have recently proposed that caffeine affects behavior by countering the activity in
- (5) the human brain of a naturally occurring chemical called adenosine. Adenosine normally depresses neuron firing in many areas of the brain. It apparently does this by inhibiting the release of neurotransmitters, chemicals that carry nerve impulses from one neuron to the next.
- (10) Like many other agents that affect neuron firing, adenosine must first bind to specific receptors on neuronal membranes. There are at least two classes of these receptors, which have been designated A1 and A2. Snyder et al propose that caffeine, which is structurally similar to adenosine, is able to bind to both types of receptors, which prevents adenosine from attaching there and allows the neurons to fire more readily than they otherwise would.
- (15) For many years, caffeine's effects have been attributed to its inhibition of the production of phosphodiesterase, an enzyme that breaks down the chemical called cyclic AMP. A number of neurotransmitters exert their effects by first increasing cyclic AMP concentrations in target neurons. Therefore, prolonged periods at
- (20) the elevated concentrations, as might be brought about by a phosphodiesterase inhibitor, could lead to a greater amount of neuron firing and, consequently, to behavioral stimulation. But Snyder et al point out that the caffeine concentrations needed to inhibit the production
- (25) of phosphodiesterase in the brain are much higher than
- (30)

those that produce stimulation. Moreover, other compounds that block phosphodiesterase's activity are not stimulants.

- To buttress their case that caffeine acts instead by preventing adenosine binding, Snyder et al compared the stimulatory effects of a series of caffeine derivatives with their ability to dislodge adenosine from its receptors in the brains of mice. "In general," they reported, "the ability of the compounds to compete at the receptors correlates with their ability to stimulate locomotion in the mouse; i.e., the higher their capacity to bind at the receptors, the higher their ability to stimulate locomotion." Theophylline, a close structural relative of caffeine and the major stimulant in tea, was one of the most effective compounds in both regards.

- There were some apparent exceptions to the general correlation observed between adenosine-receptor binding and stimulation. One of these was a compound called 3-isobutyl-1-methylxanthine (IBMX), which bound very well but actually depressed mouse locomotion. Snyder et al suggest that this is not a major stumbling block to their hypothesis. The problem is that the compound has mixed effects in the brain, a not unusual occurrence with psychoactive drugs. Even caffeine, which is generally known only for its stimulatory effects, displays this property, depressing mouse locomotion at very low concentrations and stimulating it at higher ones.

1. The primary purpose of the passage is to
  - (A) discuss a plan for investigation of a phenomenon that is not yet fully understood
  - (B) present two explanations of a phenomenon and reconcile the differences between them
  - (C) summarize two theories and suggest a third theory that overcomes the problems encountered in the first two
  - (D) describe an alternative hypothesis and provide evidence and arguments that support it
  - (E) challenge the validity of a theory by exposing the inconsistencies and contradictions in it
2. Which of the following, if true, would most weaken the theory proposed by Snyder et al?
  - (A) At very low concentrations in the human brain, both caffeine and theophylline tend to have depressive rather than stimulatory effects on human behavior.
  - (B) The ability of caffeine derivatives at very low concentrations to dislodge adenosine from its receptors in mouse brains correlates well with their ability to stimulate mouse locomotion at these low concentrations
  - (C) The concentration of cyclic AMP in target neurons in the human brain that leads to increased neuron firing can be produced by several different phosphodiesterase inhibitors in addition to caffeine.
  - (D) The concentration of caffeine required to dislodge adenosine from its receptors in the human brain is much greater than the concentration that produces behavioral stimulation in humans.
  - (E) The concentration of IBMX required to dislodge

adenosine from its receptors in mouse brains is much smaller than the concentration that stimulates locomotion in the mouse.

3. According to Snyder et al, caffeine differs from adenosine in that caffeine
  - (A) stimulates behavior in the mouse and in humans, whereas adenosine stimulates behavior in humans only
  - (B) has mixed effects in the brain, whereas adenosine has only a stimulatory effect
  - (C) increases cyclic AMP concentrations in target neurons, whereas adenosine decreases such concentrations
  - (D) permits release of neurotransmitters when it is bound to adenosine receptors, whereas adenosine inhibits such release
  - (E) inhibits both neuron firing and the production of phosphodiesterase when there is a sufficient concentration in the brain, whereas adenosine inhibits only neuron firing
  
4. In response to experimental results concerning IBMX, Snyder et al contended that it is not uncommon for psychoactive drugs to have
  - (A) mixed effects in the brain
  - (B) inhibitory effects on enzymes in the brain
  - (C) close structural relationships with caffeine
  - (D) depressive effects on mouse locomotion
  - (E) the ability to dislodge caffeine from receptors in the brain
  
5. The passage suggests that Snyder et al believe that if the older theory concerning caffeine's effects were correct, which of the following would have to be the case?
  - I .All neurotransmitters would increase the short-term concentration of cyclic AMP in target neurons.
  - II .Substances other than caffeine that inhibit the production of phosphodiesterase would be stimulants.
  - III.All concentration levels of caffeine that are high enough to produce stimulation would also inhibit the production of phosphodiesterase.
  - (A) I only
  - (B) I and II only
  - (C) I and III only
  - (D) II and III only
  - (E) I , II ,and III
  
6. According to Snyder et al, all of the following compounds can bind to specific receptors in the brain EXCEPT
  - (A) IBMX
  - (B) caffeine
  - (C) adenosine
  - (D) theophylline
  - (E) phosphodiesterase
  
7. Snyder et al suggest that caffeine's ability to bind to A1 and A2 receptors can be at least partially attributed to



which of the following?

- (A) The chemical relationship between caffeine and phosphodiesterase
  - (B) The structural relationship between caffeine and adenosine
  - (C) The structural similarity between caffeine and neurotransmitters
  - (D) The ability of caffeine to stimulate behavior
  - (E) The natural occurrence of caffeine and adenosine in the brain
8. The author quotes Snyder et al in lines 38-43 most probably in order to
- (A) reveal some of the assumptions underlying their theory
  - (B) summarize a major finding of their experiments
  - (C) point out that their experiments were limited to the mouse
  - (D) indicate that their experiments resulted only in general correlations
  - (E) refute the objections made by supporters of the older theory
9. The last paragraph of the passage performs which of the following functions?
- (A) Describes a disconfirming experimental result and reports the explanation given by Snyder et al in an attempt to reconcile this result with their theory.
  - (B) Specifies the basis for the correlation observed by Snyder et al and presents an explanation in an attempt to make the correlation consistent with the operation of psychoactive drugs other than caffeine.
  - (C) Elaborates the description of the correlation observed by Snyder et al and suggests an additional explanation in an attempt to make the correlation consistent with the older theory.
  - (D) Reports inconsistent experimental data and describes the method Snyder et al will use to reanalyze this data.
  - (E) Provides an example of the hypothesis proposed by Snyder et al and relates this example to caffeine's properties.

### Passage 11

- Archaeology as a profession faces two major problems. First, it is the poorest of the poor. Only paltry sums are available for excavating and even less is available for publishing the results and preserving the sites
- (5) once excavated. Yet archaeologists deal with priceless objects every day. Second, there is the problem of illegal excavation, resulting in museum-quality pieces being sold to the highest bidder.

- I would like to make an outrageous suggestion that
- (10) would at one stroke provide funds for archaeology and reduce the amount of illegal digging. I would propose that scientific archeological expeditions and governmental authorities sell excavated artifacts on the open market. Such sales would provide substantial funds for
- (15) the excavation and preservation of archaeological sites and the publication of results. At the same time, they

would break the illegal excavator's grip on the market, thereby decreasing the inducement to engage in illegal activities.

- (20) You might object that professionals excavate to acquire knowledge, not money. Moreover, ancient artifacts are part of our global cultural heritage, which should be available for all to appreciate, not sold to the highest bidder. I agree. Sell nothing that has unique
- (25) artistic merit or scientific value. But, you might reply, everything that comes out of the ground has scientific value. Here we part company. Theoretically, you may be correct in claiming that every artifact has potential scientific value. Practically, you are wrong.
- (30) I refer to the thousands of pottery vessels and ancient lamps that are essentially duplicates of one another. In one small excavation in Cyprus, archaeologists recently uncovered 2,000 virtually indistinguishable small jugs in a single courtyard. Even precious royal seal impressions
- (35) known as *melekh* handles have been found in abundance---more than 4,000 examples so far.

- The basements of museums are simply not large enough to store the artifacts that are likely to be discovered in the future. There is not enough money even to
- (40) catalogue the finds; as a result, they cannot be found again and become as inaccessible as if they had never been discovered. Indeed, with the help of a computer, sold artifacts could be more accessible than are the pieces stored in bulging museum basements. Prior to
- (45) sale, each could be photographed and the list of the purchasers could be maintained on the computer. A purchaser could even be required to agree to return the piece if it should become needed for scientific purposes.

- It would be unrealistic to suggest that illegal digging
- (50) would stop if artifacts were sold on the open market. But the demand for the clandestine product would be substantially reduced. Who would want an unmarked pot when another was available whose provenance was known, and that was dated stratigraphically by the professional archaeologist who excavated it?

1. The primary purpose of the passage is to propose
- (A) an alternative to museum display of artifacts
  - (B) a way to curb illegal digging while benefiting the archaeological profession
  - (C) a way to distinguish artifacts with scientific value from those that have no such value
  - (D) the governmental regulation of archaeological sites
  - (E) a new system for cataloguing duplicate artifacts
2. The author implies that all of the following statements about duplicate artifacts are true EXCEPT:
- (A) A market for such artifacts already exists.
  - (B) Such artifacts seldom have scientific value.
  - (C) There is likely to be a continuing supply of such artifacts.
  - (D) Museums are well supplied with examples of such artifacts.
  - (E) Such artifacts frequently exceed in quality those already catalogued in museum collections.

3. Which of the following is mentioned in the passage as a disadvantage of storing artifacts in museum basements?
- (A) Museum officials rarely allow scholars access to such artifacts.
  - (B) Space that could be better used for display is taken up for storage.
  - (C) Artifacts discovered in one excavation often become separated from each other.
  - (D) Such artifacts are often damaged by variations in temperature and humidity.
  - (E) Such artifacts' often remain uncatalogued and thus cannot be located once they are put in storage.
4. The author mentions the excavation in Cyprus (lines 31-34) to emphasize which of the following points?
- (A) Ancient lamps and pottery vessels are less valuable, although more rare, than royal seal impressions.
  - (B) Artifacts that are very similar to each other present cataloguing difficulties to archaeologists.
  - (C) Artifacts that are not uniquely valuable, and therefore could be sold, are available in large quantities.
  - (D) Cyprus is the most important location for unearthing large quantities of salable artifacts.
  - (E) Illegal sales of duplicate artifacts are wide-spread, particularly on the island of Cyprus.
5. The author's argument concerning the effect of the official sale of duplicate artifacts on illegal excavation is based on which of the following assumptions?
- (A) Prospective purchasers would prefer to buy authenticated artifacts.
  - (B) The price of illegally excavated artifacts would rise.
  - (C) Computers could be used to trace sold artifacts.
  - (D) Illegal excavators would be forced to sell only duplicate artifacts.
  - (E) Money gained from selling authenticated artifacts could be used to investigate and prosecute illegal excavators.
6. The author anticipates which of the following initial objections to the adoption of his proposal?
- (A) Museum officials will become unwilling to store artifacts.
  - (B) An oversupply of salable artifacts will result and the demand for them will fall.
  - (C) Artifacts that would have been displayed in public places will be sold to private collectors.
  - (D) Illegal excavators will have an even larger supply of artifacts for resale.
  - (E) Counterfeiting of artifacts will become more commonplace.
7. The author implies that which of the following would occur if duplicate artifacts were sold on the open market?
- I .Illegal excavation would eventually cease completely.
  - II .Cyprus would become the primary source of

- marketable duplicate artifacts
- III. Archaeologists would be able to publish the results of their excavations more frequently than they currently do.
- (A) I only  
(B) III only  
(C) I and II only  
(D) II and III only  
(E) I, II, and III

### Passage 12

Federal efforts to aid minority businesses began in the 1960's when the Small Business Administration (SBA) began making federally guaranteed loans and government-sponsored management and technical assistance (5) available to minority business enterprises. While this program enabled many minority entrepreneurs to form new businesses, the results were disappointing, since managerial inexperience, unfavorable locations, and capital shortages led to high failure rates. Even 15 (10) years after the program was implemented, minority business receipts were not quite two percent of the national economy's total receipts.

Recently federal policymakers have adopted an approach intended to accelerate development of the (15) minority business sector by moving away from directly aiding small minority enterprises and toward supporting larger, growth-oriented minority firms through intermediary companies. In this approach, large corporations participate in the development of successful and stable (20) minority businesses by making use of government-sponsored venture capital. The capital is used by a participating company to establish a Minority Enterprise Small Business Investment Company or MESBIC. The MESBIC then provides capital and guidance to minority (25) businesses that have potential to become future suppliers or customers of the sponsoring company.

MESBIC's are the result of the belief that providing established firms with easier access to relevant management techniques and more job-specific experience, as (30) well as substantial amounts of capital, gives those firms a greater opportunity to develop sound business foundations than does simply making general management experience and small amounts of capital available.

Further, since potential markets for the minority busi- (35) nesses already exist through the sponsoring companies, the minority businesses face considerably less risk in terms of location and market fluctuation. Following early financial and operating problems, sponsoring corporations began to capitalize MESBIC's far above (40) the legal minimum of \$500,000 in order to generate sufficient income and to sustain the quality of management needed. MESBIC's are now emerging as increasingly important financing sources for minority enterprises.

(45) Ironically, MESBIC staffs, which usually consist of Hispanic and Black professionals, tend to approach investments in minority firms more pragmatically than

do many MESBIC directors, who are usually senior managers from sponsoring corporations. The latter (50) often still think mainly in terms of the "social responsibility approach" and thus seem to prefer deals that are riskier and less attractive than normal investment criteria would warrant. Such differences in viewpoint have produced uneasiness among many minority staff members, (55) who feel that minority entrepreneurs and businesses should be judged by established business considerations. These staff members believe their point of view is closer to the original philosophy of MESBIC's and they are concerned that, unless a more prudent course is followed, MESBIC directors may revert to policies likely to re-create the disappointing results of the original SBA approach.

1. Which of the following best states the central idea of the passage?
  - (A) The use of MESBIC's for aiding minority entrepreneurs seems to have greater potential for success than does the original SBA approach.
  - (B) There is a crucial difference in point of view between the staff and directors of some MESBIC's.
  - (C) After initial problems with management and marketing, minority businesses have begun to expand at a steady rate.
  - (D) Minority entrepreneurs wishing to form new businesses now have several equally successful federal programs on which to rely.
  - (E) For the first time since 1960, large corporations are making significant contributions to the development of minority businesses.
  
2. According to the passage, the MESBIC approach differs from the SBA approach in that MESBIC's
  - (A) seek federal contracts to provide markets for minority businesses
  - (B) encourage minority businesses to provide markets for other minority businesses
  - (C) attempt to maintain a specified rate of growth in the minority business sector
  - (D) rely on the participation of large corporations to finance minority businesses
  - (E) select minority businesses on the basis of their location
  
3. Which of the following does the author cite to support the conclusion that the results of the SBA program were disappointing?
  - (A) The small number of new minority enterprises formed as a result of the program
  - (B) The small number of minority enterprises that took advantage of the management and technical assistance offered under the program
  - (C) The small percentage of the nation's business receipts earned by minority enterprises following the programs, implementation.
  - (D) The small percentage of recipient minority enterprises that were able to repay federally guaranteed loans made under the program

- (E) The small number of minority enterprises that chose to participate in the program
4. Which of the following statements about the SBA program can be inferred from the passage?
- (A) The maximum term for loans made to recipient businesses was 15 years.
- (B) Business loans were considered to be more useful to recipient businesses than was management and technical assistance.
- (C) The anticipated failure rate for recipient businesses was significantly lower than the rate that actually resulted.
- (D) Recipient businesses were encouraged to relocate to areas more favorable for business development.
- (E) The capitalization needs of recipient businesses were assessed and then provided for adequately.
5. Based on information in the passage, which of the following would be indicative of the pragmatism of MESBIC staff members?
- I . A reluctance to invest in minority businesses that show marginal expectations of return on the investments
- II . A desire to invest in minority businesses that produce goods and services likely to be of use to the sponsoring company
- III. A belief that the minority business sector is best served by investing primarily in newly established businesses
- (A) I only
- (B) III only
- (C) I and II only
- (D) II and III only
- (E) I , II and III
6. The author refers to the "financial and operating problems"(line 38 ) encountered by MESBIC's primarily in order to
- (A) broaden the scope of the discussion to include the legal considerations of funding MESBIC'S through sponsoring companies
- (B) call attention to the fact that MESBIC's must receive adequate funding in order to function effectively
- (C) show that sponsoring companies were willing to invest only \$500,000 of government-sponsored venture capital in the original MESBIC's
- (D) compare SBA and MESBIC limits on minimum funding
- (E) refute suggestions that MESBIC's have been only marginally successful
7. The author's primary objective in the passage is to
- (A) disprove the view that federal efforts to aid minority businesses have been ineffective
- (B) explain how federal efforts to aid minority businesses have changed since the 1960's
- (C) establish a direct link between the federal efforts to aid minority businesses made before the 1960's

- and those made in the 1980's
- (D) analyze the basis for the belief that job-specific experience is more useful to minority businesses than is general management experience
- (E) argue that the "social responsibility approach" to aiding minority businesses is superior to any other approach
8. It can be inferred from the passage that the attitude of some MESBIC staff members toward the investments preferred by some MESBIC directors can best be described as
- (A) defensive
- (B) resigned
- (C) indifferent
- (D) shocked
- (E) disapproving
9. The passage provides information that would answer which of the following questions?
- (A) What was the average annual amount, in dollars, of minority business receipts before the SBA strategy was implemented?
- (B) What locations are considered to be unfavorable for minority businesses?
- (C) What is the current success rate for minority businesses that are capitalized by MESBIC's?
- (D) How has the use of federal funding for minority businesses changed since the 1960's?
- (E) How do minority businesses apply to participate in a MESBIC program?

### Passage 13

The majority of successful senior managers do not closely follow the classical rational model of first clarifying goals, assessing the problem, formulating options, estimating likelihoods of success, making a decision, (5) and only then taking action to implement the decision. Rather, in their day-by-day tactical maneuvers, these senior executives rely on what is vaguely termed "intuition" to manage a network of interrelated problems that require them to deal with ambiguity, inconsistency, (10) novelty, and surprise; and to integrate action into the process to thinking.

Generations of writers on management have recognized that some practicing managers rely heavily on intuition. In general, however, such writers display a (15) poor grasp of what intuition is. Some see it as the opposite of rationality: others view it as an excuse for capriciousness.

Isenberg's recent research on the cognitive processes of senior managers reveals that managers' intuition is (20) neither of these. Rather, senior managers use intuition in at least five distinct ways. First, they intuitively sense when a problem exists. Second, managers rely on intuition to perform well-learned behavior patterns rapidly. This intuition is not arbitrary or irrational, but is based (25) on years of painstaking practice and hands-on experi-

ence that build skills. A third function of intuition is to synthesize isolated bits of data and practice into an integrated picture, often in an "Aha!" experience. Fourth, some managers use intuition as a check on the results of more rational analysis. Most senior executives are familiar with the formal decision analysis models and tools, and those who use such systematic methods for reaching decisions are occasionally leery of solutions suggested by these methods which run counter to their sense of the correct course of action. Finally, managers can use intuition to bypass in-depth analysis and move rapidly to engender a plausible solution. Used in this way, intuition is an almost instantaneous cognitive process in which a manager recognizes familiar patterns.

(30) One of the implications of the intuitive style of executive management is that "thinking" is inseparable from acting. Since managers often "know" what is right before they can analyze and explain it, they frequently act first and explain later. Analysis is inextricably tied to action in thinking/acting cycles, in which managers develop thoughts about their companies and organizations not by analyzing a problematic situation and then acting, but by acting and analyzing in close concert.

(40) Given the great uncertainty of many of the management issues that they face, senior managers often instigate a course of action simply to learn more about an issue. They then use the results of the action to develop a more complete understanding of the issue. One implication of thinking/acting cycles is that action is often part of defining the problem, not just of implementing the solution.

1. According to the passage, senior managers use intuition in all of the following ways EXCEPT to
  - (A) speed up of the creation of a solution to a problem
  - (B) identify a problem
  - (C) bring together disparate facts
  - (D) stipulate clear goals
  - (E) evaluate possible solutions to a problem
2. The passage suggests which of the following about the "writers on management" mentioned in line 12?
  - (A) They have criticized managers for not following the classical rational model of decision analysis.
  - (B) They have not based their analyses on a sufficiently large sample of actual managers.
  - (C) They have relied in drawing their conclusions on what managers say rather than on what managers do.
  - (D) They have misunderstood how managers use intuition in making business decisions.
  - (E) They have not acknowledged the role of intuition in managerial practice.
3. Which of the following best exemplifies "an 'Aha!' experience" (line 28) as it is presented in the passage?
  - (A) A manager risks taking an action whose outcome is unpredictable to discover whether the action changes the problem at hand.
  - (B) A manager performs well-learned and familiar behavior patterns in creative and uncharacteristic



ways to solve a problem.

- (C) A manager suddenly connects seemingly unrelated facts and experiences to create a pattern relevant to the problem at hand.
  - (D) A manager rapidly identifies the methodology used to compile data yielded by systematic analysis.
  - (E) A manager swiftly decides which of several sets of tactics to implement in order to deal with the contingencies suggested by a problem.
4. According to the passage, the classical model of decision analysis includes all of the following EXCEPT
- (A) evaluation of a problem
  - (B) creation of possible solutions to a problem
  - (C) establishment of clear goals to be reached by the decision
  - (D) action undertaken in order to discover more information about a problem
  - (E) comparison of the probable effects of different solutions to a problem
5. It can be inferred from the passage that which of the following would most probably be one major difference in behavior between Manager X, who uses intuition to reach decisions, and Manager Y, who uses only formal decision analysis?
- (A) Manager X analyzes first and then acts; Manager Y does not.
  - (B) Manager X checks possible solutions to a problem by systematic analysis; Manager Y does not
  - (C) Manager X takes action in order to arrive at the solution to a problem; Manager Y does not.
  - (D) Manager Y draws on years of hands-on experience in creating a solution to a problem; Manager X does not.
  - (E) Manager Y depends on day-to-day tactical maneuvering; manager X does not.
6. It can be inferred from the passage that "thinking/acting cycles" (line 45 ) in managerial practice would be likely to result in which of the following?
- I . A manager analyzes a network of problems and then acts on the basis of that analysis.
  - II . A manager gathers data by acting and observing the effects of action.
  - III . A manager takes action without being able to articulate reasons for that particular action.
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) II and III only
  - (E) I , II , and III
7. The passage provides support for which of the following statements?
- (A) Managers who rely on intuition are more successful than those who rely on formal decision analysis.
  - (B) Managers cannot justify their intuitive decisions.

- (C) Managers' intuition works contrary to their rational and analytical skills
  - (D) Logical analysis of a problem increases the number of possible solutions.
  - (E) Intuition enables managers to employ their practical experience more efficiently.
8. Which of the following best describes the organization of the first paragraph of the passage?
- (A) An assertion is made and a specific supporting example is given.
  - (B) A conventional model is dismissed and an alternative introduced.
  - (C) The results of recent research are introduced and summarized
  - (D) Two opposing points of view are presented and evaluated.
  - (E) A widely accepted definition is presented and qualified.

### Passage 14

Nearly a century ago, biologists found that if they separated an invertebrate animal embryo into two parts at an early stage of its life, it would survive and develop as two normal embryos. This led them to believe that the

(5) cells in the early embryo are undetermined in the sense that each cell has the potential to develop in a variety of different ways. Later biologists found that the situation was not so simple. It matters in which plane the embryo is cut. If it is cut in a plane different from the one used

(10) by the early investigators, it will not form two whole embryos.

A debate arose over what exactly was happening. Which embryo cells are determined, just when do they-become irreversibly committed to their fates, and what

(15) are the "morphogenetic determinants" that tell a cell what to become? But the debate could not be resolved because no one was able to ask the crucial questions in a form in which they could be pursued productively. Recent discoveries in molecular biology, however, have

(20) opened up prospects for a resolution of the debate. Now investigators think they know at least some of the molecules that act as morphogenetic determinants in early development. They have been able to show that, in a sense, cell determination begins even before an egg

(25) is fertilized.

Studying sea urchins, biologist Paul Gross found that an unfertilized egg contains substances that function as morphogenetic determinants. They are located in the cytoplasm of the egg cell; i.e., in that part of the

(30) cell's protoplasm that lies outside of the nucleus. In the unfertilized egg, the substances are inactive and are not distributed homogeneously. When the egg is fertilized, the substances become active and, presumably, govern the behavior of the genes they interact with. Since the

(35) substances are unevenly distributed in the egg, when the fertilized egg divides, the resulting cells are different from the start and so can be qualitatively different in

their own gene activity.

- The substances that Gross studied are maternal messenger RNA's --products of certain of the maternal genes. He and other biologists studying a wide variety of organisms have found that these particular RNA's direct, in large part, the synthesis of histones, a class of proteins that bind to DNA. Once synthesized, the histones move into the cell nucleus, where sections of DNA wrap around them to form a structure that resembles beads, or knots, on a string. The beads are DNA segments wrapped around the histones; the string is the intervening DNA. And it is the structure of these beaded DNA strings that guides the fate of the cells in which they are located.

1. The passage is most probably directed at which kind of audience?
  - (A) State legislators deciding about funding levels for a state-funded biological laboratory
  - (B) Scientists specializing in molecular genetics
  - (C) Readers of an alumni newsletter published by the college that Paul Gross attended
  - (D) Marine biologists studying the processes that give rise to new species
  - (E) Undergraduate biology majors in a molecular biology course
2. It can be inferred from the passage that the morphogenetic determinants present in the early embryo are
  - (A) located in the nucleus of the embryo cells
  - (B) evenly distributed unless the embryo is not developing normally
  - (C) inactive until the embryo cells become irreversibly committed to their final function
  - (D) identical to those that were already present in the unfertilized egg
  - (E) present in larger quantities than is necessary for the development of a single individual
3. The main topic of the passage is
  - (A) the early development of embryos of lower marine organisms
  - (B) the main contribution of modern embryology to molecular biology
  - (C) the role of molecular biology in disproving older theories of embryonic development
  - (D) cell determination as an issue in the study of embryonic development
  - (E) scientific dogma as a factor in the recent debate over the value of molecular biology
4. According to the passage, when biologists believed that the cells in the early embryo were undetermined, they made which of the following mistakes?
  - (A) They did not attempt to replicate the original experiment of separating an embryo into two parts.
  - (B) They did not realize that there was a connection between the issue of cell determination and the outcome of the separation experiment.

- (C) They assumed that the results of experiments on embryos did not depend on the particular animal species used for such experiments.
- (D) They assumed that it was crucial to perform the separation experiment at an early stage in the embryo's life.
- (E) They assumed that different ways of separating an embryo into two parts would be equivalent as far as the fate of the two parts was concerned.
5. It can be inferred from the passage that the initial production of histones after an egg is fertilized takes place
- (A) in the cytoplasm
- (B) in the maternal genes
- (C) throughout the protoplasm
- (D) in the beaded portions of the DNA strings
- (E) in certain sections of the cell nucleus
6. It can be inferred from the passage that which of the following is dependent on the fertilization of an egg?
- (A) Copying of maternal genes to produce maternal messenger RNA's
- (B) Synthesis of proteins called histones
- (C) Division of a cell into its nucleus and the cytoplasm
- (D) Determination of the egg cell's potential for division
- (E) Generation of all of a cell's morphogenetic determinants
7. According to the passage, the morphogenetic determinants present in the unfertilized egg cell are which of the following?
- (A) Proteins bound to the nucleus
- (B) Histones
- (C) Maternal messenger RNA's
- (D) Cytoplasm
- (E) Nonbeaded intervening DNA
8. The passage suggests that which of the following plays a role in determining whether an embryo separated into two parts will develop as two normal embryos?
- I . The stage in the embryo's life at which the separation occurs
- II . The instrument with which the separations is accomplished
- III. The plane in which the cut is made that separates the embryo
- (A) I only
- (B) II only
- (C) I and II only
- (D) I and III only
- (E) I , II , and III
9. Which of the following circumstances is most comparable to the impasse biologists encountered in trying to resolve the debate about cell determination (lines 12-18)?
- (A) The problems faced by a literary scholar who wishes

- to use original source materials that are written in an unfamiliar foreign language
- (B) The situation of a mathematician who in preparing a proof of a theorem for publication detects a reasoning error in the proof
- (C) The difficulties of a space engineer who has to design equipment to function in an environment in which it cannot first be tested
- (D) The predicament of a linguist trying to develop a theory of language acquisition when knowledge of the structure of language itself is rudimentary at best
- (E) The dilemma confronting a foundation when the funds available to it are sufficient to support one of two equally deserving scientific projects but not both

### Passage 15

In the two decades between 1910 and 1930, over ten percent of the Black population of the United States left the South, where the preponderance of the Black population had been located, and migrated to northern states, with the largest number moving, it is claimed, between 1916 and 1918. It has been frequently assumed, but not proved, that the majority of the migrants in what has come to be called the Great Migration came from rural areas and were motivated by two concurrent factors: the collapse of the cotton industry following the boll weevil infestation, which began in 1898, and increased demand in the North for labor following the cessation of European immigration caused by the outbreak of the First World War in 1914. This assumption has led to the conclusion that the migrants' subsequent lack of economic mobility in the North is tied to rural background, a background that implies unfamiliarity with urban living and a lack of industrial skills.

But the question of who actually left the South has never been rigorously investigated. Although numerous investigations document an exodus from rural southern areas to southern cities prior to the Great Migration, no one has considered whether the same migrants then moved on to northern cities. In 1910 over 600,000 Black workers, or ten percent of the Black work force, reported themselves to be engaged in "manufacturing and mechanical pursuits," the federal census category roughly encompassing the entire industrial sector. The Great Migration could easily have been made up entirely of this group and their families. It is perhaps surprising to argue that an employed population could be enticed to move, but an explanation lies in the labor conditions then prevalent in the South.

About thirty-five percent of the urban Black population in the South was engaged in skilled trades. Some were from the old artisan class of slavery-blacksmiths, masons, carpenters—which had had a monopoly of certain trades, but they were gradually being pushed out by competition, mechanization, and obsolescence. The remaining sixty-five percent, more recently urbanized, worked in newly developed industries—tobacco, lumber, coal and iron manufacture, and railroads. Wages in the South, however, were low, and Black

workers were aware, through labor recruiters and the (45) Black press, that they could earn more even as unskilled workers in the North than they could as artisans in the South. After the boll weevil infestation, urban Black workers faced competition from the continuing influx of both Black and White rural workers, who were driven (50) to undercut the wages formerly paid for industrial jobs. Thus, a move north would be seen as advantageous to a group that was already urbanized and steadily employed, and the easy conclusion tying their subsequent economic problems in the North to their rural background comes into question.

1. The author indicates explicitly that which of the following records has been a source of information in her investigation?
  - (A) United States Immigration Service reports from 1914 to 1930
  - (B) Payrolls of southern manufacturing firms between 1910 and 1930
  - (C) The volume of cotton exports between 1898 and 1910
  - (D) The federal census of 1910
  - (E) Advertisements of labor recruiters appearing in southern newspapers after 1910
2. In the passage, the author anticipates which of the following as a possible objection to her argument?
  - (A) It is uncertain how many people actually migrated during the Great Migration.
  - (B) The eventual economic status of the Great Migration migrants has not been adequately traced.
  - (C) It is not likely that people with steady jobs would have reason to move to another area of the country.
  - (D) It is not true that the term "manufacturing and mechanical pursuits" actually encompasses the entire industrial sector.
  - (E) Of the Black workers living in southern cities, only those in a small number of trades were threatened by obsolescence.
3. According to the passage, which of the following is true of wages in southern cities in 1910?
  - (A) They were being pushed lower as a result of increased competition.
  - (B) They had begun to rise so that southern industry could attract rural workers.
  - (C) They had increased for skilled workers but decreased for unskilled workers.
  - (D) They had increased in large southern cities but decreased in small southern cities.
  - (E) They had increased in newly developed industries but decreased in the older trades.
4. The author cites each of the following as possible influences in a Black worker's decision to migrate north in the Great Migration EXCEPT
  - (A) wage levels in northern cities
  - (B) labor recruiters
  - (C) competition from rural workers

- (D) voting rights in northern states  
(E) the Black press
5. It can be inferred from the passage that the "easy conclusion" mentioned in line 53 is based on which of the following assumptions?
- (A) People who migrate from rural areas to large cities usually do so for economic reasons.  
(B) Most people who leave rural areas to take jobs in cities return to rural areas as soon as it is financially possible for them to do so.  
(C) People with rural backgrounds are less likely to succeed economically in cities than are those with urban backgrounds.  
(D) Most people who were once skilled workers are not willing to work as unskilled workers.  
(E) People who migrate from their birthplaces to other regions of country seldom undertake a second migration.
6. The primary purpose of the passage is to
- (A) support an alternative to an accepted methodology  
(B) present evidence that resolves a contradiction  
(C) introduce a recently discovered source of information  
(D) challenge a widely accepted explanation  
(E) argue that a discarded theory deserves new attention
7. According to information in the passage, which of the following is a correct sequence of groups of workers, from highest paid to lowest paid, in the period between 1910 and 1930?
- (A) Artisans in the North; artisans in the South; unskilled workers in the North; unskilled workers in the South  
(B) Artisans in the North and South; unskilled workers in the North; unskilled workers in the South  
(C) Artisans in the North; unskilled workers in the North; artisans in the South  
(D) Artisans in the North and South; unskilled urban workers in the North; unskilled rural workers in the South  
(E) Artisans in the North and South, unskilled rural workers in the North and South; unskilled urban workers in the North and South
8. The material in the passage would be most relevant to a long discussion of which of the following topics?
- (A) The reasons for the subsequent economic difficulties of those who participated in the Great Migration  
(B) The effect of migration on the regional economies of the United States following the First World War  
(C) The transition from a rural to an urban existence for those who migrated in the Great Migration  
(D) The transformation of the agricultural South following the boll weevil infestation  
(E) The disappearance of the artisan class in the United States as a consequence of mechanization in the early twentieth century

## Passage 16

In 1896 a Georgia couple suing for damages in the accidental death of their two year old was told that since the child had made no real economic contribution to the family, there was no liability for damages. In contrast, (5) less than a century later, in 1979, the parents of a three year old sued in New York for accidental-death damages and won an award of \$750,000.

The transformation in social values implicit in juxtaposing these two incidents is the subject of Viviana (10) Zelizer's excellent book, *Pricing the Priceless Child*. During the nineteenth century, she argues, the concept of the "useful" child who contributed to the family economy gave way gradually to the present-day notion of the "useless" child who, though producing no income (15) for, and indeed extremely costly to, its parents, is yet considered emotionally "priceless." Well established among segments of the middle and upper classes by the mid-1800's, this new view of childhood spread throughout society in the late-nineteenth and early-twentieth (20) centuries as reformers introduced child-labor regulations and compulsory education laws predicated in part on the assumption that a child's emotional value made child labor taboo.

For Zelizer the origins of this transformation were (25) many and complex. The gradual erosion of children's productive value in a maturing industrial economy, the decline in birth and death rates, especially in child mortality, and the development of the companionate family (a family in which members were united by (30) explicit bonds of love rather than duty) were all factors critical in changing the assessment of children's worth. Yet "expulsion of children from the 'cash nexus,'... although clearly shaped by profound changes in the economic, occupational, and family structures," Zelizer (35) maintains. "was also part of a cultural process 'of sacralization' of children's lives. " Protecting children from the crass business world became enormously important for late-nineteenth-century middle-class Americans, she suggests; this sacralization was a way of resisting what (40) they perceived as the relentless corruption of human values by the marketplace.

In stressing the cultural determinants of a child's worth, Zelizer takes issue with practitioners of the new "sociological economics," who have analyzed such tradi- (45) tionally sociological topics as crime, marriage, education, and health solely in terms of their economic determinants. Allowing only a small role for cultural forces in the form of individual "preferences," these sociologists tend to view all human behavior as directed primarily by (50) the principle of maximizing economic gain. Zelizer is highly critical of this approach, and emphasizes instead the opposite phenomenon: the power of social values to transform price. As children became more valuable in emotional terms, she argues, their "exchange" or "sur- (55) render" value on the market, that is, the conversion of their intangible worth into cash terms, became much greater.

1. It can be inferred from the passage that accidental-death



- damage awards in America during the nineteenth century tended to be based principally on the
- (A) earnings of the person at time of death
  - (B) wealth of the party causing the death
  - (C) degree of culpability of the party causing the death
  - (D) amount of money that had been spent on the person killed
  - (E) amount of suffering endured by the family of the person killed
2. It can be inferred from the passage that in the early 1800's children were generally regarded by their families as individuals who
- (A) needed enormous amounts of security and affection
  - (B) required constant supervision while working
  - (C) were important to the economic well-being of a family
  - (D) were unsuited to spending long hours in school
  - (E) were financial burdens assumed for the good of society
3. which of the following alternative explanations of the change in the cash value of children would be most likely to be put forward by sociological economists as they are described in the passage?
- (A) The cash value of children rose during the nineteenth century because parents began to increase their emotional investment in the upbringing of their children.
  - (B) The cash value of children rose during the nineteenth century because their expected earnings over the course of a lifetime increased greatly.
  - (C) The cash value of children rose during the nineteenth century because the spread of humanitarian ideals resulted in a wholesale reappraisal of the worth of an individual
  - (D) The cash value of children rose during the nineteenth century because compulsory education laws reduced the supply, and thus raised the costs, of available child labor.
  - (E) The cash value of children rose during the nineteenth century because of changes in the way negligence law assessed damages in accidental-death cases.
4. The primary purpose of the passage is to
- (A) review the literature in a new academic subfield
  - (B) present the central thesis of a recent book
  - (C) contrast two approaches to analyzing historical change
  - (D) refute a traditional explanation of a social phenomenon
  - (E) encourage further work on a neglected historical topic
5. It can be inferred from the passage that which of the following statements was true of American families over the course of the nineteenth century?
- (A) The average size of families grew considerably
  - (B) The percentage of families involved in industrial

- work declined dramatically.
- (C) Family members became more emotionally bonded to one another.
  - (D) Family members spent an increasing amount of time working with each other.
  - (E) Family members became more economically dependent on each other.
6. Zelizer refers to all of the following as important influences in changing the assessment of children's worth EXCEPT changes in
- (A) the mortality rate
  - (B) the nature of industry
  - (C) the nature of the family
  - (D) attitudes toward reform movements
  - (E) attitudes toward the marketplace
7. Which of the following would be most consistent with the practices of sociological economics as these practices are described in the passage?
- (A) Arguing that most health-care professionals enter the field because they believe it to be the most socially useful of any occupation
  - (B) Arguing that most college students choose majors that they believe will lead to the most highly paid jobs available to them
  - (C) Arguing that most decisions about marriage and divorce are based on rational assessments of the likelihood that each partner will remain committed to the relationship
  - (D) Analyzing changes in the number of people enrolled in colleges and universities as a function of changes in the economic health of these institutions
  - (E) Analyzing changes in the ages at which people get married as a function of a change in the average number of years that young people have lived away from their parents

### Passage 17

- Prior to 1975, union efforts to organize public-sector clerical workers, most of whom are women, were somewhat limited. The factors favoring unionization drives seem to have been either the presence of large numbers
- (5) of workers, as in New York City, to make it worth the effort, or the concentration of small numbers in one or two locations, such as a hospital, to make it relatively easy. Receptivity to unionization on the workers, part
  - (10) numbers involved or the clerical workers were the only unorganized group in a jurisdiction, the multioccupational unions would often try to organize them regardless of the workers' initial receptivity. The strategic reasoning was based, first, on the concern that politicians and administrators might play off unionized
  - (15) against nonunionized workers, and, second, on the conviction that a fully unionized public work force meant power, both at the bargaining table and in the legislature. In localities where clerical workers were few

(20) in number, were scattered in several workplaces, and expressed no interest in being organized, unions more often than not ignored them in the pre-1975 period.

But since the mid-1970's, a different strategy has emerged. In 1977, 34 percent of government clerical  
(25) workers were represented by a labor organization, compared with 46 percent of government professionals, 44 percent of government blue-collar workers, and 41 percent of government service workers. Since then, however, the biggest increases in public-sector unioniza-  
(30) tion have been among clerical workers. Between 1977 and 1980, the number of unionized government workers in blue-collar and service occupations increased only about 1.5 percent, while in the white-collar occupations the increase was 20 percent and among clerical workers  
(35) in particular, the increase was 22 percent.

What accounts for this upsurge in unionization among clerical workers? First, more women have entered the work force in the past few years, and more of them plan to remain working until retirement age. Conse-  
(40) quently, they are probably more concerned than their predecessors were about job security and economic benefits. Also, the women's movement has succeeded in legitimizing the economic and political activism of women on their own behalf, thereby producing a more positive atti-  
(45) tude toward unions. The absence of any comparable increase in unionization among private-sector clerical workers, however, identifies the primary catalyst—the structural change in the multioccupational public-sector unions themselves. Over the past twenty years, the occu-  
(50) pational distribution in these unions has been steadily shifting from predominantly blue-collar to predominantly white-collar. Because there are far more women in white-collar jobs, an increase in the proportion of female members has accompanied the occupational shift  
(55) and has altered union policy-making in favor of organizing women and addressing women's issues.

1. According to the passage, the public-sector workers who were most likely to belong to unions in 1977 were  
(A) professionals  
(B) managers  
(C) clerical workers  
(D) service workers  
(E) blue-collar workers
2. The author cites union efforts to achieve a fully unionized work force (line 13-19) in order to account for why  
(A) politicians might try to oppose public-sector union organizing  
(B) public-sector unions have recently focused on organizing women  
(C) early organizing efforts often focused on areas where there were large numbers of workers  
(D) union efforts with regard to public-sector clerical workers increased dramatically after 1975  
(E) unions sometimes tried to organize workers regardless of the workers' initial interest in unionization

3. The author's claim that, since the mid-1970's, a new strategy has emerged in the unionization of public-sector clerical workers (line 23 ) would be strengthened if the author
- (A) described more fully the attitudes of clerical workers toward labor unions
  - (B) compared the organizing strategies employed by private-sector unions with those of public-sector unions
  - (C) explained why politicians and administrators sometimes oppose unionization of clerical workers
  - (D) indicated that the number of unionized public-sector clerical workers was increasing even before the mid-1970's
  - (E) showed that the factors that favored unionization drives among these workers prior to 1975 have decreased in importance
4. According to the passage, in the period prior to 1975, each of the following considerations helped determine whether a union would attempt to organize a certain group of clerical workers EXCEPT
- (A) the number of clerical workers in that group
  - (B) the number of women among the clerical workers in that group
  - (C) whether the clerical workers in that area were concentrated in one workplace or scattered over several workplaces
  - (D) the degree to which the clerical workers in that group were interested in unionization
  - (E) whether all the other workers in the same jurisdiction as that group of clerical workers were unionized
5. The author states that which of the following is a consequence of the women's movement of recent years?
- (A) An increase in the number of women entering the work force
  - (B) A structural change in multioccupational public-sector unions
  - (C) A more positive attitude on the part of women toward unions
  - (D) An increase in the proportion of clerical workers that are women
  - (E) An increase in the number of women in administrative positions
6. The main concern of the passage is to
- (A) advocate particular strategies for future efforts to organize certain workers into labor unions
  - (B) explain differences in the unionized proportions of various groups of public-sector workers
  - (C) evaluate the effectiveness of certain kinds of labor unions that represent public-sector workers
  - (D) analyzed and explain an increase in unionization among a certain category of workers
  - (E) describe and distinguish strategies appropriate to organizing different categories of workers

7. The author implies that if the increase in the number of women in the work force and the impact of the women's movement were the main causes of the rise in unionization of public-sector clerical workers, then
- (A) more women would hold administrative positions in unions
  - (B) more women who hold political offices would have positive attitudes toward labor unions
  - (C) there would be an equivalent rise in unionization of private-sector clerical workers
  - (D) unions would have shown more interest than they have in organizing women
  - (E) the increase in the number of unionized public-sector clerical workers would have been greater than it has been
8. The author suggests that it would be disadvantageous to a union if
- (A) many workers in the locality were not unionized
  - (B) the union contributed to political campaigns
  - (C) the union included only public-sector workers
  - (D) the union included workers from several jurisdictions
  - (E) the union included members from only a few occupations
9. The author implies that, in comparison with working women today, women working in the years prior to the mid-1970's showed a greater tendency to
- (A) prefer smaller workplaces
  - (B) express a positive attitude toward labor unions
  - (C) maximize job security and economic benefits
  - (D) side with administrators in labor disputes
  - (E) quit working prior of retirement age

### Passage 18

Milankovitch proposed in the early twentieth century that the ice ages were caused by variations in the Earth's orbit around the Sun. For sometime this theory was considered untestable, largely because there was no sufficiently precise chronology of the ice ages with which the orbital variations could be matched.

To establish such a chronology it is necessary to determine the relative amounts of land ice that existed at various times in the Earth's past. A recent discovery makes such a determination possible: relative land-ice volume for a given period can be deduced from the ratio of two oxygen isotopes, 16 and 18, found in ocean sediments. Almost all the oxygen in water is oxygen 16, but a few molecules out of every thousand incorporate the heavier isotope 18. When an ice age begins, the continental ice sheets grow, steadily reducing the amount of water evaporated from the ocean that will eventually return to it. Because heavier isotopes tend to be left behind when water evaporates from the ocean surfaces, the remaining ocean water becomes progressively enriched in oxygen 18. The degree of enrichment can be determined by analyzing ocean sediments of the

period, because these sediments are composed of calcium carbonate shells of marine organisms, shells that were  
(25) constructed with oxygen atoms drawn from the surrounding ocean. The higher the ratio of oxygen 18 to oxygen 16 in a sedimentary specimen, the more land ice there was when the sediment was laid down.

As an indicator of shifts in the Earth's climate, the  
(30) isotope record has two advantages. First, it is a global record: there is remarkably little variation in isotope ratios in sedimentary specimens taken from different continental locations. Second, it is a more continuous record than that taken from rocks on land. Because of  
(35) these advantages, sedimentary evidence can be dated with sufficient accuracy by radiometric methods to establish a precise chronology of the ice ages. The dated isotope record shows that the fluctuations in global ice volume over the past several hundred thousand years  
(40) have a pattern: an ice age occurs roughly once every 100,000 years. These data have established a strong connection between variations in the Earth's orbit and the periodicity of the ice ages.

However, it is important to note that other factors,  
(45) such as volcanic particulates or variations in the amount of sunlight received by the Earth, could potentially have affected the climate. The advantage of the Milankovitch theory is that it is testable: changes in the Earth's orbit can be calculated and dated by applying Newton's laws  
(50) of gravity to progressively earlier configurations of the bodies in the solar system. Yet the lack of information about other possible factors affecting global climate does not make them unimportant.

1. In the passage, the author is primarily interested in
  - (A) suggesting an alternative to an outdated research method
  - (B) introducing a new research method that calls an accepted theory into question
  - (C) emphasizing the instability of data gathered from the application of a new scientific method
  - (D) presenting a theory and describing a new method to test that theory
  - (E) initiating a debate about a widely accepted theory
2. The author of the passage would be most likely to agree with which of the following statements about the Milankovitch theory?
  - (A) It is the only possible explanation for the ice ages.
  - (B) It is too limited to provide a plausible explanation for the ice ages, despite recent research findings.
  - (C) It cannot be tested and confirmed until further research on volcanic activity is done.
  - (D) It is one plausible explanation, though not the only one, for the ice ages.
  - (E) It is not a plausible explanation for the ice ages, although it has opened up promising possibilities for future research.
3. It can be inferred from the passage that the isotope record taken from ocean sediments would be less useful to researchers if which of the following were true?

- (A) It indicated that lighter isotopes of oxygen predominated at certain times.
- (B) It had far more gaps in its sequence than the record taken from rocks on land.
- (C) It indicated that climate shifts did not occur every 100,000 years.
- (D) It indicated that the ratios of oxygen 16 and oxygen 18 in ocean water were not consistent with those found in fresh water.
- (E) It stretched back for only a million years.
4. According to the passage, which of the following is true of the ratios of oxygen isotopes in ocean sediments?
- (A) They indicate that sediments found during an ice age contain more calcium carbonate than sediments formed at other times.
- (B) They are less reliable than the evidence from rocks on land in determining the volume of land ice.
- (C) They can be used to deduce the relative volume of land ice that was present when the sediment was laid down.
- (D) They are more unpredictable during an ice age than in other climatic conditions.
- (E) They can be used to determine atmospheric conditions at various times in the past.
5. It can be inferred from the passage that precipitation formed from evaporated ocean water has
- (A) the same isotopic ratio as ocean water
- (B) less oxygen 18 than does ocean water
- (C) less oxygen 18 than has the ice contained in continental ice sheets
- (D) a different isotopic composition than has precipitation formed from water on land
- (E) more oxygen 16 than has precipitation formed from fresh water
6. According to the passage, which of the following is (are) true of the ice ages?
- I . The last ice age occurred about 25,000 years ago.
- II . Ice ages have lasted about 10,000 years for at least the last several hundred thousand years.
- III . Ice ages have occurred about every 100,000 years for at least the last several hundred thousand years.
- (A) I only
- (B) II only
- (C) III only
- (D) I and only
- (E) I , II and III
7. It can be inferred from the passage that calcium carbonate shells
- (A) are not as susceptible to deterioration as rocks
- (B) are less common in sediments formed during an ice age
- (C) are found only in areas that were once covered by land ice
- (D) contain radioactive material that can be used to determine a sediment's isotopic composition

- (E) reflect the isotopic composition of the water at the time the shells were formed
8. The purpose of the last paragraph of the passage is to
- (A) offer a note of caution
  - (B) introduce new evidence
  - (C) present two recent discoveries
  - (D) summarize material in the preceding paragraphs
  - (E) offer two explanations for a phenomenon
9. According to the passage, one advantage of studying the isotope record of ocean sediments is that it
- (A) corresponds with the record of ice volume taken from rocks on land
  - (B) shows little variation in isotope ratios when samples are taken from different continental locations
  - (C) corresponds with predictions already made by climatologists and experts in other fields
  - (D) confirms the record of ice volume initially established by analyzing variations in volcanic emissions
  - (E) provides data that can be used to substantiate records concerning variations in the amount of sunlight received by the Earth

### Passage 19

- In contrast to traditional analyses of minority business, the sociological analysis contends that minority business ownership is a group-level phenomenon, in that it is largely dependent upon social-group resources for
- (5) its development. Specifically, this analysis indicates that support networks play a critical role in starting and maintaining minority business enterprises by providing owners with a range of assistance, from the informal encouragement of family members and friends to
- (10) dependable sources of labor and clientele from the owner's ethnic group. Such self-help networks, which encourage and support ethnic minority entrepreneurs, consist of "primary" institutions, those closest to the individual in shaping his or her behavior and beliefs.
- (15) They are characterized by the face-to-face association and cooperation of persons united by ties of mutual concern. They form an intermediate social level between the individual and larger "secondary" institutions based on impersonal relationships. Primary institutions
- (20) comprising the support network include kinship, peer, and neighborhood or community subgroups.
- A major function of self-help networks is financial support. Most scholars agree that minority business owners have depended primarily on family funds and
- (25) ethnic community resources for investment capital. Personal savings have been accumulated, often through frugal living habits that require sacrifices by the entire family and are thus a product of long-term family financial behavior. Additional loans and gifts from relatives.
- (30) forthcoming because of group obligation rather than narrow investment calculation, have supplemented personal savings. Individual entrepreneurs do not necessarily rely on their kin because they cannot obtain finan-



cial backing from commercial resources. They may actually avoid banks because they assume that commercial institutions either cannot comprehend the special needs of minority enterprise or charge unreasonably high interest rates.

Within the larger ethnic community, rotating credit associations have been used to raise capital. These associations are informal clubs of friends and other trusted members of the ethnic group who make regular contributions to a fund that is given to each contributor in rotation. One author estimates that 40 percent of New York Chinatown firms established during 1900-1950 utilized such associations as their initial source of capital. However, recent immigrants and third or fourth generations of older groups now employ rotating credit associations only occasionally to raise investment funds. Some groups, like Black Americans, found other means of financial support for their entrepreneurial efforts. The first Black-operated banks were created in the late nineteenth century as depositories for dues collected from fraternal or lodge groups, which themselves had sprung from Black churches. Black banks made limited investments in other Black enterprises. Irish immigrants in American cities organized many building and loan associations to provide capital for home construction and purchase. They, in turn, provided work for many Irish home-building contractor firms. Other ethnic and minority groups followed similar practices in founding ethnic-directed financial institutions.

1. Based on the information in the passage, it would be LEAST likely for which of the following persons to be part of a self-help network?
  - (A) The entrepreneur's childhood friend
  - (B) The entrepreneur's aunt
  - (C) The entrepreneur's religious leader
  - (D) The entrepreneur's neighbor
  - (E) The entrepreneur's banker
  
2. Which of the following illustrates the working of a self-help support network, as such networks are described in the passage?
  - (A) A public high school offers courses in book-keeping and accounting as part of its open-enrollment adult education program.
  - (B) The local government in a small city sets up a program that helps teen-agers find summer jobs.
  - (C) A major commercial bank offers low-interest loans to experienced individuals who hope to establish their own businesses.
  - (D) A neighborhood-based fraternal organization develops a program of on-the-job training for its members and their friends.
  - (E) A community college offers country residents training programs that can lead to certification in a variety of technical trades.
  
3. Which of the following can be inferred from the passage about rotating credit associations?
  - (A) They were developed exclusively by Chinese immigrants.

- (B) They accounted for a significant portion of the investment capital used by Chinese immigrants in New York in the early twentieth century.
  - (C) Third-generation members of an immigrant group who started businesses in the 1920's would have been unlikely to rely on them.
  - (D) They were frequently joint endeavors by members of two or three different ethnic groups.
  - (E) Recent immigrants still frequently turn to rotating credit associations instead of banks for investment capital.
4. The passage best supports which of the following statements?
- (A) A minority entrepreneur who had no assistance from family members would not be able to start a business.
  - (B) Self-help networks have been effective in helping entrepreneurs primarily in the last 50 years.
  - (C) Minority groups have developed a range of alternatives to standard financing of business ventures.
  - (D) The financial institutions founded by various ethnic groups owe their success to their unique formal organization.
  - (E) Successful minority-owned businesses succeed primarily because of the personal strengths of their founders.
5. Which of the following best describes the organization of the second paragraph?
- (A) An argument is delineated, followed by a counterargument.
  - (B) An assertion is made and several examples are provided to illustrate it.
  - (C) A situation is described and its historical background is then outlined.
  - (D) An example of a phenomenon is given and is then used as a basis for general conclusions.
  - (E) A group of parallel incidents is described and the distinctions among the incidents are then clarified.
6. According to the passage, once a minority-owned business is established, self-help networks contribute which of the following to that business?
- (A) Information regarding possible expansion of the business into nearby communities
  - (B) Encouragement of a business climate that is nearly free of direct competition
  - (C) Opportunities for the business owner to reinvest profits in other minority-owned businesses
  - (D) Contact with people who are likely to be customers of the new business
  - (E) Contact with minority entrepreneurs who are members of other ethnic groups
7. It can be inferred from the passage that traditional analyses of minority business would be LEAST likely to do which of the following?
- (A) Examine businesses primarily in their social

- contexts
- (B) Focus on current, rather than historical, examples of business enterprises
  - (C) Stress common experiences of individual entrepreneurs in starting businesses
  - (D) Focus on the maintenance of businesses, rather than means of starting them
  - (E) Focus on the role of individual entrepreneurs in starting a business
8. Which of the following can be inferred from the passage about the Irish building and loan associations mentioned in the last paragraph?
- (A) They were started by third-or fourth-generation immigrants.
  - (B) They originated as offshoots of church-related groups.
  - (C) They frequently helped Irish entrepreneurs to finance business not connected with construction.
  - (D) They contributed to the employment of many Irish construction workers.
  - (E) They provided assistance for construction businesses owned by members of other ethnic groups.

### Passage 20

Species interdependence in nature confers many benefits on the species involved, but it can also become a point of weakness when one species involved in the relationship is affected by a catastrophe. Thus, flowering (5) plant species dependent on insect pollination, as opposed to self-pollination or wind pollination, could be endangered when the population of insect-pollinators is depleted by the use of pesticides.

In the forests of New Brunswick, for example, (10) various pesticides have been sprayed in the past 25 years in efforts to control the spruce budworm, an economically significant pest. Scientists have now investigated the effects of the spraying of Matacil, one of the anti-budworm agents that is least toxic to insect-pollinators. (15) They studied Matacil's effects on insect mortality in a wide variety of wild insect species and on plant fecundity, expressed as the percentage of the total flowers on an individual plant that actually developed fruit and bore seeds. They found that the most pronounced (20) mortality after the spraying of Matacil occurred among the smaller bees and one family of flies, insects that were all important pollinators of numerous species of plants growing beneath the tree canopy of forests. The fecundity of plants in one common indigenous species, the (25) red-osier dogwood, was significantly reduced in the sprayed areas as compared to that of plants in control plots where Matacil was not sprayed. This species is highly dependent on the insect-pollinators most vulnerable to Matacil. The creeping dogwood, a species similar (30) to the red-osier dogwood, but which is pollinated by large bees, such as bumblebees, showed no significant decline in fecundity. Since large bees are not affected by the spraying of Matacil, these results add weight to the argument that spraying where the pollinators are sensi-

(35) tive to the pesticide used decreases plant fecundity.

The question of whether the decrease in plant fecundity caused by the spraying of pesticides actually causes a decline in the overall population of flowering plant species still remains unanswered. Plant species dependent

(40) solely on seeds for survival or dispersal are obviously more vulnerable to any decrease in plant fecundity that occurs, whatever its cause. If, on the other hand, vegetative growth and dispersal (by means of shoots or runners) are available as alternative reproductive strategies for a  
(45) species, then decreases in plant fecundity may be of little consequence. The fecundity effects described here are likely to have the most profound impact on plant species with all four of the following characteristics: a short life span, a narrow geographic range, an incapacity for vegetative propagation, and a dependence on a small number  
(50) of insect-pollinator species. Perhaps we should give special attention to the conservation of such plant species since they lack key factors in their defenses against the environmental disruption caused by pesticide use.

1. Which of the following best summarizes the main point of the passage?
  - (A) Species interdependence is a point of weakness for some plants, but is generally beneficial to insects involved in pollination.
  - (B) Efforts to control the spruce budworm have had deleterious effects on the red-osier dogwood.
  - (C) The used of pesticides may be endangering certain plant species dependent on insects for pollination.
  - (D) The spraying of pesticides can reduce the fecundity of a plant species, but probably does not affect its overall population stability.
  - (E) Plant species lacking key factors in their defenses against human environmental disruption will probably become extinct.
  
2. According to the author, a flowering plant species whose fecundity has declined due to pesticide spraying may not experience an overall population decline if the plant species can do which of the following?
  - (A) Reproduce itself by means of shoots and runners.
  - (B) Survive to the end of the growing season.
  - (C) Survive in harsh climates.
  - (D) Respond to the fecundity decline by producing more flowers.
  - (E) Attract large insects as pollinators
  
3. The passage suggests that the lack of an observed decline in the fecundity of the creeping dogwood strengthens the researchers conclusions regarding pesticide use because the
  - (A) creeping dogwood its a species that does not resemble other forest plants
  - (B) creeping dogwood is a species pollinated by a broader range of insect species than are most dogwood species
  - (C) creeping dogwood grows primarily in regions that were not sprayed with pesticide, and so served as a control for the experiment

- (D) creeping dogwood is similar to the red-osier dogwood, but its insect pollinators are known to be insensitive to the pesticide used in the study
- (E) geographical range of the creeping dogwood is similar to that of the red-osier dogwood, but the latter species relies less on seeds for reproduction
4. The passage suggests that which of the following is true of the forest regions in New Brunswick sprayed with most anti-budworm pesticides other than Matacil?
- (A) The fecundity of some flowering plants in those regions may have decreased to an even greater degree than in the regions where Matacil is used.
- (B) Insect mortality in those regions occurs mostly among the larger species of insects, such as bumblebees.
- (C) The number of seeds produced by common plant species in those regions is probably comparable to the number produced where Matacil is sprayed.
- (D) Many more plant species have become extinct in those regions than in the regions where Matacil is used.
- (E) The spruce budworm is under better control in those regions than in the regions where Matacil is sprayed.
5. It can be inferred that which of the following is true of plant fecundity as it is defined in the passage?
- (A) A plant's fecundity decreases as the percentage of unpollinated flowers on the plant increases
- (B) A plant's fecundity decreases as the number of flowers produced by the plant decreases.
- (C) A plant's fecundity increases as the number of flowers produced by the plant increases.
- (D) A plant's fecundity is usually low if the plant relies on a small number of insect species for pollination.
- (E) A plant's fecundity is high if the plant can reproduce quickly by means of vegetative growth as well as by the production of seeds.
6. It can be inferred from the passage that which of the following plant species would be LEAST likely to experience a decrease in fecundity as a result of the spraying of a pesticide not directly toxic to plants?
- (A) A flowering tree pollinated by only a few insect species
- (B) A kind of insect-pollinated vine producing few flowers
- (C) A wind-pollinated flowering tree that is short-lived
- (D) A flowering shrub pollinated by a large number of insect species
- (E) A type of wildflower typically pollinated by larger insects
7. Which of the following assumptions most probably underlies the author's tentative recommendation in lines 51-54?
- (A) Human activities that result in environmental disruption should be abandoned.
- (B) The use of pesticides is likely to continue into the future.
- (C) It is economically beneficial to preserve endan-

- gered plant species.
- (D) Preventing the endangerment of a species is less costly than trying to save an already endangered one.
- (E) Conservation efforts aimed at preserving a few well-chosen species are more cost-effective than are broader-based efforts to improve the environment.

### Passage 21

Bernard Bailyn has recently reinterpreted the early history of the United States by applying new social research findings on the experiences of European migrants. In his reinterpretation, migration becomes the

(5) organizing principle for rewriting the history of preindustrial North America. His approach rests on four separate propositions.

The first of these asserts that residents of early modern England moved regularly about their coun-

(10) tryside; migrating to the New World was simply a "natural spillover." Although at first the colonies held little positive attraction for the English—they would rather have stayed home—by the eighteenth century people increasingly migrated to America because they

(15) regarded it as the land of opportunity. Secondly, Bailyn holds that, contrary to the notion that used to flourish in America history textbooks, there was never a typical New World community. For example, the economic and demographic character of early New England towns

(20) varied considerably.

Bailyn's third proposition suggests two general patterns prevailing among the many thousands of migrants: one group came as indentured servants, another came to acquire land. Surprisingly, Bailyn

(25) suggests that those who recruited indentured servants were the driving forces of transatlantic migration. These colonial entrepreneurs helped determine the social character of people who came to preindustrial North America. At first, thousands of unskilled laborers were recruited;

(30) by the 1730's, however, American employers demanded skilled artisans.

Finally, Bailyn argues that the colonies were a half-civilized hinterland of the European culture system. He is undoubtedly correct to insist that the colonies were

(35) part of an Anglo-American empire. But to divide the empire into English core and colonial periphery, as Bailyn does, devalues the achievements of colonial culture. It is true, as Bailyn claims, that high culture in the colonies never matched that in England. But what

(40) of seventeenth-century New England, where the settlers created effective laws, built a distinguished university, and published books? Bailyn might respond that New England was exceptional. However, the ideas and institutions developed by New England Puritans had power-

(45) ful effects on North American culture.

Although Bailyn goes on to apply his approach to some thousands of indentured servants who migrated just prior to the revolution, he fails to link their experience with the political development of the United States.

(50) Evidence presented in his work suggests how we might make such a connection. These indentured servants were

treated as slaves for the period during which they had sold their time to American employers. It is not surprising that as soon as they served their time they passed up (55) good wages in the cities and headed west to ensure their personal independence by acquiring land. Thus, it is in the west that a peculiarly American political culture began, among colonists who were suspicious of authority and intensely antiaristocratic.

1. Which of the following statements about migrants to colonial North America is supported by information in the passage?
  - (A) A larger percentage of migrants to colonial North America came as indentured servants than as free agents interested in acquiring land.
  - (B) Migrants who came to the colonies as indentured servants were more successful at making a livelihood than were farmers and artisans.
  - (C) Migrants to colonial North America were more successful at acquiring their own land during the eighteenth century than during the seven-tenth century.
  - (D) By the 1730's, migrants already skilled in a trade were in more demand by American employers than were unskilled laborers.
  - (E) A significant percentage of migrants who came to the colonies to acquire land were forced to work as field hands for prosperous American farmers.
2. The author of the passage states that Bailyn failed to
  - (A) give sufficient emphasis to the cultural and political interdependence of the colonies and England
  - (B) describe carefully how migrants of different ethnic backgrounds preserved their culture in the united States
  - (C) take advantage of social research on the experiences of colonists who migrated to colonial North America specifically to acquire land
  - (D) relate the experience of the migrants to the political values that eventually shaped the character of the United States
  - (E) investigate the lives of Europeans before they came to colonial North America to determine more adequately their motivations for migrating
3. Which of the following best summarizes the author's evaluation of Bailyn's fourth proposition?
  - (A) It is totally implausible.
  - (B) It is partially correct.
  - (C) It is highly admirable.
  - (D) It is controversial though persuasive.
  - (E) It is intriguing though unsubstantiated.
4. According to the passage, Bailyn and the author agree on which of the following statements about the culture of colonial New England?
  - (A) High culture in New England never equaled the high culture of England.
  - (B) The cultural achievements of colonial New England have generally been unrecognized by historians.

- (C) The colonists imitated the high culture of England, and did not develop a culture that was uniquely their own.
- (D) The southern colonies were greatly influenced by the high culture of New England.
- (E) New England communities were able to create laws and build a university, but unable to create anything innovative in the arts.
5. According to the passage, which of the following is true of English migrants to the colonies during the eighteenth century?
- (A) Most of them were farmers rather than trades people or artisans.
- (B) Most of them came because they were unable to find work in England.
- (C) They differed from other English people in that they were willing to travel.
- (D) They expected that the colonies would offer them increased opportunity.
- (E) They were generally not as educated as the people who remained in England.
6. The author of the passage is primarily concerned with
- (A) comparing several current interpretations of early American history
- (B) suggesting that new social research on migration should lead to revisions in current interpretations of early American history
- (C) providing the theoretical framework that is used by most historians in understanding early American history
- (D) refuting an argument about early American history that has been proposed by social historians
- (E) discussing a reinterpretation of early American history that is based on new social research on migration
7. It can be inferred from the passage that American history textbooks used to assert that
- (A) many migrants to colonial North America were not successful financially
- (B) more migrants came to America out of religious or political conviction that came in the hope of acquiring land
- (C) New England communities were much alike in terms of their economics and demographics
- (D) many migrants to colonial North America failed to maintain ties with their European relations
- (E) the level of literacy in New England communities was very high
8. The author of the passage would be most likely to agree with which of the following statements about Bailyn's work?
- (A) Bailyn underestimates the effects of Puritan thought on North American culture
- (B) Bailyn overemphasizes the economic dependence of the colonies on Great Britain.
- (C) Bailyn's description of the colonies as part of an Anglo-American empire is misleading and incorrect.



- (D) Bailyn failed to test his propositions on a specific group of migrants to colonial North America.
- (E) Bailyn overemphasizes the experiences of migrants to the New England colonies, and neglects the southern and the western parts of the New World.

### Passage 22

Many United States companies have, unfortunately, made the search for legal protection from import competition into a major line of work. Since 1980 the United States International Trade Commission (ITC) (5) has received about 280 complaints alleging damage from imports that benefit from subsidies by foreign governments. Another 340 charge that foreign companies "dumped" their products in the United States at "less than fair value." Even when no unfair practices (10) are alleged, the simple claim that an industry has been injured by imports is sufficient grounds to seek relief.

Contrary to the general impression, this quest for import relief has hurt more companies than it has helped. As corporations begin to function globally, they (15) develop an intricate web of marketing, production, and research relationships. The complexity of these relationships makes it unlikely that a system of import relief laws will meet the strategic needs of all the units under the same parent company.

Internationalization increases the danger that foreign companies will use import relief laws against the very companies the laws were designed to protect. Suppose a United States-owned company establishes an overseas plant to manufacture a product while its competitor (20) makes the same product in the United States. If the competitor can prove injury from the imports---and that the United States company received a subsidy from a foreign government to build its plant abroad---the United States company's products will be uncompetitive in the United States, since they would be subject to (30) duties.

Perhaps the most brazen case occurred when the ITC investigated allegations that Canadian companies were injuring the United States salt industry by dumping (35) rock salt, used to de-ice roads. The bizarre aspect of the complaint was that a foreign conglomerate with United States operations was crying for help against a United States company with foreign operations. The "United States" company claiming injury was a subsidiary of a (40) Dutch conglomerate, while the "Canadian" companies included a subsidiary of a Chicago firm that was the second-largest domestic producer of rock salt.

1. The passage is chiefly concerned with
  - (A) arguing against the increased internationalization of United States corporations
  - (B) warning that the application of laws affecting trade frequently has unintended consequences
  - (C) demonstrating that foreign-based firms receive more subsidies from their governments than United States firms receive from the United States government
  - (D) advocating the use of trade restrictions for

- "dumped" products but not for other imports  
(E) recommending a uniform method for handling claims of unfair trade practices

2. It can be inferred from the passage that the minimal basis for a complaint to the International Trade Commission is which of the following?
- (A) A foreign competitor has received a subsidy from a foreign government.
  - (B) A foreign competitor has substantially increased the volume of products shipped to the United States.
  - (C) A foreign competitor is selling products in the United States at less than fair market value.
  - (D) The company requesting import relief has been injured by the sale of imports in the United States.
  - (E) The company requesting import relief has been barred from exporting products to the country of its foreign competitor.
3. The last paragraph performs which of the following functions in the passage?
- (A) It summarizes the discussion thus far and suggests additional areas of research.
  - (B) It presents a recommendation based on the evidence presented earlier.
  - (C) It discusses an exceptional case in which the results expected by the author of the passage were not obtained.
  - (D) It introduces an additional area of concern not mentioned earlier.
  - (E) It cites a specific case that illustrates a problem presented more generally in the previous paragraph.
4. The passage warns of which of the following dangers?
- (A) Companies in the United States may receive no protection from imports unless they actively seek protection from import competition.
  - (B) Companies that seek legal protection from import competition may incur legal costs that far exceed any possible gain.
  - (C) Companies that are United States-owned but operate internationally may not be eligible for protection from import competition under the laws of the countries in which their plants operate.
  - (D) Companies that are not United States-owned may seek legal protection from import competition under United States import relief laws.
  - (E) Companies in the United States that import raw materials may have to pay duties on those materials.
5. The passage suggests that which of the following is most likely to be true of United States trade laws?
- (A) They will eliminate the practice of "dumping" products in the United States.
  - (B) They will enable manufacturers in the United States to compete more profitably outside the United States.
  - (C) They will affect United States trade with Canada more negatively than trade with other nations.
  - (D) Those that help one unit within a parent company will not necessarily help other units in the company.

- (E) Those that are applied to international companies will accomplish their intended result.
6. It can be inferred from the passage that the author believes which of the following about the complaint mentioned in the last paragraph?
- (A) The ITC acted unfairly toward the complainant in its investigation.
  - (B) The complaint violated the intent of import relief laws.
  - (C) The response of the ITC to the complaint provided suitable relief from unfair trade practices to the complainant.
  - (D) The ITC did not have access to appropriate information concerning the case.
  - (E) Each of the companies involved in the complaint acted in its own best interest.
7. According to the passage, companies have the general impression that International Trade Commission import relief practices have
- (A) caused unpredictable fluctuations in volumes of imports and exports
  - (B) achieved their desired effect only under unusual circumstances
  - (C) actually helped companies that have requested import relief
  - (D) been opposed by the business community
  - (E) had less impact on international companies than the business community expected
8. According to the passage, the International Trade Commission is involved in which of the following?
- (A) Investigating allegations of unfair import competition
  - (B) Granting subsidies to companies in the United States that have been injured by import competition
  - (C) Recommending legislation to ensure fair
  - (D) Identifying international corporations that wish to build plants in the United States
  - (E) Assisting corporations in the United States that wish to compete globally

### Passage 23

- At the end of the nineteenth century, a rising interest in Native American customs and an increasing desire to understand Native American culture prompted ethnologists to begin recording the life stories of Native American. Ethnologists had a distinct reason for wanting to hear the stories: they were after linguistic or anthropological data that would supplement their own field observations, and they believed that the personal stories, even of a single individual, could increase their understanding of the cultures that they had been observing from without. In addition many ethnologists at the turn of the century believed that Native American manners and customs were rapidly disappearing, and that it was important to preserve for posterity as

(15) much information as could be adequately recorded before the cultures disappeared forever.

There were, however, arguments against this method as a way of acquiring accurate and complete information. Franz Boas, for example, described autobiographies as being "of limited value, and useful chiefly for the study of the perversion of truth by memory," while Paul Radin contended that investigators rarely spent enough time with the tribes they were observing, and inevitably derived results too tinged by the investigator's own emotional tone to be reliable.

Even more importantly, as these life stories moved from the traditional oral mode to recorded written form, much was inevitably lost. Editors often decided what elements were significant to the field research on a given tribe. Native Americans recognized that the essence of their lives could not be communicated in English and that events that they thought significant were often deemed unimportant by their interviewers. Indeed, the very act of telling their stories could force Native American narrators to distort their cultures, as taboos had to be broken to speak the names of dead relatives crucial to their family stories.

Despite all of this, autobiography remains a useful tool for ethnological research: such personal reminiscences and impressions, incomplete as they may be, are likely to throw more light on the working of the mind and emotions than any amount of speculation from an ethnologist or ethnological theorist from another culture.

1. Which of the following best describes the organization of the passage?
  - (A) The historical backgrounds of two currently used research methods are chronicled.
  - (B) The validity of the data collected by using two different research methods is compared.
  - (C) The usefulness of a research method is questioned and then a new method is proposed.
  - (D) The use of a research method is described and the limitations of the results obtained are discussed.
  - (E) A research method is evaluated and the changes necessary for its adaptation to other subject areas are discussed.
2. Which of the following is most similar to the actions of nineteenth-century ethnologists in their editing of the life stories of Native Americans?
  - (A) A witness in a jury trial invokes the Fifth Amendment in order to avoid relating personally incriminating evidence.
  - (B) A stockbroker refuses to divulge the source of her information on the possible future increase in a stock's value.
  - (C) A sports announcer describes the action in a team sport with which he is unfamiliar.
  - (D) A chef purposely excludes the special ingredient from the recipe of his prizewinning dessert.
  - (E) A politician fails to mention in a campaign speech the similarities in the positions held by her opponent

for political office and by herself.

3. According to the passage, collecting life stories can be a useful methodology because
  - (A) life stories provide deeper insights into a culture than the hypothesizing of academics who are not members of that culture
  - (B) life stories can be collected easily and they are not subject to invalid interpretations
  - (C) ethnologists have a limited number of research methods from which to choose
  - (D) life stories make it easy to distinguish between the important and unimportant features of a culture
  - (E) the collection of life stories does not require a culturally knowledgeable investigator
  
4. Information in the passage suggests that which of the following may be a possible way to eliminate bias in the editing of life stories?
  - (A) Basing all inferences made about the culture on an ethnological theory
  - (B) Eliminating all of the emotion-laden information reported by the informant
  - (C) Translating the informant's words into the researcher's language
  - (D) Reducing the number of questions and carefully specifying the content of the questions that the investigator can ask the informant
  - (E) Reporting all of the information that the informant provides regardless of the investigator's personal opinion about its intrinsic value
  
5. The primary purpose of the passage as a whole is to
  - (A) question an explanation
  - (B) correct a misconception
  - (C) critique a methodology
  - (D) discredit an idea
  - (E) clarify an ambiguity
  
6. It can be inferred from the passage that a characteristic of the ethnological research on Native Americans conducted during the nineteenth century was the use of which of the following?
  - (A) Investigators familiar with the culture under study
  - (B) A language other than the informant's for recording life stories
  - (C) Life stories as the ethnologist's primary source of information
  - (D) Complete transcriptions of informants' descriptions of tribal beliefs
  - (E) Stringent guidelines for the preservation of cultural data
  
7. The passage mentions which of the following as a factor that can affect the accuracy of ethnologists' transcriptions of life stories?
  - (A) The informants' social standing within the culture
  - (B) The inclusiveness of the theory that provided the basis for the research
  - (C) The length of time the researchers spent in the

- culture under study
- (D) The number of life stories collected by the researchers
- (E) The verifiability of the information provided by the research informants
8. It can be inferred from the passage that the author would be most likely to agree with which of the following statements about the usefulness of life stories as a source of ethnographic information?
- (A) They can be a source of information about how people in a culture view the world.
- (B) They are most useful as a source of linguistic information.
- (C) They require editing and interpretation before they can be useful.
- (D) They are most useful as a source of information about ancestry.
- (E) They provide incidental information rather than significant insights into a way of life.

### Passage 24

All of the cells in a particular plant start out with the same complement of genes. How then can these cells differentiate and form structures as different as roots, stems, leaves, and fruits? The answer is that only a (5) small subset of the genes in a particular kind of cell are expressed, or turned on, at a given time. This is accomplished by a complex system of chemical messengers that in plants include hormones and other regulatory molecules. Five major hormones have been identified: (10) auxin, abscisic acid, cytokinin, ethylene, and gibberellin. Studies of plants have now identified a new class of regulatory molecules called oligosaccharins.

Unlike the oligosaccharins, the five well-known plant hormones are pleiotropic rather than specific, that is, (15) each has more than one effect on the growth and development of plants. The five has so many simultaneous effects that they are not very useful in artificially controlling the growth of crops. Auxin, for instance, stimulates the rate of cell elongation, causes shoots to (20) grow up and roots to grow down, and inhibits the growth of lateral shoots. Auxin also causes the plant to develop a vascular system, to form lateral roots, and to produce ethylene.

The pleiotropy of the five well-studied plant (25) hormones is somewhat analogous to that of certain hormones in animal. For example, hormones from the hypothalamus in the brain stimulate the anterior lobe of the pituitary gland to synthesize and release many different hormones, one of which stimulates the release (30) of hormones from the adrenal cortex. These hormones have specific effects on target organs all over the body. One hormone stimulates the thyroid gland, for example, another the ovarian follicle cells, and so forth. In other words, there is a hierarchy of hormones. (35) Such a hierarchy may also exist in plants. Oligosaccharins are fragments of the cell wall released by enzymes: different enzymes release different oligosac-

charins. There are indications that pleiotropic plant hormones may actually function by activating the (40) enzymes that release these other, more specific chemical messengers from the cell wall.

1. According to the passage, the five well-known plant hormones are not useful in controlling the growth of crops because
  - (A) it is not known exactly what functions the hormones perform
  - (B) each hormone has various effects on plants
  - (C) none of the hormones can function without the others
  - (D) each hormone has different effects on different kinds of plants
  - (E) each hormone works on only a small subset of a cell's genes at any particular time
2. The passage suggests that the place of hypothalamic hormones in the hormonal hierarchies of animals is similar to the place of which of the following in plants?
  - (A) Plant cell walls
  - (B) The complement of genes in each plant cell
  - (C) A subset of a plant cell's gene complement
  - (D) The five major hormones
  - (E) The oligosaccharins
3. The passage suggests that which of the following is a function likely to be performed by an oligosaccharin?
  - (A) To stimulate a particular plant cell to become part of a plant's root system
  - (B) To stimulate the walls of a particular cell to produce other oligosaccharins
  - (C) To activate enzymes that release specific chemical messengers from plant cell walls
  - (D) To duplicate the gene complement in a particular plant cell
  - (E) To produce multiple effects on a particular subsystem of plant cells
4. The author mentions specific effects that auxin has on plant development in order to illustrate the
  - (A) point that some of the effects of plant hormones can be harmful
  - (B) way in which hormones are produced by plants
  - (C) hierarchical nature of the functioning of plant hormones
  - (D) differences among the best-known plant hormones
  - (E) concept of pleiotropy as it is exhibited by plant hormones
5. According to the passage, which of the following best describes a function performed by oligosaccharins?
  - (A) Regulating the daily functioning of a plant's cells
  - (B) Interacting with one another to produce different chemicals
  - (C) Releasing specific chemical messengers from a plant's cell walls
  - (D) Producing the hormones that cause plant cells to differentiate to perform different functions

- (E) Influencing the development of a plant's cells by controlling the expression of the cells' genes
6. The passage suggests that, unlike the pleiotropic hormones, oligosaccharins could be used effectively to
- (A) trace the passage of chemicals through the walls of cells
  - (B) pinpoint functions of other plant hormones
  - (C) artificially control specific aspects of the development of crops
  - (D) alter the complement of genes in the cells of plants
  - (E) alter the effects of the five major hormones on plant development
7. The author discusses animal hormones primarily in order to
- (A) introduce the idea of a hierarchy of hormones
  - (B) explain the effects that auxin has on plant cells
  - (C) contrast the functioning of plant hormones and animals hormones
  - (D) illustrate the way in which particular hormones affect animals
  - (E) explain the distinction between hormones and regulatory molecules

### Passage 25

- In 1977 the prestigious Ewha Women's University in Seoul, Korea, announced the opening of the first women's studies program in Asia. Few academic programs have ever received such public attention. In
- (5) broadcast debates, critics dismissed the program as a betrayal of national identity, an imitation of Western ideas, and a distraction from the real task of national unification and economic development. Even supporters underestimated the program ; they thought it would be
- (10) merely another of the many Western ideas that had already proved useful in Asian culture, akin to airlines, electricity, and the assembly line. The founders of the program, however, realized that neither view was correct. They had some reservations about the appli-
- (15) cability of Western feminist theories to the role of women in Asia and felt that such theories should be closely examined. Their approach has thus far yielded important critiques of Western theory, informed by the special experience of Asian women.
- (20) For instance, like the Western feminist critique of the Freudian model of the human psyche, the Korean critique finds Freudian theory culture-bound, but in ways different from those cited by Western theorists. The Korean theorists claim that Freudian theory
- (25) assumes the universality of the Western nuclear, male-headed family and focuses on the personality formation of the individual, independent of society, An analysis based on such assumptions could be valid for a highly competitive, individualistic society. In the Freudian
- (30) family drama, family members are assumed to be engaged in a Darwinian struggle against each other 櫻 father against son and sibling against sibling. Such a



concept of projects the competitive model of Western society onto human personalities. But in the Asian (35) concept of personality there is no ideal attached to individualism or to the independent self. The Western model of personality development does not explain major characteristics of the Korean personality, which is social and group-centered. The "self" is a social being defined by (40) and acting in a group, and the well-being of both men and women is determined by the equilibrium of the group, not by individual self-assertion. The ideal is one of interdependency.

In such a context, what is recognized as "dependency" (45) in Western psychiatric terms is not, in Korean terms, an admission of weakness or failure. All this bears directly on the Asian perception of men's and women's psychology because men are also "dependent", In Korean culture, men cry and otherwise easily show their (50) emotions, something that might be considered a betrayal of masculinity in Western culture. In the kinship-based society of Korea, four generations may live in the same house, which means that people can be sons and daughters all their lives, whereas in Western culture, the roles of husband and son, wife and daughter, are often incompatible.

1. Which of the following best summarizes the content of the passage?
  - (A) A critique of a particular women's studies program
  - (B) A report of work in social theory done by a particular women's studies program
  - (C) An assessment of the strengths and weaknesses of a particular women's studies program
  - (D) An analysis of the philosophy underlying women's studies programs
  - (E) An abbreviated history of Korean women's studies programs
2. It can be inferred from the passage that Korean scholars in the field of women's studies undertook an analysis of Freudian theory as a response to which of the following?
  - (A) Attacks by critics of the Ewha women's studies program
  - (B) The superficiality of earlier critiques of Freudian theory
  - (C) The popularity of Freud in Korean psychiatric circles
  - (D) Their desire to encourage Korean scholars to adopt the Freudian model
  - (E) Their assessment of the relevance and limitations of Western feminist theory with respect to Korean culture
3. Which of the following conclusions about the introduction of Western ideas to Korean society can be supported by information contained in the passage?
  - (A) Except for technological innovations, few Western ideas have been successfully transplanted into Korean society.
  - (B) The introduction of Western ideas to Korean society

- is viewed by some Koreans as a challenge to Korean identity.
- (C) The development of the Korean economy depends heavily on the development of new academic programs modeled after Western programs.
  - (D) The extent to which Western ideas must be adapted for acceptance by Korean society is minimal.
  - (E) The introduction of Western ideas to Korean society accelerated after 1977.
4. It can be inferred from the passage that the broadcast media in Korea considered the establishment of the Ewha women's studies program
- (A) praiseworthy
  - (B) insignificant
  - (C) newsworthy
  - (D) imitative
  - (E) incomprehensible
5. It can be inferred from the passage that the position taken by some of the supporters of the Ewha women's studies program was problematic to the founders of the program because those supporters
- (A) assumed that the program would be based on the uncritical adoption of Western theory
  - (B) failed to show concern for the issues of national unification and economic development
  - (C) were unfamiliar with Western feminist theory
  - (D) were not themselves scholars in the field of women's studies
  - (E) accepted the universality of Freudian theory
6. Which of the following statements is most consistent with the view of personality development held by the Ewha women's studies group?
- (A) Personality development occurs in identifiable stages, beginning with dependency in childhood and ending with independence in adulthood.
  - (B) Any theory of personality development, in order to be valid, must be universal.
  - (C) Personality development is influenced by the characteristics of the society in which a person lives.
  - (D) Personality development is hindered if a person is not permitted to be independent.
  - (E) No theory of personality development can account for the differences between Korean and Western culture.
7. Which of the following statements about the Western feminist critique of Freudian theory can be supported by information contained in the passage?
- (A) It recognizes the influence of Western culture on Freudian theory.
  - (B) It was written after 1977.
  - (C) It acknowledges the universality of the nuclear, male-headed family.
  - (D) It challenges Freud's analysis of the role of daughters in Western society.
  - (E) It fails to address the issue of competitiveness in

Western society.

8. According to the passage, critics of the Ewha women's studies program cited the program as a threat to which of the following?

- I . National identity
  - II . National unification
  - III. Economic development
  - IV. Family integrity
- (A) I only  
(B) I and II only  
(C) I , II, and III only  
(D) II, III, and IV only  
(E) I , II, III, and IV

### Passage 26

In choosing a method for determining climatic conditions that existed in the past, paleoclimatologists invoke four principal criteria. First, the material—rocks, lakes, vegetation, etc 櫻 on which the method relies must be  
(5) widespread enough to provide plenty of information, since analysis of material that is rarely encountered will not permit correlation with other regions or with other periods of geological history. Second, in the process of  
(10) formation, the material must have received an environmental signal that reflects a change in climate and that can be deciphered by modern physical or chemical means. Third, at least some of the material must have  
(15) retained the signal unaffected by subsequent changes in the environment. Fourth, it must be possible to determine the time at which the inferred climatic conditions  
(20) held. This last criterion is more easily met in dating marine sediments, because dating of only a small number of layers in a marine sequence allows the age of other layers to be estimated fairly reliably by extrapolation and interpolation. By contrast, because sedimentation is much less continuous in continental regions, estimating the age of a continental bed from the known  
(25) ages of beds above and below is more risky.

One very old method used in the investigation of past  
(30) climatic conditions involves the measurement of water levels in ancient lakes. In temperate regions, there are enough lakes for correlations between them to give us a reliable picture. In arid and semiarid regions, on the other hand, the small number of lakes and the great  
(35) distances between them reduce the possibilities for correlation. Moreover, since lake levels are controlled by rates of evaporation as well as by precipitation, the interpretation of such levels is ambiguous. For instance, the fact that lake levels in the semiarid southwestern United  
(40) States appear to have been higher during the last ice age than they are now was at one time attributed to increased precipitation. On the basis of snow-line elevations, however, it has been concluded that the climate then was not necessarily wetter than it is now, but rather that both summers and winters were cooler, resulting in  
(45) reduced evaporation.

Another problematic method is to reconstruct former climates on the basis of pollen profiles. The type of vegetation in a specific region is determined by identifying (45) and counting the various pollen grains found there.

Although the relationship between vegetation and climate is not as direct as the relationship between climate and lake levels, the method often works well in the temperate zones. In arid and semiarid regions in (50) which there is not much vegetation, however, small changes in one or a few plant types can change the picture dramatically, making accurate correlations between neighboring areas difficult to obtain.

1. Which of the following statements about the difference between marine and continental sedimentation is supported by information in the passage?
  - (A) Data provided by dating marine sedimentation is more consistent with researchers' findings in other disciplines than is data provided by dating continental sedimentation.
  - (B) It is easier to estimate the age of a layer in a sequence of continental sedimentation than it is to estimate the age of a layer in a sequence of marine sedimentation.
  - (C) Marine sedimentation is much less widespread than continental sedimentation.
  - (D) Researchers are more often forced to rely on extrapolation when dating a layer of marine sedimentation than when dating a layer of continental sedimentation.
  - (E) Marine sedimentation is much more continuous than is continental sedimentation.
  
2. Which of the following statements best describes the organization of the passage as a whole?
  - (A) The author describes a method for determining past climatic conditions and then offers specific examples of situations in which it has been used.
  - (B) The author discusses the method of dating marine and continental sequences and then explains how dating is more difficult with lake levels than with pollen profiles.
  - (C) The author describes the common requirements of methods for determining past climatic conditions and then discusses examples of such methods.
  - (D) The author describes various ways of choosing a material for determining past climatic conditions and then discusses how two such methods have yielded contradictory data.
  - (E) The author describes how methods for determining past climatic conditions were first developed and then describes two of the earliest known methods.
  
3. It can be inferred from the passage that paleoclimatologists have concluded which of the following on the basis of their study of snow-line elevations in the southwestern United States?
  - (A) There is usually more precipitation during an ice age because of increased amounts of evaporation.

- (B) There was less precipitation during the last ice age than there is today.
- (C) Lake levels in the semiarid southwestern United States were lower during the last ice age than they are today.
- (D) During the last ice age, cooler weather led to lower lake levels than paleoclimatologists had previously assumed.
- (E) The high lake levels during the last ice age may have been a result of less evaporation rather than more precipitation.
4. Which of the following would be the most likely topic for a paragraph that logically continues the passage?
- (A) The kinds of plants normally found in arid regions
- (B) The effect of variation in lake levels on pollen distribution
- (C) The material best suited to preserving signals of climatic changes
- (D) Other criteria invoked by paleoclimatologists when choosing a method to determine past climatic conditions
- (E) A third method for investigating past climatic conditions
5. The author discusses lake levels in the southwestern United States in order to
- (A) illustrate the mechanics of the relationship between lake level, evaporation, and precipitation
- (B) provide an example of the uncertainty involved in interpreting lake levels
- (C) prove that there are not enough ancient lakes with which to make accurate correlations
- (D) explain the effects of increased rates of evaporation on levels of precipitation
- (E) suggest that snow-line elevations are invariably more accurate than lake levels in determining rates of precipitation at various points in the past
6. It can be inferred from the passage that an environmental signal found in geological material would not be useful to paleoclimatologists if it
- (A) had to be interpreted by modern chemical means
- (B) reflected a change in climate rather than a long-term climatic condition
- (C) was incorporated into a material as the material was forming
- (D) also reflected subsequent environmental changes
- (E) was contained in a continental rather than a marine sequence
7. According to the passage, the material used to determine past climatic conditions must be widespread for which of the following reasons?
- I . Paleoclimatologists need to make comparisons between periods of geological history.
- II . Paleoclimatologists need to compare materials that have supported a wide variety of vegetation.
- III. Paleoclimatologists need to make comparisons with data collected in other regions.

- (A) I only
- (B) II only
- (C) I and II only
- (D) I and III only
- (E) II and III only

8. Which of the following can be inferred from the passage about the study of past climates in arid and semiarid regions?

- (A) It is sometimes more difficult to determine past climatic conditions in arid and semiarid regions than in temperate regions.
- (B) Although in the past more research has been done on temperate regions, paleoclimatologists have recently turned their attention to arid and semiarid regions.
- (C) Although more information about past climates can be gathered in arid and semiarid than in temperate regions, dating this information is more difficult.
- (D) It is difficult to study the climatic history of arid and semiarid regions because their climates have tended to vary more than those of temperate regions.
- (E) The study of past climates in arid and semiarid regions has been neglected because temperate regions support a greater variety of plant and animal life.

### Passage 27

Since the late 1970's, in the face of a severe loss of market share in dozens of industries, manufacturers in the United States have been trying to improve productivity—and therefore enhance their international (5) competitiveness—through cost-cutting programs. (Cost-cutting here is defined as raising labor output while holding the amount of labor constant.) However, from 1978 through 1982, productivity—the value of goods manufactured divided by the amount of labor input— (10) did not improve; and while the results were better in the business upturn of the three years following, they ran 25 percent lower than productivity improvements during earlier, post-1945 upturns. At the same time, it became clear that the harder manufactures worked to imple- (15) ment cost-cutting, the more they lost their competitive edge.

With this paradox in mind, I recently visited 25 companies; it became clear to me that the cost-cutting approach to increasing productivity is fundamentally (20) flawed. Manufacturing regularly observes a "40, 40, 20" rule. Roughly 40 percent of any manufacturing-based competitive advantage derives from long-term changes in manufacturing structure (decisions about the number, size, location, and capacity of facilities) and in approaches (25) to materials. Another 40 percent comes from major changes in equipment and process technology. The final 20 percent rests on implementing conventional cost-cutting. This rule does not imply that cost-cutting should not be tried. The well-known tools of this approach— (30) including simplifying jobs and retraining employees to

work smarter, not harder—do produce results. But the tools quickly reach the limits of what they can contribute.

Another problem is that the cost-cutting approach (35) hinders innovation and discourages creative people. As Abernathy's study of automobile manufacturers has shown, an industry can easily become prisoner of its own investments in cost-cutting techniques, reducing its ability to develop new products. And managers under (40) pressure to maximize cost-cutting will resist innovation because they know that more fundamental changes in processes or systems will wreak havoc with the results on which they are measured. Production managers have always seen their job as one of minimizing costs and (45) maximizing output. This dimension of performance has until recently sufficed as a basis of evaluation, but it has created a penny-pinching, mechanistic culture in most factories that has kept away creative managers.

Every company I know that has freed itself from the (50) paradox has done so, in part, by developing and implementing a manufacturing strategy. Such a strategy focuses on the manufacturing structure and on equipment and process technology. In one company a manufacturing strategy that allowed different areas of the (55) factory to specialize in different markets replaced the conventional cost-cutting approach; within three years the company regained its competitive advantage. Together with such strategies, successful companies are also encouraging managers to focus on a wider set of objectives besides cutting costs. There is hope for manufacturing, but it clearly rests on a different way of managing.

1. The author of the passage is primarily concerned with
  - (A) summarizing a thesis
  - (B) recommending a different approach
  - (C) comparing points of view
  - (D) making a series of predictions
  - (E) describing a number of paradoxes
2. It can be inferred from the passage that the manufacturrs mentioned in line 2 expected that the measures they implemented would
  - (A) encourage innovation
  - (B) keep labor output constant
  - (C) increase their competitive advantage
  - (D) permit business upturns to be more easily predicted
  - (E) cause managers to focus on a wider set of objectives
3. The primary function of the first paragraph of the passage is to
  - (A) outline in brief the author's argument
  - (B) anticipate challenges to the prescriptions that follow
  - (C) clarify some disputed definitions of economic terms
  - (D) summarize a number of long-accepted explanations
  - (E) present a historical context for the author's observations
4. The author refers to Abernathy's study (line 36) most probably in order to

- (A) qualify an observation about one rule governing manufacturing
  - (B) address possible objections to a recommendation about improving manufacturing competitiveness
  - (C) support an earlier assertion about one method of increasing productivity
  - (D) suggest the centrality in the United States economy of a particular manufacturing industry
  - (E) given an example of research that has questioned the wisdom of revising a manufacturing strategy
5. The author's attitude toward the culture in most factories is best described as
- (A) cautious
  - (B) critical
  - (C) disinterested
  - (D) respectful
  - (E) adulatory
6. In the passage, the author includes all of the following EXCEPT
- (A) personal observation
  - (B) a business principle
  - (C) a definition of productivity
  - (D) an example of a successful company
  - (E) an illustration of a process technology
7. The author suggests that implementing conventional cost-cutting as a way of increasing manufacturing competitiveness is a strategy that is
- (A) flawed and ruinous
  - (B) shortsighted and difficult to sustain
  - (C) popular and easily accomplished
  - (D) useful but inadequate
  - (E) misunderstood but promising

### Passage 28

The settlement of the United States has occupied traditional historians since 1893 when Frederick Jackson Turner developed his Frontier Thesis, a thesis that explained American development in terms of westward (5) expansion. From the perspective of women's history,



Turner's exclusively masculine assumptions constitute a major drawback: his defenders and critics alike have reconstructed men's, not women's, lives on the frontier. However, precisely because of this masculine orientation, (10) revising the Frontier Thesis by focusing on women's experience introduces new themes into women's history—woman as lawmaker and entrepreneur—and, consequently, new interpretations of women's relationship to capital, labor, and statute.

(15) Turner claimed that the frontier produced the individualism that is the hallmark of American culture, and that this individualism in turn promoted democratic institutions and economic equality. He argued for the frontier as an agent of social change. Most novelists and (20) historians writing in the early to midtwentieth century who considered women in the West, when they considered women at all, fell under Turner's spell. In their works these authors tended to glorify women's contributions to frontier life. Western women, in Turnerian tradi- (25) tion, were a fiercely independent, capable, and durable lot, free from the constraints binding their eastern sisters. This interpretation implied that the West provided a congenial environment where women could aspire to their own goals, free from constrictive stereotypes and (30) sexist attitudes. In Turnerian terminology, the frontier had furnished "a gate of escape from the bondage of the past."

By the middle of the twentieth century, the Frontier Thesis fell into disfavor among historians. Later, Reactionist writers took the view that frontier women were (35) lonely, displaced persons in a hostile milieu that intensified the worst aspects of gender relations. The renaissance of the feminist movement during the 1970's led to the Stasist school, which sidestepped the good bad (40) dichotomy and argued that frontier women lived lives similar to the live of women in the East. In one now-standard text, Faragher demonstrated the persistence of the "cult of true womanhood" and the illusory quality of change on the westward journey. Recently the (45) Stasist position has been revised but not entirely discounted by new research.

1. The primary purpose of the passage is to
  - (A) provide a framework within which the history of women in nineteenth-century America can be organized.
  - (B) discuss divergent interpretations of women's experience on the western frontier
  - (C) introduce a new hypothesis about women's experience in nineteenth-century America
  - (D) advocate an empirical approach to women's experience on the western frontier
  - (E) resolve ambiguities in several theories about women's experience on the western frontier
2. Which of the following can be inferred about the novelists and historians mentioned in lines 19-20?
  - (A) They misunderstood the powerful influence of constrictive stereotypes on women in the East.
  - (B) They assumed that the frontier had offered more

- opportunities to women than had the East.
- (C) They included accurate information about women's experiences on the frontier.
- (D) They underestimated the endurance and fortitude of frontier women.
- (E) They agreed with some of Turner's assumptions about frontier women, but disagreed with other assumptions that he made.
3. Which of the following, if true, would provide additional evidence for the Stasists' argument as it is described in the passage?
- (A) Frontier women relied on smaller support groups of relatives and friends in the West than they had in the East.
- (B) The urban frontier in the West offered more occupational opportunity than the agricultural frontier offered.
- (C) Women participated more fully in the economic decisions of the family group in the West than they had in the East.
- (D) Western women received financial compensation for labor that was comparable to what women received in the East.
- (E) Western women did not have an effect on divorce laws, but lawmakers in the West were more responsive to women's concerns than lawmakers in the East were.
4. According to the passage, Turner makes which of the following connections in his Frontier Thesis?
- I . A connection between American individualism and economic equality
- II . A connection between geographical expansion and social change
- III. A connection between social change and financial prosperity
- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I , II and III
5. It can be inferred that which of the following statements is consistent with the Reactionist position as it is described in the passage?
- (A) Continuity, not change, marked women's lives as they moved from East to West.
- (B) Women's experience on the North American frontier has not received enough attention from modern historians.
- (C) Despite its rigors, the frontier offered women opportunities that had not been available in the East.
- (D) Gender relations were more difficult for women in the West than they were in the East.
- (E) Women on the North American frontier adopted new roles while at the same time reaffirming traditional roles.

6. Which of the following best describes the organization of the passage?
- (A) A current interpretation of a phenomenon is described and then ways in which it was developed are discussed.
  - (B) Three theories are presented and then a new hypothesis that discounts those theories is described.
  - (C) An important theory and its effects are discussed and then ways in which it has been revised are described.
  - (D) A controversial theory is discussed and then viewpoints both for and against it are described.
  - (E) A phenomenon is described and then theories concerning its correctness are discussed.
7. Which of the following is true of the Stasist school as it is described in the passage?
- (A) It provides new interpretations of women's relationship to work and the law.
  - (B) It resolves some of the ambiguities inherent in Turnerian and Reactionist thought.
  - (C) It has recently been discounted by new research gathered on women's experience.
  - (D) It avoids extreme positions taken by other writers on women's history.
  - (E) It was the first school of thought to suggest substantial revisions to the Frontier Thesis.

### Passage 29

Studies of the Weddell seal in the laboratory have described the physiological mechanisms that allow the seal to cope with the extreme oxygen deprivation that occurs during its longest dives, which can extend 500 (5) meters below the ocean's surface and last for over 70 minutes. Recent field studies, however, suggest that during more typical dives in the wild, this seal's physiological behavior is different.

In the laboratory, when the seal dives below the (10) surface of the water and stops breathing, its heart beats more slowly, requiring less oxygen, and its arteries become constricted, ensuring that the seal's blood remains concentrated near those organs most crucial to its ability to navigate underwater. The seal essentially (15) shuts off the flow of blood to other organs, which either stop functioning until the seal surfaces or switch to an anaerobic (oxygen-independent) metabolism. The latter results in the production of large amounts of lactic acid which can adversely affect the pH of the seal's blood (20) but since the anaerobic metabolism occurs only in those tissues which have been isolated from the seal's blood supply, the lactic acid is released into the seal's blood only after the seal surfaces, when the lungs, liver, and other organs quickly clear the acid from the seal's blood- (25) stream.

Recent field studies, however, reveal that on dives in the wild, the seal usually heads directly for its prey and returns to the surface in less than twenty minutes. The absence of high levels of lactic acid in the seal's blood (30) after such dives suggests that during them, the seal's organs do not resort to the anaerobic metabolism

observed in the laboratory, but are supplied with oxygen from the blood. The seal's longer excursions underwater, during which it appears to be either exploring distant routes or evading a predator, do evoke the diving response seen in the laboratory. But why do the seal's laboratory dives always evoke this response, regardless of their length or depth? Some biologists speculate that because in laboratory dives the seal is forcibly submerged, it does not know how long it will remain underwater and so prepares for the worst.

1. The passage provides information to support which of the following generalizations?
  - (A) Observations of animals' physiological behavior in the wild are not reliable unless verified by laboratory studies.
  - (B) It is generally less difficult to observe the physiological behavior of an animal in the wild than in the laboratory.
  - (C) The level of lactic acid in an animal's blood is likely to be higher when it is searching for prey than when it is evading predators.
  - (D) The level of lactic acid in an animal's blood is likely to be lowest during those periods in which it experiences oxygen deprivation.
  - (E) The physiological behavior of animals in a laboratory setting is not always consistent with their physiological behavior in the wild.
2. It can be inferred from the passage that by describing the Weddell seal as preparing "for the worst" (line 41), biologists mean that it
  - (A) prepares to remain underwater for no longer than twenty minutes
  - (B) exhibits physiological behavior similar to that which characterizes dives in which it heads directly for its prey
  - (C) exhibits physiological behavior similar to that which characterizes its longest dives in the wild.
  - (D) begins to exhibit predatory behavior
  - (E) clears the lactic acid from its blood before attempting to dive
3. The passage suggests that during laboratory dives, the pH of the Weddell seal's blood is not adversely affected by the production of lactic acid because
  - (A) only those organs that are essential to the seal's ability to navigate underwater revert to an anaerobic mechanism.
  - (B) the seal typically reverts to an anaerobic metabolism only at the very end of the dive
  - (C) organs that revert to an anaerobic metabolism are temporarily isolated from the seal's bloodstream
  - (D) oxygen continues to be supplied to organs that clear lactic acid from the seal's bloodstream
  - (E) the seal remains submerged for only short periods of time
4. Which of the following best summarizes the main point

of the passage?

- (A) Recent field studies have indicated that descriptions of the physiological behavior of the Weddell seal during laboratory dives are not applicable to its most typical dives in the wild.
  - (B) The Weddell seal has developed a number of unique mechanisms that enable it to remain submerged at depths of up to 500 meters for up to 70 minutes.
  - (C) The results of recent field studies have made it necessary for biologists to revise previous perceptions of how the Weddell seal behaves physiologically during its longest dives in the wild.
  - (D) Biologists speculate that laboratory studies of the physiological behavior of seals during dives lasting more than twenty minutes would be more accurate if the seals were not forcibly submerged.
  - (E) How the Weddell seal responds to oxygen deprivation during its longest dives appears to depend on whether the seal is searching for prey or avoiding predators during such dives.
5. According to the author, which of the following is true of the laboratory studies mentioned in line 1 ?
- (A) They fail to explain how the seal is able to tolerate the increased production of lactic acid by organs that revert to an anaerobic metabolism during its longest dives in the wild.
  - (B) They present an oversimplified account of mechanisms that the Weddell seal relies on during its longest dives in the wild.
  - (C) They provide evidence that undermines the view that the Weddell seal relies on an anaerobic metabolism during its most typical dives in the wild.
  - (D) They are based on the assumption that Weddell seals rarely spend more than twenty minutes underwater on a typical dive in the wild.
  - (E) They provide an accurate account of the physiological behavior of Weddell seals during those dives in the wild in which they are either evading predators or exploring distant routes.
6. The author cites which of the following as characteristic of the Weddell seal's physiological behavior during dives observed in the laboratory?
- I . A decrease in the rate at which the seal's heart beats
  - II . A constriction of the seal's arteries
  - III . A decrease in the levels of lactic acid in the seal's blood
  - IV . A temporary halt in the functioning of certain organs
- (A) I and III only
  - (B) II and IV only
  - (C) II and III only
  - (D) I , II , and IV only
  - (E) I ,III, and IV only
7. The passage suggests that because Weddell seals are forcibly submerged during laboratory dives, they do which of the following?
- (A) Exhibit the physiological responses that are

- characteristic of dives in the wild that last less than twenty minutes.
- (B) Exhibit the physiological responses that are characteristic of the longer dives they undertake in the wild.
  - (C) Cope with oxygen deprivation less effectively than they do on typical dives in the wild.
  - (D) Produce smaller amounts of lactic acid than they do on typical dives in the wild.
  - (E) Navigate less effectively than they do on typical dives in the wild

### Passage 30

- Since the early 1970's, historians have begun to devote serious attention to the working class in the United States. Yet while we now have studies of working-class communities and culture, we know
- (5) remarkably little of worklessness. When historians have paid any attention at all to unemployment, they have focused on the Great Depression of the 1930's. The narrowness of this perspective ignores the pervasive recessions and joblessness of the previous decades, as
  - (10) Alexander Keyssar shows in his recent book. Examining the period 1870-1920, Keyssar concentrates on Massachusetts, where the historical materials are particularly rich, and the findings applicable to other industrial areas.
  - (15) The unemployment rates that Keyssar calculates appear to be relatively modest, at least by Great Depression standards: during the worst years, in the 1870's and 1890's, unemployment was around 15 percent. Yet Keyssar rightly understands that a better way to
  - (20) measure the impact of unemployment is to calculate unemployment frequencies—measuring the percentage of workers who experience any unemployment in the course of a year. Given this perspective, joblessness looms much larger.
  - (25) Keyssar also scrutinizes unemployment patterns according to skill level, ethnicity, race, age, class, and gender. He finds that rates of joblessness differed primarily according to class: those in middle-class and white-collar occupations were far less likely to be unem-
  - (30) ployed. Yet the impact of unemployment on a specific class was not always the same. Even when dependent on the same trade, adjoining communities could have dramatically different unemployment rates. Keyssar uses these differential rates to help explain a phenomenon
  - (35) that has puzzled historians—the startlingly high rate of geographical mobility in the nineteenth-century United States. But mobility was not the dominant working-class strategy for coping with unemployment, nor was assistance from private charities or state agencies. Self-help
  - (40) and the help of kin got most workers through jobless spells.
- While Keyssar might have spent more time developing the implications of his findings on joblessness for contemporary public policy, his study, in its thorough
- (45) research and creative use of quantitative and qualitative evidence, is a model of historical analysis.

1. The passage is primarily concerned with
  - (A) recommending a new course of investigation
  - (B) summarizing and assessing a study
  - (C) making distinctions among categories
  - (D) criticizing the current state of a field
  - (E) comparing and contrasting two methods for calculating data
2. The passage suggests that before the early 1970's, which of the following was true of the study by historians of the working class in the United States?
  - (A) The study was infrequent or superficial, or both.
  - (B) The study was repeatedly criticized for its allegedly narrow focus.
  - (C) The study relied more on qualitative than quantitative evidence.
  - (D) The study focused more on the working-class community than on working-class culture.
  - (E) The study ignored working-class joblessness during the Great Depression.
3. According to the passage, which of the following is true of Keyssar's findings concerning unemployment in Massachusetts?
  - (A) They tend to contradict earlier findings about such unemployment.
  - (B) They are possible because Massachusetts has the most easily accessible historical records.
  - (C) They are the first to mention the existence of high rates of geographical mobility in the nineteenth century.
  - (D) They are relevant to a historical understanding of the nature of unemployment in other states.
  - (E) They have caused historians to reconsider the role of the working class during the Great Depression.
4. According to the passage, which of the following is true of the unemployment rates mentioned in line 15
  - (A) They hovered, on average, around 15 percent during the period 1870-1920.
  - (B) They give less than a full sense of the impact of unemployment on working-class people.
  - (C) They overestimate the importance of middle class and white-collar unemployment.
  - (D) They have been considered by many historians to underestimate the extent of working-class unemployment.
  - (E) They are more open to question when calculated for years other than those of peak recession.
5. Which of the following statements about the unemployment rate during the Great Depression can be inferred from the passage?
  - (A) It was sometimes higher than 15 percent.
  - (B) It has been analyzed seriously only since the early 1970's.
  - (C) It can be calculated more easily than can unemployment frequency.
  - (D) It was never as high as the rate during the 1870's.
  - (E) It has been shown by Keyssar to be lower than

previously thought.

6. According to the passage, Keyssar considers which of the following to be among the important predictors of the likelihood that a particular person would be unemployed in late nineteenth-century Massachusetts?
- I . The person's class
  - II . Where the person lived or worked
  - III. The person's age
- (A) I only  
(B) II only  
(C) I and II only  
(D) I and III only  
(E) I , II , and III
7. The author views Keyssar's study with
- (A) impatient disapproval  
(B) wary concern  
(C) polite skepticism  
(D) scrupulous neutrality  
(E) qualified admiration
8. Which of the following, if true, would most strongly support Keyssar's findings as they are described by the author?
- (A) Boston, Massachusetts, and Quincy, Massachusetts, adjoining communities, had a higher rate of unemployment for working-class people in 1870 than in 1890.
- (B) White-collar professionals such as attorneys had as much trouble as day laborers in maintaining a steady level of employment throughout the period 1870-1920.
- (C) Working-class women living in Cambridge, Massachusetts, were more likely than working-class men living in Cambridge to be unemployed for some period of time during the year 1873.
- (D) In the 1890's, shoe-factory workers moved away in large numbers from Chelmsford, Massachusetts, where shoe factories were being replaced by other industries, to adjoining West Chelmsford, where the shoe industry flourished.
- (E) In the late nineteenth century, workers of all classes in Massachusetts were more likely than workers of all classes in other states to move their place of residence from one location to another within the state.

### Passage 31

The number of women directors appointed to corporate boards in the United States has increased dramatically, but the ratio of female to male directors remains low. Although pressure to recruit women directors, (5) unlike that to employ women in the general work force, does not derive from legislation, it is nevertheless real.

Although small companies were the first to have women directors, large corporations currently have a higher percentage of women on their boards. When the



(10) chairs of these large corporations began recruiting women to serve on boards, they initially sought women who were chief executive officers (CEO's) of large corporations. However, such women CEO's are still rare. In addition, the ideal of six CEO's (female or male ) serving

(15) on the board of each of the largest corporations is realizable only if every CEO serves on six boards. This raises the specter of director overcommitment and the resultant dilution of contribution. Consequently, the chairs next sought women in business who had the equivalent of

(20) CEO experience. However, since it is only recently that large numbers of women have begun to rise in management, the chairs began to recruit women of high achievement outside the business world. Many such women are well known for their contributions in government,

(25) education, and the nonprofit sector. The fact that the women from these sectors who were appointed were often acquaintances of the boards' chairs seems quite reasonable: chairs have always considered it important for directors to interact comfortably in the boardroom.

30) Although many successful women from outside the business world are unknown to corporate leaders, these women are particularly qualified to serve on boards because of the changing nature of corporations. Today a company's ability to be responsive to the concerns of the

35) community and the environment can influence that company's growth and survival. Women are uniquely positioned to be responsive to some of these concerns.

Although conditions have changed, it should be remembered that most directors of both sexes are over fifty

(40) years old. Women of that generation were often encouraged to direct their attention toward efforts to improve the community. This fact is reflected in the career development of most of the outstandingly successful

women of the generation now in their fifties, who currently serve

(45) on corporate boards: 25 percent are in education and 22 percent are in government, law, and the nonprofit sector.

One organization of women directors is helping business become more responsive to the changing needs of

(50) society by raising the level of corporate awareness about social issues, such as problems with the economy, government regulation, the aging population, and the environment. This organization also serves as a resource center of information on accomplished women who are

(55) potential candidates for corporate boards.

1. The author of the passage would be most likely to agree with which of the following statements about achievement of the "ideal" mentioned in line 14?
- (A) It has only recently become a possibility.
- (B) It would be easier to meet if more CEO's were women

- (C) It is very close to being a reality for most corporate boards.
- (D) It might affect the quality of directors' service to corporations.
- (E) It would be more realizable if CEO's had a more extensive range of business experience.
2. According to the passage, the pressure to appoint women to corporate boards differs from the pressure to employ women in the work force in which of the following ways?
- (A) Corporate boards are under less pressure because they have such a small number of openings.
- (B) Corporate boards have received less pressure from stockholders, consumers, and workers within companies to include women on their boards.
- (C) Corporate boards have received less pressure from the media and the public to include women on their boards.
- (D) Corporations have only recently been pressured to include women on their boards.
- (E) Corporations are not subject to statutory penalty for failing to include women on their boards.
3. All of the following are examples of issues that the organization described in the last paragraph would be likely to advise corporations on EXCEPT
- (A) long-term inflation
- (B) health and safety regulations
- (C) retirement and pension programs
- (D) the energy shortage
- (E) how to develop new markets
4. It can be inferred from the passage that, when seeking to appoint new members to a corporation's board, the chair traditionally looked for candidates who
- (A) had legal and governmental experience
- (B) had experience dealing with community affairs
- (C) could work easily with other members of the board
- (D) were already involved in establishing policy for that corporation
- (E) had influential connections outside the business world
5. According to the passage, which of the following is true about women outside the business world who are currently serving on corporate boards?
- (A) Most do not serve on more than one board.
- (B) A large percentage will eventually work on the staff of corporations.
- (C) Most were already known to the chairs of the board to which they were appointed.
- (D) A larger percentage are from government and law than are from the nonprofit sector.
- (E) Most are less than fifty years old.
6. The passage suggests that corporations of the past differ from modern corporations in which of the following ways?
- (A) Corporations had greater input on government

- policies affecting the business community.
- (B) Corporations were less responsive to the financial needs of their employees.
  - (C) The ability of a corporation to keep up with changing markets was not a crucial factor in its success.
  - (D) A corporation's effectiveness in coping with community needs was less likely to affect its growth and prosperity.
  - (E) Corporations were subject to more stringent government regulations.
7. Which of the following best describes the organization of the passage?
- (A) A problem is described, and then reasons why various proposed solutions succeeded or failed are discussed.
  - (B) A problem is described, and then an advantage of resolving it is offered.
  - (C) A problem is described, and then reasons for its continuing existence are summarized.
  - (D) The historical origins of a problem are described, and then various measures that have successfully resolved it are discussed.
  - (E) The causes of a problem are described, and then its effects are discussed.
8. It can be inferred from the passage that factors making women uniquely valuable members of modern corporate boards would include which of the following?
- I . The nature of modern corporations
  - II . The increased number of women CEO's
  - III. The careers pursued by women currently available to serve on corporate boards
- (A) I only
  - (B) II only
  - (C) III only
  - (D) I and III only
  - (E) I , II , and III

### Passage 32

Increasingly, historians are blaming diseases imported from the Old World for the staggering disparity between the indigenous population of America in 1492—new estimates of which soar as high as 100 million, or approximately one-sixth of the human race at that time—and the few million full-blooded Native Americans alive at the end of the nineteenth century. There is no doubt that chronic disease was an important factor in the precipitous decline, and it is highly probable that the greatest killer was epidemic disease, especially as manifested in virgin-soil epidemics.

Virgin-soil epidemics are those in which the populations at risk have had no previous contact with the diseases that strike them and are therefore immunologically almost defenseless. That virgin-soil epidemics were important in American history is strongly indicated by evidence that a number of dangerous maladies—small-

pox, measles, malaria, yellow fever, and undoubtedly several more—were unknown in the pre-Columbian New World. The effects of their sudden introduction are demonstrated in the early chronicles of America, which contain reports of horrendous epidemics and steep population declines, confirmed in many cases by recent quantitative analyses of Spanish tribute records and other sources. The evidence provided by the documents of British and French colonies is not as definitive because the conquerors of those areas did not establish permanent settlements and begin to keep continuous records until the seventeenth century, by which time the worst epidemics had probably already taken place. Furthermore, the British tended to drive the native populations away, rather than enslaving them as the Spaniards did, so that the epidemics of British America occurred beyond the range of colonists' direct observation.

Even so, the surviving records of North America do contain references to deadly epidemics among the indigenous population. In 1616-1619 an epidemic, possibly of bubonic or pneumonic plague, swept coastal New England, killing as many as nine out of ten. During the 1630's smallpox, the disease most fatal to the Native American people, eliminated half the population of the Huron and Iroquois confederations. In the 1820's fever devastated the people of the Columbia River area, killing eight out of ten of them.

Unfortunately, the documentation of these and other epidemics is slight and frequently unreliable, and it is necessary to supplement what little we do know with evidence from recent epidemics among Native Americans. For example, in 1952 an outbreak of measles among the Native American inhabitants of Ungava Bay, Quebec, affected 99 percent of the population and killed 7 percent, even though some had the benefit of modern medicine. Cases such as this demonstrate that even diseases that are not normally fatal can have devastating consequences when they strike an immunologically defenseless community.

1. The primary purpose of the passage is to
  - (A) refute a common misconception
  - (B) provide support for a hypothesis
  - (C) analyze an argument
  - (D) suggest a solution to a dilemma
  - (E) reconcile opposing viewpoints
2. According to the passage, virgin-soil epidemics can be distinguished from other catastrophic outbreaks of disease in that virgin-soil epidemics
  - (A) recur more frequently than other chronic diseases
  - (B) affect a minimum of one-half of a given population
  - (C) involve populations with no prior exposure to a disease
  - (D) usually involve a number of interacting diseases
  - (E) are less responsive to medical treatment than are other diseases
3. According to the passage, the British colonists

were unlike the Spanish colonists in that the British colonists

- (A) collected tribute from the native population
  - (B) kept records from a very early date
  - (C) drove Native Americans off the land
  - (D) were unable to provide medical care against epidemic disease
  - (E) enslaved the native populations in America
4. Which of the following can be inferred from the passage concerning Spanish tribute records?
- (A) They mention only epidemics of smallpox.
  - (B) They were instituted in 1492.
  - (C) They were being kept prior to the seventeenth century.
  - (D) They provide quantitative and qualitative evidence about Native American populations.
  - (E) They prove that certain diseases were unknown in the pre-Columbian New World.
5. The author implies which of the following about measles?
- (A) It is not usually a fatal disease.
  - (B) It ceased to be a problem by the seventeenth century.
  - (C) It is the disease most commonly involved in virgin-soil epidemics.
  - (D) It was not a significant problem in Spanish colonies.
  - (E) It affects only those who are immunologically defenseless against it.
6. Which of the following can be inferred from the passage about the Native American inhabitants of Ungava Bay?
- (A) They were almost all killed by the 1952 epidemic.
  - (B) They were immunologically defenseless against measles.
  - (C) They were the last native people to be struck by a virgin-soil epidemic.
  - (D) They did not come into frequent contact with white Americans until the twentieth century.
  - (E) They had been inoculated against measles.
7. The author mentions the 1952 measles outbreak most probably in order to
- (A) demonstrate the impact of modern medicine on epidemic disease
  - (B) corroborate the documentary evidence of epidemic disease in colonial America
  - (C) refute allegations of unreliability made against the historical record of colonial America
  - (D) advocate new research into the continuing problem of epidemic disease
  - (E) challenge assumptions about how the statistical evidence of epidemics should be interpreted
8. Which of the following, if newly discovered, would most seriously weaken the author's argument concerning the importance of virgin-soil epidemics in the depopulation of Native Americans?
- (A) Evidence setting the pre-Columbian population of the New World at only 80 million

- (B) Spanish tribute records showing periodic population fluctuations
- (C) Documents detailing sophisticated Native American medical procedures
- (D) Fossils indicating Native American contact with smallpox prior to 1492
- (E) Remains of French settlements dating back to the sixteenth century

### Passage 33

Until recently most astronomers believed that the space between the galaxies in our universe was a near-perfect vacuum. This orthodox view of the universe is now being challenged by astronomers who believe that a heavy "rain" of gas is falling into many galaxies from the supposedly empty space around them. The gas apparently condenses into a collection of small stars, each a little larger than the planet Jupiter. These stars vastly outnumber the other stars in a given galaxy. The amount of "intergalactic rainfall" into some of these galaxies has been enough to double their mass in the time since they formed. Scientists have begun to suspect that this intergalactic gas is probably a mixture of gases left over from the "big bang" when the galaxies were formed and gas was forced out of galaxies by supernova explosions.

It is well known that when gas is cooled at a constant pressure its volume decreases. Thus, the physicist Fabian reasoned that as intergalactic gas cools, the cooler gas shrinks inward toward the center of the galaxy. Meanwhile its place is taken by hotter intergalactic gas from farther out on the edge of the galaxy, which cools as it is compressed and flows into the galaxy. The net result is a continuous flow of gas, starting as hot gases in intergalactic space and ending as a drizzle of cool gas called a "cooling flow," falling into the central galaxy.

A fairly heretical idea in the 1970's, the cooling-flow theory gained support when Fabian observed a cluster of galaxies in the constellation Perseus and found the central galaxy, NGC 1275, to be a strange-looking object with irregular, thin strands of gas radiating from it. According to previous speculation, these strands were gases that had been blown out by an explosion in the galaxy. Fabian, however, disagreed. Because the strands of gas radiating from NGC 1275 are visible in optical photographs, Fabian suggested that such strands consisted not of gas blown out of the galaxy but of cooling flows of gas streaming inward. He noted that the wavelengths of the radiation emitted by a gas would change as the gas cooled, so that as the gas flowed into the galaxy and became cooler, it would emit not x-rays, but visible light, like that which was captured in the photographs. Fabian's hypothesis was supported by Canizares' determination in 1982 that most of the gas in the Perseus cluster was at a temperature of 80 million degrees Kelvin, whereas the gas immediately surrounding NGC 1275 (the subject of the photographs) was at one-tenth this temperature.

1. The primary purpose of the passage is to

- (A) illustrate a hypothesis about the origin of galaxies
  - (B) provide evidence to dispute an accepted theory about the evolution of galaxies
  - (C) summarize the state of and prospects for research in intergalactic astronomy
  - (D) report new data on the origins of intergalactic gas
  - (E) reconcile opposing views on the formation of intergalactic gas
2. The author uses the phrase "orthodox view of the universe" (line 3) to refer to the belief that
- (A) the space between the galaxies is devoid of matter
  - (B) the space between galaxies is occupied by stars that cannot be detected by optical photographs
  - (C) galaxies have decreased in mass by half since their formation
  - (D) galaxies contain stars, each the size of Jupiter, which form clusters
  - (E) galaxies are being penetrated by gas forced out of other galaxies by supernova explosions.
3. It can be inferred from the passage that, if Fabian is correct, gas in the peripheral regions of a galaxy cluster
- (A) streams outward into intergalactic space
  - (B) is hotter than gas in the central regions of the galaxy
  - (C) is composed primarily of gas left over from the big bang
  - (D) results in the creation of unusually large stars
  - (E) expands to increase the size of the galaxy
4. The author of the passage probably mentions Canizares' determination in order to
- (A) clarify an ambiguity in Fabian's research findings
  - (B) illustrate a generalization about the temperature of gas in a galaxy cluster
  - (C) introduce a new argument in support of the orthodox view of galaxies
  - (D) provide support for Fabian's assertions about the Perseus galaxies
  - (E) provide an alternate point of view concerning the movement of gas within a galaxy cluster
5. According to the passage, Fabian believes that gas flowing into a central galaxy has which of the following characteristics?
- (A) It is one-tenth hotter than it was in the outer regions of the galaxy cluster.
  - (B) It emits radiation with wavelengths that change as the gas moves toward the center of the galaxy.
  - (C) The total amount of radiation emitted diminishes as the gas cools.
  - (D) It loses 90 percent of its energy as it moves to the center of the galaxy.
  - (E) It condenses at a rate much slower than the rate of decrease in temperature as the gas flows inward.
6. According to the passage, Fabian's theory makes use of which of the following principles?
- (A) Gas emanating from an explosion will be hotter the more distant it is from the origin.
  - (B) The wavelength of radiation emitted by a gas as it

- cools remains constant.
- (C) If pressure remains constant, the volume of a gas will decrease as it is cooled.
  - (D) The volume of a gas will increase as the pressure increases.
  - (E) As gas cools, its density decreases.
7. It can be inferred from the passage that which of the following is true of Fabian's theory?
- (A) It did not receive approval until Canizares' work was published.
  - (B) It was not widely accepted in the 1970's.
  - (C) It did not receive support initially because technology was not available to confirm its tenets.
  - (D) It supports earlier speculation that intergalactic gas was largely the result of explosions outside the galaxy.
  - (E) It was widely challenged until x-ray evidence of gas temperatures in NGC 1275 had been presented.

### Passage 34

- Kazuko Nakane's history of the early Japanese immigrants to central California's Pajaro Valley focuses on the development of farming communities there from 1890 to 1940. The Issei (first-generation immigrants)
- (5) were brought into the Pajaro Valley to raise sugar beets. Like Issei laborers in American cities, Japanese men in rural areas sought employment via the "boss" system. The system comprised three elements: immigrant wage laborers; Issei boardinghouses where laborers stayed;
  - (10) and labor contractors, who gathered workers for a particular job and then negotiated a contract between workers and employer. This same system was originally utilized by the Chinese laborers who had preceded the Japanese. A related institution was the "labor club,"
  - (15) which provided job information and negotiated employment contracts and other legal matters, such as the rental of land, for Issei who chose to belong and paid an annual fee to the cooperative for membership.
- When the local sugar beet industry collapsed in 1902,
- (20) the Issei began to lease land from the valley's strawberry farmers. The Japanese provided the labor and the crop was divided between laborers and landowners. The Issei began to operate farms, they began to marry and start families, forming an established Japanese American
  - (30) community. Unfortunately, the Issei's efforts to attain agricultural independence were hampered by government restrictions, such as the Alien Land Law of 1913. But immigrants could circumvent such exclusionary laws by leasing or purchasing land in their American-born
  - (35) children's names.

- Nakane's case study of one rural Japanese American community provides valuable information about the lives and experiences of the Issei. It is, however, too particularistic. This limitation derives from Nakane's
- (40) methodology—that of oral history—which cannot substitute for a broader theoretical or comparative perspective. Future research might well consider two



issues raised by her study: were the Issei of the Pajaro Valley similar to or different from Issei in urban settings, (45) and what variations existed between rural Japanese American communities?

1. The primary purpose of the passage is to
  - (A) defend a controversial hypothesis presented in a history of early Japanese immigrants to California
  - (B) dismiss a history of an early Japanese settlement in California as narrow and ill constructed
  - (C) summarize and critique a history of an early Japanese settlement in California
  - (D) compare a history of one Japanese American community with studies of Japanese settlements throughout California
  - (E) examine the differences between Japanese and Chinese immigrants to central California in the 1890's
  
2. Which of the following best describes a "labor club," as defined in the passage?
  - (A) An organization to which Issei were compelled to belong if they sought employment in the Pajaro Valley
  - (B) An association whose members included labor contractors and landowning "bosses"
  - (C) A type of farming corporation set up by Issei who had resided in the Pajaro Valley for some time
  - (D) A cooperative association whose members were dues-paying Japanese laborers
  - (E) A social organization to which Japanese laborers and their families belonged
  
3. Based on information in the passage, which of the following statements concerning the Alien Land Law of 1913 is most accurate?
  - (A) It excluded American-born citizens of Japanese ancestry from landownership.
  - (B) It sought to restrict the number of foreign immigrants to California.
  - (C) It successfully prevented Issei from ever purchasing farmland.
  - (D) It was applicable to first-generation immigrants but not to their American-born children.
  - (E) It was passed under pressure from the Pajaro Valley's strawberry farmers.
  
4. Several Issei families join together to purchase a strawberry field and the necessary farming equipment. Such a situation best exemplifies which of the following, as it is described in the passage?
  - (A) A typical sharecropping agreement
  - (B) A farming corporation
  - (C) A "labor club"
  - (D) The "boss" system
  - (E) Circumvention of the Alien Land Law
  
5. The passage suggests that which of the following was an indirect consequence of the collapse of the sugar beet industry in the Pajaro Valley?

- (A) The Issei formed a permanent, family-based community.
  - (B) Boardinghouses were built to accommodate the Issei.
  - (C) The Issei began to lease land in their children's names.
  - (D) The Issei adopted a labor contract system similar to that used by Chinese immigrants.
  - (E) The Issei suffered a massive dislocation caused by unemployment.
6. The author of the passage would most likely agree that which of the following, if it had been included in Nakane's study, would best remedy the particularistic nature of that study?
- (A) A statistical table comparing per capita income of Issei wage laborers and sharecroppers in the Pajaro Valley
  - (B) A statistical table showing per capita income of Issei in the Pajaro Valley from 1890 to 1940
  - (C) A statistical table showing rates of farm ownership by Japanese Americans in four central California counties from 1890 to 1940
  - (D) A discussion of original company documents dealing with the Pajaro Valley sugar beet industry at the turn of the century
  - (E) Transcripts of interviews conducted with members of the Pajaro Valley Japanese American community who were born in the 1920's and 1930's.
7. It can be inferred from the passage that, when the Issei began to lease land from the Valley's strawberry farmers, the Issei most probably did which of the following?
- (A) They used profits made from selling the strawberry crop to hire other Issei.
  - (B) They negotiated such agricultural contracts using the "boss" system.
  - (C) They paid for the use of the land with a share of the strawberry crop.
  - (D) They earned higher wages than when they raised sugar beets.
  - (E) They violated the Alien Land Law.

### Passage 35

It can be argued that much consumer dissatisfaction with marketing strategies arises from an inability to aim advertising at only the likely buyers of a given product. There are three groups of consumers who are affected (5) by the marketing process. First, there is the market segment—people who need the commodity in question. Second, there is the program target—people in the market segment with the "best fit" characteristics for a specific product. Lots of people may need trousers, but (10) only a few qualify as likely buyers of very expensive designer trousers. Finally, there is the program audience — all people who are actually exposed to the

marketing program without regard to whether they need or want the product.

- (15) These three groups are rarely identical. An exception occurs occasionally in cases where customers for a particular industrial product may be few and easily identifiable. Such customers, all sharing a particular need, are likely to form a meaningful target, for example, all
- (20) companies with a particular application of the product in question, such as high-speed fillers of bottles at breweries. In such circumstances, direct selling (marketing that reaches only the program target) is likely to be economically justified, and highly specialized trade
- (25) media exist to expose members of the program target—and only members of the program target—to the marketing program.

- Most consumer-goods markets are significantly different. Typically, there are many rather than few
- (30) potential customers. Each represents a relatively small percentage of potential sales. Rarely do members of a particular market segment group themselves neatly into a meaningful program target. There are substantial differences among consumers with similar demographic
- (35) characteristics. Even with all the past decade's advances in information technology, direct selling of consumer goods is rare, and mass marketing—a marketing approach that aims at a wide audience—remains the only economically feasible mode. Unfortunately, there
- (40) are few media that allow the marketer to direct a marketing program exclusively to the program target. Inevitably, people get exposed to a great deal of marketing for products in which they have no interest and so they become annoyed.

1. The passage suggests which of the following about highly specialized trade media?
- (A) They should be used only when direct selling is not economically feasible.
- (B) They can be used to exclude from the program audience people who are not part of the program target.
- (C) They are used only for very expensive products.
- (D) They are rarely used in the implementation of marketing programs for industrial products.
- (E) They are used only when direct selling has not reached the appropriate market segment.
2. According to the passage, most consumer-goods markets share which of the following characteristics?
- I . Customers who differ significantly from each other
- II . Large numbers of potential customers
- III. Customers who each represent a small percentage of potential sales
- (A) I only
- (B) II only
- (C) I and II only
- (D) II and III only
- (E) I , II , and III

3. The passage suggests which of the following about direct selling?
- (A) It is used in the marketing of most industrial products.
  - (B) It is often used in cases where there is a large program target.
  - (C) It is not economically feasible for most marketing programs.
  - (D) It is used only for products for which there are many potential customers.
  - (E) It is less successful at directing a marketing program to the target audience than are other marketing approaches.
4. The author mentions "trousers" (lines 9 and 11) most likely in order to
- (A) make a comparison between the program target and the program audience
  - (B) emphasize the similarities between the market segment and the program target
  - (C) provide an example of the way three groups of consumers are affected by a marketing program
  - (D) clarify the distinction between the market segment and the program target
  - (E) introduce the concept of the program audience
5. Which of the following best exemplifies the situation described in the last two sentences of the passage?
- (A) A product suitable for women age 21-30 is marketed at meetings attended only by potential customers.
  - (B) A company develops a new product and must develop an advertising campaign to create a market for it.
  - (C) An idea for a specialized product remains unexplored because media exposure of the product to its few potential customers would be too expensive.
  - (D) A new product is developed and marketers collect demographic data on potential consumers before developing a specific advertising campaign.
  - (E) A product suitable for men age 60 and over is advertised in a magazine read by adults of all ages.
6. The passage suggests that which of the following is true about the marketing of industrial products like those discussed in the third paragraph?
- (A) The market segment and program target are identical.
  - (B) Mass marketing is the only feasible way of advertising such products.
  - (C) The marketing program cannot be directed specifically to the program target.
  - (D) More customers would be needed to justify the expense of direct selling.
  - (E) The program audience would necessarily be made up of potential customers, regardless of the marketing approach that was used.
7. The passage supports which of the following statements about demographic characteristics and marketing?

- (A) Demographic research is of no use in determining how successful a product will be with a particular group of consumers.
  - (B) A program audience is usually composed of people with similar demographic characteristics.
  - (C) Psychological factors are more important than demographic factors in defining a market segments.
  - (D) Consumers with similar demographic characteristics do not necessarily form a meaningful program target.
  - (E) Collecting demographic data is the first step that marketers take in designing a marketing program.
8. It can be inferred from the passage that which of the following is true for most consumer-goods markets?
- (A) The program audience is smaller than the market segment.
  - (B) The program audience and the market segment are usually identical.
  - (C) The market segment and the program target are usually identical.
  - (D) The program target is larger than the market segment.
  - (E) The program target and the program audience are not usually identical.

### Passage 36

Protein synthesis begins when the gene encoding a protein is activated. The gene's sequence of nucleotides is transcribed into a molecule of messenger RNA (mRNA), which reproduces the information contained in that (5) sequence. Transported outside the nucleus to the cytoplasm, the mRNA is translated into the protein it encodes by an organelle known as a ribosome, which strings together amino acids in the order specified by the sequence of elements in the mRNA molecule. Since the (10) amount of mRNA in a cell determines the amount of the corresponding protein, factors affecting the abundance of mRNA's play a major part in the normal functioning of a cell by appropriately regulating protein synthesis.

For example, an excess of certain proteins can cause cells (15) to proliferate abnormally and become cancerous; a lack of the protein insulin results in diabetes.

Biologists once assumed that the variable rates at which cells synthesize different mRNA's determine the quantities of mRNA's and their corresponding proteins (20) in a cell. However, recent investigations have shown that the concentrations of most mRNA's correlate best, not with their synthesis rate, but rather with the equally variable rates at which cells degrade the different mRNA's in their cytoplasm. If a cell degrades both a rapidly and (25) a slowly synthesized mRNA slowly, both mRNA's will accumulate to high levels.

An important example of this phenomenon is the development of red blood cells from their unspecialized parent cells in bone marrow. For red blood cells to accu- (30) mulate sufficient concentrations of hemoglobin (which transports oxygen) to carry out their main function, the cells' parent cells must simultaneously produce more of

the constituent proteins of hemoglobin and less of most other proteins. To do this, the parent cells halt synthesis (35) of nonhemoglobin mRNA's in the nucleus and rapidly degrade copies of the nonhemoglobin mRNA's remaining in the cytoplasm. Halting synthesis of mRNA alone would not affect the quantities of proteins synthesized by the mRNA's still existing in the cytoplasm. Biologists now (40) believe that most cells can regulate protein production most efficiently by varying both mRNA synthesis and degradation, as developing red cells do, rather than by just varying one or the other.

1. The passage is primarily concerned with discussing the
  - (A) influence of mRNA concentrations on the development of red blood cells
  - (B) role of the synthesis and degradation of mRNA in cell functioning
  - (C) mechanism by which genes are transcribed into mRNA
  - (D) differences in mRNA concentrations in cell nuclei and in the cytoplasm
  - (E) way in which mRNA synthesis contributes to the onset of diabetes
2. The passage suggests that a biologist who held the view described in the first sentence of the second paragraph would most probably also have believed which of the following?
  - (A) The rate of degradation of specific mRNA's has little effect on protein concentrations.
  - (B) The rate of degradation of specific mRNA's should be studied intensively.
  - (C) The rates of synthesis and degradation for any given mRNA are normally equal.
  - (D) Different mRNA's undergo degradation at widely varying rates.
  - (E) Most mRNA's degrade very rapidly.
3. Which of the following best describes the relationship between the second and third paragraphs of the passage?
  - (A) The second paragraph presents arguments in support of a new theory and the third paragraph presents arguments against that same theory.
  - (B) The second paragraph describes a traditional view and the third paragraph describes the view that has replaced it on the basis of recent investigations.
  - (C) The third paragraph describes a specific case of a phenomenon that is described generally in the second paragraph.
  - (D) The third paragraph describes an investigation that was undertaken to resolve problems raised by phenomena described in the second paragraph.
  - (E) Both paragraphs describe in detail specific examples of the phenomenon that is introduced in the first paragraph.
4. The accumulation of concentrations of hemoglobin in red blood cells is mentioned in the passage as an example of which of the following?
  - (A) The effectiveness of simultaneous variation of the rates of synthesis and degradation of mRNA

- (B) The role of the ribosome in enabling a parent cell to develop properly into a more specialized form
  - (C) The importance of activating the genes for particular proteins at the correct moment
  - (D) The abnormal proliferation of a protein that threatens to make the cell cancerous
  - (E) The kind of evidence that biologists relied on for support of a view of mRNA synthesis that is now considered obsolete
5. To begin to control a disease caused by a protein deficiency, the passage suggests that a promising experimental treatment would be to administer a drug that would reduce
- (A) only the degradation rate for the mRNA of the protein involved
  - (B) only the synthesis rate for the mRNA of the protein involved
  - (C) both the synthesis and degradation rates for the mRNA of the protein involved
  - (D) the incidence of errors in the transcription of mRNA's from genetic nucleotide sequences
  - (E) the rate of activity of ribosomes in the cytoplasm of most cells
6. According to the passage, which of the following best describes the current view on the relationship between the synthesis and the degradation of mRNA in regulating protein synthesis?
- (A) Biologists have recently become convinced that the ribosome controls the rates of synthesis and degradation of mRNA.
  - (B) There is no consensus among biologists as to the significance of mRNA degradation in regulating protein synthesis.
  - (C) The concept of mRNA degradation is so new that most biologists still believe that the vital role in protein regulation belongs to mRNA synthesis.
  - (D) Degradation of mRNA is now considered to be the key process and mRNA synthesis is no longer believed to play a significant role.
  - (E) Degradation of mRNA is now considered to be as important as mRNA synthesis has been, and still is, believed to be.
7. According to the passage, which of the following can happen when protein synthesis is not appropriately regulated?
- (A) Diabetes can result from errors that occur when the ribosomes translate mRNA into protein.
  - (B) Cancer can result from an excess of certain proteins and diabetes can result from an insulin deficiency.
  - (C) A deficiency of red blood cells can occur if bone marrow cells produce too much hemoglobin.
  - (D) Cancer can be caused by excessively rapid degradation of certain amino acids in the cytoplasm of cells.
  - (E) Excessive synthesis of one protein can trigger increased degradation of mRNA's for other proteins and create severe protein imbalances.

8. The passage suggests that a biologist who detected high levels of two proteins in a certain type of cell would be likely to consider which of the following as a possible explanation?
- (A) The rate of mRNA degradation for one of the proteins increases as this type of cell develops a more specialized function.
  - (B) The two proteins are most likely constituents of a complex substance supporting the cells' specialized function.
  - (C) The cells are likely to proliferate abnormally and possibly become cancerous due to the levels of these proteins.
  - (D) The mRNA's for both proteins are being degraded at a low rate in that type of cell.
  - (E) The mRNA's for the two proteins are being synthesized at identical rates in that type of cell.

### Passage 37

- Japanese firms have achieved the highest levels of manufacturing efficiency in the world automobile industry. Some observers of Japan have assumed that Japanese firms use the same manufacturing equipment (5) and techniques as United States firms but have benefited from the unique characteristics of Japanese employees and the Japanese culture. However, if this were true, then one would expect Japanese auto plants in the United States to perform no better than factories (10) run by United States companies. This is not the case, Japanese-run automobile plants located in the United States and staffed by local workers have demonstrated higher levels of productivity when compared with factories owned by United States companies.
- (15) Other observers link high Japanese productivity to higher levels of capital investment per worker. But a historical perspective leads to a different conclusion. When the two top Japanese automobile makers matched and then doubled United States productivity (20) levels in the mid-sixties, capital investment per employee was comparable to that of United States firms. Furthermore, by the late seventies, the amount of fixed assets required to produce one vehicle was roughly equivalent in Japan and in the United States.
- (25) Since capital investment was not higher in Japan, it had to be other factors that led to higher productivity. A more fruitful explanation may lie with Japanese production techniques. Japanese automobile producers did not simply implement conventional processes more (30) effectively: they made critical changes in United States procedures. For instance, the mass-production philosophy of United States automakers encouraged the production of huge lots of cars in order to utilize fully expensive, component-specific equipment and to (35) occupy fully workers who have been trained to execute one operation efficiently. Japanese automakers chose to make small-lot production feasible by introducing several departures from United States practices, including the use of flexible equipment that could be



- (40) altered easily to do several different production tasks and the training of workers in multiple jobs.  
Automakers could schedule the production of different components or models on single machines, thereby eliminating the need to store the buffer stocks of extra
- (45) components that result when specialized equipment and workers are kept constantly active.

1. The primary purpose of the passage is to
  - (A) present the major steps of a process
  - (B) clarify an ambiguity
  - (C) chronicle a dispute
  - (D) correct misconceptions
  - (E) defend an accepted approach
2. The author suggests that if the observers of Japan mentioned in line 3 were correct, which of the following would be the case?
  - (A) The equipment used in Japanese automobile plants would be different from the equipment used in United States plants.
  - (B) Japanese workers would be trained to do several different production jobs.
  - (C) Culture would not have an influence on the productivity levels of workers.
  - (D) The workers in Japanese-run plants would have higher productivity levels regardless of where they were located.
  - (E) The production levels of Japanese-run plants located in the United States would be equal to those of plants run by United States companies.
3. Which of the following statements concerning the productivity levels of automakers can be inferred from the passage?
  - (A) Prior to the 1960's, the productivity levels of the top Japanese automakers were exceeded by those of United States automakers.
  - (B) The culture of a country has a large effect on the productivity levels of its automakers.
  - (C) During the late 1970's and early 1980's, productivity levels were comparable in Japan and the United States.
  - (D) The greater the number of cars that are produced in a single lot, the higher a plant's productivity level.
  - (E) The amount of capital investment made by automobile manufacturers in their factories determines the level of productivity.
4. According to the passage, which of the following statements is true of Japanese automobile workers?
  - (A) Their productivity levels did not equal those of United States automobile workers until the late seventies.
  - (B) Their high efficiency levels are a direct result of cultural influences.
  - (C) They operate component-specific machinery.
  - (D) They are trained to do more than one job.
  - (E) They produce larger lots of cars than do workers in United States factories.

5. Which of the following best describes the organization of the first paragraph?
- (A) A thesis is presented and supporting examples are provided.
  - (B) Opposing views are presented, classified, and then reconciled.
  - (C) A fact is stated, and an explanation is advanced and then refuted.
  - (D) A theory is proposed, considered, and then amended.
  - (E) An opinion is presented, qualified, and then reaffirmed.
6. It can be inferred from the passage that one problem associated with the production of huge lots of cars is which of the following?
- (A) The need to manufacture flexible machinery and equipment
  - (B) The need to store extra components not required for immediate use
  - (C) The need for expensive training programs for workers, which emphasize the development of facility in several production jobs.
  - (D) The need to alter conventional mass-production processes
  - (E) The need to increase the investment per vehicle in order to achieve high productivity levels
7. Which of the following statements is supported by information stated in the passage?
- (A) Japanese and United States automakers differ in their approach to production processes.
  - (B) Japanese automakers have perfected the use of single-function equipment.
  - (C) Japanese automakers invest more capital per employee than do United States automakers.
  - (D) United States-owned factories abroad have higher production levels than do Japanese owned plants in the United States.
  - (E) Japanese automakers have benefited from the cultural heritage of their workers.
8. With which of the following predictive statement regarding Japanese automakers would the author most likely agree?
- (A) The efficiency levels of the Japanese automakers will decline if they become less flexible in their approach to production
  - (B) Japanese automakers productivity levels double during the late 1990's.
  - (C) United States automakes will originate net production processes before Japanese automakers do.
  - (D) Japanese automakers will hire fewer workers than will United States automakers because each worker is required to perform several jobs.
  - (E) Japanese automakers will spend less on equipment repairs than will United States automakers because Japanese equipment can be easily altered.

### Passage 38

It was once believed that the brain was independent of metabolic processes occurring elsewhere in the body. In recent studies, however, we have discovered that the production and release in brain neurons of the neurotransmitter serotonin (neurotransmitters are compounds that neurons use to transmit signals to other cells) depend directly on the food that the body processes.

Our first studies sought to determine whether the increase in serotonin observed in rats given a large injection of the amino acid tryptophan might also occur after rats ate meals that change tryptophan levels in the blood. We found that, immediately after the rats began to eat, parallel elevations occurred in blood tryptophan, brain tryptophan, and brain serotonin levels. These findings suggested that the production and release of serotonin in brain neurons were normally coupled with blood-tryptophan increases. In later studies we found that injecting insulin into a rat's bloodstream also caused parallel elevations in blood and brain tryptophan levels and in serotonin levels. We then decided to see whether the secretion of the animal's own insulin similarly affected serotonin production. We gave the rats a carbohydrate-containing meal that we knew would elicit insulin secretion. As we had hypothesized, the blood tryptophan level and the concentrations of tryptophan serotonin in the brain increased after the meal.

Surprisingly, however, when we added a large amount of protein to the meal, brain tryptophan and serotonin levels fell. Since protein contains tryptophan, why should it depress brain tryptophan levels? The answer lies in the mechanism that provides blood tryptophan to the brain cells. This same mechanism also provides the brain cells with other amino acids found in protein, such as tyrosine and leucine. The consumption of protein increases blood concentration of the other amino acids much more, proportionately, than it does that of tryptophan. The more protein in the meal, the lower is the ratio of the resulting blood-tryptophan concentration to the concentration of competing amino acids, and the more slowly is tryptophan provided to the brain. Thus the more protein in a meal, the less serotonin subsequently produced and released.

1. Which of the following titles best summarizes the contents of the passage?
  - (A) Neurotransmitters: Their Crucial Function in Cellular Communication
  - (B) Diet and Survival: An Old Relationship Reexamined
  - (C) The Blood Supply and the Brain: A Reciprocal Dependence
  - (D) Amino Acids and Neurotransmitters: The Connection Between Serotonin Levels and Tyrosine
  - (E) The Effects of Food Intake on the Production and Release of Serotonin: Some Recent Findings
2. According to the passage, the speed with which tryptophan is provided to the brain cells of a rat varies

- with the
- (A) amount of protein present in a meal
  - (B) concentration of serotonin in the brain before a meal
  - (C) concentration of leucine in the blood rather than on the concentration of tyrosine in the blood after a meal
  - (D) concentration of tryptophan in the brain before a meal
  - (E) number of serotonin-containing neurons present in the brain before a meal
3. According to the passage, when the authors began their first studies, they were aware that
- (A) they would eventually need to design experiments that involved feeding rats high concentrations of protein
  - (B) tryptophan levels in the blood were difficult to monitor with accuracy
  - (C) serotonin levels increased after rats were fed meals rich in tryptophan
  - (D) there were many neurotransmitters whose production was dependent on metabolic processes elsewhere in the body.
  - (E) serotonin levels increased after rats were injected with a large amount of tryptophan
4. According to the passage, one reason that the authors gave rats carbohydrates was to
- (A) depress the rats' tryptophan levels
  - (B) prevent the rats from contracting diseases
  - (C) cause the rats to produce insulin
  - (D) demonstrate that insulin is the most important substance secreted by the body
  - (E) compare the effect of carbohydrates with the effect of proteins
5. According to the passage, the more protein a rat consumes, the lower will be the
- (A) ratio of the rat's blood-tryptophan concentration to the amount of serotonin produced and released in the rat's brain
  - (B) ratio of the rat's blood-tryptophan concentration to the concentration in its blood of the other amino acids contained in the protein
  - (C) ratio of the rat's blood-tyrosine concentration to its blood-leucine concentration
  - (D) number of neurotransmitters of any kind that the rat will produce and release
  - (E) number of amino acids the rat's blood will contain
6. The authors' discussion of the "mechanism that provides blood tryptophan to the brain cells" (lines 31-32) is meant to
- (A) stimulate further research studies
  - (B) summarize an area of scientific investigation
  - (C) help explain why a particular research finding was obtained
  - (D) provide supporting evidence for a controversial scientific theory
  - (E) refute the conclusions of a previously mentioned research study

7. According to the passage, an injection of insulin was most similar in its effect on rats to an injection of
- (A) tyrosine
  - (B) leucine
  - (C) blood
  - (D) tryptophan
  - (E) protein
8. It can be inferred from the passage that which of the following would be LEAST likely to be a potential source of aid to a patient who was not adequately producing and releasing serotonin?
- (A) Meals consisting almost exclusively of protein
  - (B) Meals consisting almost exclusively of carbohydrates
  - (C) Meals that would elicit insulin secretion
  - (D) Meals that had very low concentrations of tyrosine
  - (E) Meals that had very low concentrations of leucine
9. It can be inferred from the passage that the authors initially held which of the following hypotheses about what would happen when they fed large amounts of protein to rats?
- (A) The rats' brain serotonin levels would not decrease.
  - (B) The rats' brain tryptophan levels would decrease
  - (C) The rats' tyrosine levels would increase less quickly than would their leucine levels
  - (D) The rats would produce more insulin.
  - (E) The rats would produce neurotransmitters other than serotonin.

### Passage 39

- Historians sometimes forget that history is continually being made and experienced before it is studied, interpreted, and read. These latter activities have their own history, of course, which may impinge in unexpected ways on public events. It is difficult to predict when "new pasts" will overturn established historical interpretations and change the course of history.
- (5) In the fall of 1954, for example, C. Vann Woodward delivered a lecture series at the University of Virginia which challenged the prevailing dogma concerning the history, continuity, and uniformity of racial segregation in the South. He argued that the Jim Crow laws of the late nineteenth and early twentieth centuries not only codified traditional practice but also were a determined
- (10) effort to erase the considerable progress made by Black people during and after Reconstruction in the 1870's. This revisionist view of Jim Crow legislation grew in part from the research that Woodward had done for the NAACP legal campaign during its preparation for
- (15) *Brown v. Board of Education*. The Supreme Court had issued its ruling in this epochal desegregation case a few months before Woodward's lectures.
- The lectures were soon published as a book. *The Strange Career of Jim Crow*. Ten years later, in a
- (20) preface to the second revised edition, Woodward confessed with ironic modesty that the first edition

"had begun to suffer under some of the handicaps that might be expected in a history of the American Revolution published in 1776." That was a bit like hearing

(30) Thomas Paine apologize for the timing of his pamphlet *Common Sense*, which had a comparable impact. Although *Common Sense* also had a mass readership. Paine had intended to reach and inspire: he was not a historian, and thus not concerned with accuracy or the

(35) dangers of historical anachronism. Yet, like Paine, Woodward had an unerring sense of the revolutionary moment, and of how historical evidence could undermine the mythological tradition that was crushing the dreams of new social possibilities. Martin Luther King,

(40) Jr., testified to the profound effect of *The Strange Career of Jim Crow* on the civil rights movement by praising the book and quoting it frequently.

1. The "new pasts" mentioned in line 6 can best be described as the
  - (A) occurrence of events extremely similar to past events
  - (B) history of the activities of studying, interpreting, and reading new historical writing
  - (C) change in people's understanding of the past due to more recent historical writing
  - (D) overturning of established historical interpretations by politically motivated politicians
  - (E) difficulty of predicting when a given historical interpretation will be overturned
2. It can be inferred from the passage that the "prevailling dogma" (line 10) held that
  - (A) Jim Crow laws were passed to give legal status to well-established discriminatory practices in the South
  - (B) Jim Crow laws were passed to establish order and uniformity in the discriminatory practices of different southern states.
  - (C) Jim Crow laws were passed to erase the social gains that Black people had achieved since Reconstruction
  - (D) the continuity of racial segregation in the South was disrupted by passage of Jim Crow laws
  - (E) the Jim Crow laws of the late nineteenth and early twentieth centuries were passed to reverse the effect of earlier Jim Crow laws
3. Which of the following is the best example of writing that is likely to be subject to the kinds of "handicaps" referred to in line 27?
  - (A) A history of an auto manufacturing plant written by an employee during an autobuying boom
  - (B) A critique of a statewide school-desegregation plan written by an elementary school teacher in that state
  - (C) A newspaper article assessing the historical importance of a United States President written shortly after the President has taken office
  - (D) A scientific paper describing the benefits of a certain surgical technique written by the surgeon who developed the technique
  - (E) Diary entries narrating the events of a battle written

by a soldier who participated in the battle

4. The passage suggests that C. Vann Woodward and Thomas Paine were similar in all of the following ways EXCEPT:
- (A) Both had works published in the midst of important historical events.
  - (B) Both wrote works that enjoyed widespread popularity.
  - (C) Both exhibited an understanding of the relevance of historical evidence to contemporary issues.
  - (D) The works of both had a significant effect on events following their publication.
  - (E) Both were able to set aside worries about historical anachronism in order to reach and inspire.
5. The attitude of the author of the passage toward the work of C. Vann Woodward is best described as one of
- (A) respectful regard
  - (B) qualified approbation
  - (C) implied skepticism
  - (D) pointed criticism
  - (E) fervent advocacy
6. Which of the following best describes the new idea expressed by C. Vann Woodward in his University of Virginia lectures in 1954?
- (A) Southern racial segregation was continuous and uniform.
  - (B) Black people made considerable progress only after Reconstruction.
  - (C) Jim Crow legislation was conventional in nature.
  - (D) Jim Crow laws did not go as far in codifying traditional practice as they might have.
  - (E) Jim Crow laws did much more than merely reinforce a tradition of segregation.

#### Passage 40

- Joseph Glarthaar's *Forged in Battle* is not the first excellent study of Black soldiers and their White officers in the Civil War, but it uses more soldiers' letters and diaries—including rare material from Black soldiers—and concentrates more intensely on Black-White relations in Black regiments than do any of its predecessors. Glarthaar's title expresses his thesis: loyalty, friendship, and respect among White officers and Black soldiers were fostered by the mutual dangers they faced in combat.
- (5) Glarthaar accurately describes the government's discriminatory treatment of Black soldiers in pay, promotion, medical care, and job assignments, appropriately emphasizing the campaign by Black soldiers and their officers to get the opportunity to fight. That chance remained limited throughout the war by army policies that kept most Black units serving in rear-echelon assignments and working in labor battalions. Thus, while their combat death rate was only one-third that of White units, their mortality rate from disease, a major killer in his war, was twice as great.
- (10) Despite these obstacles, the courage and effectiveness of several Black units in combat won increasing respect from

initially skeptical or hostile White soldiers. As one White officer put it, "they have fought their way into the respect of all the army."

- (25) In trying to demonstrate the magnitude of this attitudinal change, however, Glarthaar seems to exaggerate the prewar racism of the White men who became officers in Black regiments. "Prior to the war," he writes of these men, "virtually all of them held powerful racial prejudices."
- (30) While perhaps true of those officers who joined Black units for promotion or other self-serving motives, this statement misrepresents the attitudes of the many abolitionists who became officers in Black regiments. Having spent years fighting against the race prejudice endemic in American society; they participated eagerly in this military experiment, which they hoped would help African Americans achieve freedom and postwar civil equality. By current standards of racial egalitarianism, these men's paternalism toward African Americans was racist. But to call their feelings "powerful racial prejudices" is to indulge in generational chauvinism—to judge past eras by present standards.

1. The passage as a whole can best be characterized as which of

the following?

- (A) An evaluation of a scholarly study
- (B) A description of an attitudinal change
- (C) A discussion of an analytical defect
- (D) An analysis of the causes of a phenomenon
- (E) An argument in favor of revising a view

2. According to the author, which of the following is true of Glarthaar's *Forged in Battle* compared with previous studies

on the same topic?

- (A) It is more reliable and presents a more complete picture of the historical events on which it concentrates than do previous studies.
- (B) It uses more of a particular kind of source material and focuses more closely on a particular aspect of the topic than do previous studies.
- (C) It contains some unsupported generalizations, but it rightly emphasizes a theme ignored by most previous studies.
- (D) It surpasses previous studies on the same topic in that it accurately describes conditions often neglected by those studies.
- (E) It makes skillful use of supporting evidence to illustrate a

those

studies.

- (E) It makes skillful use of supporting evidence to illustrate a subtle trend that previous studies have failed to detect.

3. The author implies that the title of Glarthaar's book refers specifically to which of the following?

- (A) The sense of pride and accomplishment that Black



- soldiers increasingly felt as a result of their Civil War experiences
- (B) The civil equality that African Americans achieved after the Civil War, partly as a result of their use of organizational skills honed by combat
- (C) The changes in discriminatory army policies that were made as a direct result of the performance of Black combat units during the Civil War
- (D) The improved interracial relations that were formed by the races' facing of common dangers and their waging of a common fight during the Civil War
- (E) The standards of racial egalitarianism that came to be adopted as a result of White Civil War veterans' repudiation of the previous racism
4. The passage mentions which of the following as an important theme that receives special emphasis in Glarthaar's book?
- (A) The attitudes of abolitionist officers in Black units
- (B) The struggle of Black units to get combat assignments
- (C) The consequences of the poor medical care received by Black soldiers
- (D) The motives of officers serving in Black units
- (E) The discrimination that Black soldiers faced when trying for promotions
5. The passage suggests that which of the following was true of Black units' disease mortality rates in the Civil War?
- (A) They were almost as high as the combat mortality rates of White units.
- (B) They resulted in part from the relative inexperience of these units when in combat.
- (C) They were especially high because of the nature of these units' usual duty assignments.
- (D) They resulted in extremely high overall casualty rates in Black combat units.
- (E) They exacerbated the morale problems that were caused by the army's discriminatory policies.
6. The author of the passage quotes the White officer in lines 23-24 primarily in order to provide evidence to support the contention that
- (A) virtually all White officers initially had hostile attitudes toward Black soldiers
- (B) Black soldiers were often forced to defend themselves from physical attacks initiated by soldiers from White units
- (C) the combat performance of Black units changed the attitudes of White soldiers toward Black soldiers
- (D) White units paid especially careful attention to the performance of Black units in battle
- (E) respect in the army as a whole was accorded only to those units, whether Black or White, that performed well

in battle

7. Which of the following best describes the kind of error attributed to Glarthaar in lines 25-28?
- (A) Insisting on an unwarranted distinction between two groups of individuals in order to render an argument concerning them internally consistent
  - (B) Supporting an argument in favor of a given interpretation of a situation with evidence that is not particularly relevant to the situation
  - (C) Presenting a distorted view of the motives of certain individuals in order to provide grounds for a negative evaluation of their actions
  - (D) Describing the conditions prevailing before a given event in such a way that the contrast with those prevailing after the event appears more striking than it actually is
  - (E) Asserting that a given event is caused by another event merely because the other event occurred before the given event occurred
8. Which of the following actions can best be described as indulging in "generational chauvinism" (lines 40-41) as that practice is defined in the passage?
- (A) Condemning a present-day monarch merely because many monarchs have been tyrannical in the past.
  - (B) Clinging to the formal standards of politeness common in one's youth to such a degree that any relaxation of those standards is intolerable
  - (C) Questioning the accuracy of a report written by an employee merely because of the employee's gender.
  - (D) Deriding the superstitions accepted as "science" in past eras without acknowledging the prevalence of irrational beliefs today.
  - (E) Labeling a nineteenth-century politician as "corrupt" for engaging in once-acceptable practices considered intolerable today.

#### Passage 41

It was once assumed that all living things could be divided into two fundamental and exhaustive categories. Multicellular plants and animals, as well as many unicellular organisms, are eukaryotic—their large, complex cells (5) have a well-formed nucleus and many organelles. On the other hand, the true bacteria are prokaryotic cells, which are simple and lack a nucleus. The distinction between eukaryotes and bacteria, initially defined in terms of subcellular structures visible with a microscope, was ultimately carried to the molecular level. Here prokaryotic and (10) eukaryotic cells have many features in common. For instance, they translate genetic information into proteins according to the same type of genetic coding. But even where the molecular processes are the same, the details in (15) the two forms are different and characteristic of the respective forms. For example, the amino acid sequences of various enzymes tend to be typically prokaryotic or eukaryotic.

The differences between the groups and the similarities within each group made it seem certain to most biologists (20) that the tree of life had only two stems. Moreover, argu-  
ments pointing out the extent of both structural and functional differences between eukaryotes and true bacteria convinced many biologists that the precursors of the eukaryotes must have diverged from the common (25) ancestor before the bacteria arose.

Although much of this picture has been sustained by more recent research, it seems fundamentally wrong in one respect. Among the bacteria, there are organisms that are significantly different both from the cells of eukaryotes and (30) from the true bacteria, and it now appears that there are three stems in the tree of life. New techniques for determining the molecular sequence of the RNA of organisms have produced evolutionary information about the degree to which organisms are related, the time since they diverged (35) from a common ancestor, and the reconstruction of ancestral versions of genes. These techniques have strongly suggested that although the true bacteria indeed form a large coherent group, certain other bacteria, the archaeobacteria, which are also prokaryotes and which resemble true (40) bacteria, represent a distinct evolutionary branch that far antedates the common ancestor of all true bacteria.

1. The passage is primarily concerned with
  - (A) detailing the evidence that has led most biologists to replace the trichotomous picture of living organisms with a dichotomous one
  - (B) outlining the factors that have contributed to the current hypothesis concerning the number of basic categories of living organisms
  - (C) evaluating experiments that have resulted in proof that the prokaryotes are more ancient than had been expected.
  - (D) summarizing the differences in structure and function found among true bacteria, archaeobacteria, and eukaryotes
  - (E) formulating a hypothesis about the mechanisms of evolution that resulted in the ancestors of the prokaryotes
2. According to the passage, investigations of eukaryotic and prokaryotic cells at the molecular level supported the conclusion that
  - (A) most eukaryotic organisms are unicellular
  - (B) complex cells have well-formed nuclei
  - (C) prokaryotes and eukaryotes form two fundamental categories
  - (D) subcellular structures are visible with a microscope
  - (E) prokaryotic and eukaryotic cells have similar enzymes
3. According to the passage, which of the following statements about the two-category hypothesis is likely to be true?
  - (A) It is promising because it explains the presence of true bacteria-like organisms such as organelles in eukaryotic cells.

- (B) It is promising because it explains why eukaryotic cells, unlike prokaryotic cells, tend to form multicellular organisms.
- (C) It is flawed because it fails to account for the great variety among eukaryotic organisms.
- (D) It is flawed because it fails to account for the similarity between prokaryotes and eukaryotes.
- (E) It is flawed because it fails to recognize an important distinction among prokaryotes.
4. It can be inferred from the passage that which of the following have recently been compared in order to clarify the fundamental classifications of living things?
- (A) The genetic coding in true bacteria and that in other prokaryotes
- (B) The organelle structures of archaeobacteria, true bacteria, and eukaryotes
- (C) The cellular structures of multicellular organisms and unicellular organisms
- (D) The molecular sequences in eukaryotic RNA, true bacterial RNA, and archaeobacterial RNA
- (E) The amino acid sequences in enzymes of various eukaryotic species and those of enzymes in archaeobacterial species
5. If the "new techniques" mentioned in line 31 were applied in studies of biological classifications other than bacteria, which of the following is most likely?
- (A) Some of those classifications will have to be reevaluated.
- (B) Many species of bacteria will be reclassified
- (C) It will be determined that there are four main categories of living things rather than three.
- (D) It will be found that true bacteria are much older than eukaryotes.
- (E) It will be found that there is a common ancestor of the eukaryotes, archaeobacteria, and true bacteria.
6. According to the passage, researchers working under the two-category hypothesis were correct in thinking that
- (A) prokaryotes form a coherent group
- (B) the common ancestor of all living things had complex properties
- (C) eukaryotes are fundamentally different from true bacteria
- (D) true bacteria are just as complex as eukaryotes
- (E) ancestral versions of eukaryotic genes functioned differently from their modern counterparts.
7. All of the following statements are supported by the passage EXCEPT:
- (A) True bacteria form a distinct evolutionary group.
- (B) Archaeobacteria are prokaryotes that resemble true bacteria.
- (C) True bacteria and eukaryotes employ similar types of genetic coding.
- (D) True bacteria and eukaryotes are distinguishable at the subcellular level.
- (E) Amino acid sequences of enzymes are uniform for

eukaryotic and prokaryotic organisms.

8. The author's attitude toward the view that living things are divided into three categories is best described as one of
- (A) tentative acceptance
  - (B) mild skepticism
  - (C) limited denial
  - (D) studious oriticism
  - (E) whole hearted endorsement

### Passage 42

Excess inventory, a massive problem for many businesses, has several causes, some of which are unavoidable. Overstocks may accumulate through production overruns or errors. Certain styles and colors prove unpopular. With (5) some products—computers and software, toys, and books—last year's models are difficult to move even at huge discounts. Occasionally the competition introduces a better product. But in many cases the public's buying tastes simply change, leaving a manufacturer or distributor with (10) thousands (or millions) of items that the fickle public no longer wants.

One common way to dispose of this merchandise is to sell it to a liquidator, who buys as cheaply as possible and then resells the merchandise through catalogs, discount (15) stores, and other outlets. However, liquidators may pay less for the merchandise than it cost to make it. Another way to dispose of excess inventory is to dump it. The corporation takes a straight cost write-off on its taxes and hauls the merchandise to a landfill. Although it is hard to believe, (20) there is a sort of convoluted logic to this approach. It is perfectly legal, requires little time or preparation on the company's part, and solves the problem quickly. The drawback is the remote possibility of getting caught by the news media. Dumping perfectly useful products can turn into a (25) public relations nightmare. Children living in poverty are freezing and XYZ Company has just sent 500 new snow-suits to the local dump. Parents of young children are barely getting by and QPS Company dumps 1,000 cases of disposable diapers because they have slight imperfections. (30) The managers of these companies are not deliberately wasteful; they are simply unaware of all their alternatives. In 1976 the Internal Revenue Service provided a tangible incentive for businesses to contribute their products to charity. The new tax law allowed corporations to deduct the (35) cost of the product donated plus half the difference between cost and fair market selling price, with the proviso that deductions cannot exceed twice cost. Thus, the federal government sanctions—indeed, encourages—an above-cost federal tax deduction for companies that donate inventory to charity.

1. The author mentions each of the following as a cause of excess inventory EXCEPT
- (A) production of too much merchandise
  - (B) inaccurate forecasting of buyers' preferences
  - (C) unrealistic pricing policies
  - (D) products' rapid obsolescence
  - (E) availability of a better product

2. The passage suggests that which of the following is a kind of product that a liquidator who sells to discount stores would be unlikely to wish to acquire?
- (A) Furniture
  - (B) Computers
  - (C) Kitchen equipment
  - (D) Baby-care products
  - (E) Children's clothing
3. The passage provides information that supports which of the following statements?
- (A) Excess inventory results most often from insufficient market analysis by the manufacturer.
  - (B) Products with slight manufacturing defects may contribute to excess inventory.
  - (C) Few manufacturers have taken advantage of the changes in the federal tax laws.
  - (D) Manufacturers who dump their excess inventory are often caught and exposed by the news media.
  - (E) Most products available in discount stores have come from manufacturers' excess-inventory stock.
4. The author cites the examples in lines 25-29 most probably in order to illustrate
- (A) the fiscal irresponsibility of dumping as a policy for dealing with excess inventory
  - (B) the waste-management problems that dumping new products creates
  - (C) the advantages to the manufacturer of dumping as a policy
  - (D) alternatives to dumping explored by different companies
  - (E) how the news media could portray dumping to the detriment of the manufacturer's reputation
5. By asserting that manufacturers "are simply unaware" (line 31), the author suggests which of the following?
- (A) Manufacturers might donate excess inventory to charity rather than dump it if they knew about the provision in the federal tax code.
  - (B) The federal government has failed to provide sufficient encouragement to manufacturers to make use of advantageous tax policies.
  - (C) Manufacturers who choose to dump excess inventory are not aware of the possible effects on their reputation of media coverage of such dumping.
  - (D) The manufacturers of products disposed of by dumping are unaware of the needs of those people who would find the products useful.
  - (E) The manufacturers who dump their excess inventory are not familiar with the employment of liquidators to dispose of overstock.
6. The information in the passage suggests that which of the following, if true, would make donating excess inventory to charity less attractive to manufacturers than dumping?
- (A) The costs of getting the inventory to the charitable destination are greater than the above-cost tax

deduction.

- (B) The news media give manufacturers' charitable contributions the same amount of coverage that they give dumping.
  - (C) No straight-cost tax benefit can be claimed for items that are dumped.
  - (D) The fair-market value of an item in excess inventory is 1.5 times its cost.
  - (E) Items end up as excess inventory because of a change in the public's preferences.
7. Information in the passage suggests that one reason manufacturers might take advantage of the tax provision mentioned in the last paragraph is that
- (A) there are many kinds of products that cannot be legally dumped in a landfill
  - (B) liquidators often refuse to handle products with slight imperfections
  - (C) the law allows a deduction in excess of the cost of manufacturing the product
  - (D) media coverage of contributions of excess-inventory products to charity is widespread and favorable
  - (E) no tax deduction is available for products dumped or sold to a liquidator

#### Passage 43

Historians of women's labor in the United States at first largely disregarded the story of female service workers -women earning wages in occupations such as salesclerk, domestic servant, and office secretary. These historians (5) focused instead on factory work, primarily because it seemed so different from traditional, unpaid "women's work" in the home, and because the underlying economic forces of industrialism were presumed to be gender-blind and hence emancipatory in effect. Unfortunately, emanci- (10) pation has been less profound than expected, for not even industrial wage labor has escaped continued sex segregation in the workplace.

To explain this unfinished revolution in the status of women, historians have recently begun to emphasize the (15) way a prevailing definition of femininity often determines the kinds of work allocated to women, even when such allocation is inappropriate to new conditions. For instance, early textile-mill entrepreneurs, in justifying women's employment in wage labor, made much of the assumption (20) that women were by nature skillful at detailed tasks and patient in carrying out repetitive chores; the mill owners thus imported into the new industrial order hoary stereotypes associated with the homemaking activities they presumed to have been the purview of women. Because (25) women accepted the more unattractive new industrial tasks more readily than did men, such jobs came to be regarded as female jobs. And employers, who assumed that women's "real" aspirations were for marriage and family life, declined to pay women wages commensurate with those of (30) men. Thus many lower-skilled, lower-paid, less secure jobs came to be perceived as "female."

More remarkable than the origin has been the persistence of such sex segregation in twentieth-century industry. Once

an occupation came to be perceived as "female." employers (35) showed surprisingly little interest in changing that perception, even when higher profits beckoned. And despite the urgent need of the United States during the Second World War to mobilize its human resources fully, job segregation by sex characterized even the most important 40) war industries. Moreover, once the war ended, employers quickly returned to men most of the "male" jobs that women had been permitted to master.

1. According to the passage, job segregation by sex in the United States was
  - (A) greatly diminished by labor mobilization during the Second World War
  - (B) perpetuated by those textile-mill owners who argued in favor of women's employment in wage labor
  - (C) one means by which women achieved greater job security
  - (D) reluctantly challenged by employers except when the economic advantages were obvious
  - (E) a constant source of labor unrest in the young textile industry
2. According to the passage, historians of women's labor focused on factory work as a more promising area of research than service-sector work because factory work
  - (A) involved the payment of higher wages
  - (B) required skill in detailed tasks
  - (C) was assumed to be less characterized by sex segregation
  - (D) was more readily accepted by women than by men
  - (E) fitted the economic dynamic of industrialism better
3. It can be inferred from the passage that early historians of women's labor in the United States paid little attention to women's employment in the service sector of the economy because
  - (A) the extreme variety of these occupations made it very difficult to assemble meaningful statistics about them
  - (B) fewer women found employment in the service sector than in factory work
  - (C) the wages paid to workers in the service sector were much lower than those paid in the industrial sector
  - (D) women's employment in the service sector tended to be much more short-term than in factory work
  - (E) employment in the service sector seemed to have much in common with the unpaid work associated with homemaking
4. The passage supports which of the following statements about the early mill owners mentioned in the second paragraph?
  - (A) They hoped that by creating relatively unattractive "female" jobs they would discourage women from losing interest in marriage and family life.
  - (B) They sought to increase the size of the available labor force as a means to keep men's to keep men's wages low.
  - (C) They argued that women were inherently suited to



- do well in particular kinds of factory work.
- (D) They thought that factory work bettered the condition of women by emancipating them from dependence on income earned by men.
- (E) They felt guilty about disturbing the traditional division of labor in family.
5. It can be inferred from the passage that the "unfinished revolution" the author mentions in line 13 refers to the
- (A) entry of women into the industrial labor market
- (B) recognition that work done by women as homemakers should be compensated at rates comparable to those prevailing in the service sector of the economy
- (C) development of a new definition of femininity unrelated to the economic forces of industrialism
- (D) introduction of equal pay for equal work in all professions
- (E) emancipation of women wage earners from gender-determined job allocation
6. The passage supports which of the following statements about hiring policies in the United States?
- (A) After a crisis many formerly "male" jobs are reclassified as "female" jobs.
- (B) Industrial employers generally prefer to hire women with previous experience as homemakers.
- (C) Post-Second World War hiring policies caused women to lose many of their wartime gains in employment opportunity.
- (D) Even war industries during the Second World War were reluctant to hire women for factory work.
- (E) The service sector of the economy has proved more nearly gender-blind in its hiring policies than has the manufacturing sector.
7. Which of the following words best expresses the opinion of the author of the passage concerning the notion that women are more skillful than men in carrying out detailed tasks?
- (A) "patient" (line 21)
- (B) "repetitive" (line 21)
- (C) "hoary" (line 22)
- (D) "homemaking" (line 23)
- (E) "purview" (line 24)
8. Which of the following best describes the relationship of the final paragraph to the passage as a whole?
- (A) The central idea is reinforced by the citation of evidence drawn from twentieth-century history.
- (B) The central idea is restated in such a way as to form a transition to a new topic for discussion.
- (C) The central idea is restated and juxtaposed with evidence that might appear to contradict it.
- (D) A partial exception to the generalizations of the central idea is dismissed as unimportant.
- (E) Recent history is cited to suggest that the central idea's validity is gradually diminishing.

#### Passage 44

According to a recent theory, Archean-age gold-quartz vein systems were formed over two billion years ago from magmatic fluids that originated from molten granitelike bodies deep beneath the surface of the Earth. This theory is (5) contrary to the widely held view that the systems were deposited from metamorphic fluids, that is, from fluids that formed during the dehydration of wet sedimentary rocks. The recently developed theory has considerable practical importance. Most of the gold deposits discovered during (10) the original gold rushes were exposed at the Earth's surface and were found because they had shed trails of alluvial gold that were easily traced by simple prospecting methods. Although these same methods still lead to an occasional discovery, most deposits not yet discovered have gone (15) undetected because they are buried and have no surface expression.

The challenge in exploration is therefore to unravel the subsurface geology of an area and pinpoint the position of buried minerals. Methods widely used today include (20) analysis of aerial images that yield a broad geological overview; geophysical techniques that provide data on the magnetic, electrical, and mineralogical properties of the rocks being investigated; and sensitive chemical tests that are able to detect the subtle chemical halos that often (25) envelop mineralization. However, none of these high-technology methods are of any value if the sites to which they are applied have never mineralized, and to maximize the chances of discovery the explorer must therefore pay particular attention to selecting the ground formations most (30) likely to be mineralized. Such ground selection relies to varying degrees on conceptual models, which take into account theoretical studies of relevant factors.

These models are constructed primarily from empirical observations of known mineral deposits and from theories (35) of ore-forming processes. The explorer uses the models to identify those geological features that are critical to the formation of the mineralization being modeled, and then tries to select areas for exploration that exhibit as many of the critical features as possible.

1. The author is primarily concerned with
  - (A) advocating a return to an older methodology
  - (B) explaining the importance of a recent theory
  - (C) enumerating differences between two widely used methods
  - (D) describing events leading to a discovery
  - (E) challenging the assumptions on which a theory is based
2. According to the passage, the widely held view of Archean- age gold-quartz vein systems is that such systems
  - (A) were formed from metamorphic fluids
  - (B) originated in molten granitelike bodies
  - (C) were formed from alluvial deposits
  - (D) generally have surface expression
  - (E) are not discoverable through chemical tests

3. The passage implies that which of the following steps would be the first performed by explorers who wish to maximize their chances of discovering gold?
- (A) Surveying several sites known to have been formed more than two billion years ago
  - (B) Limiting exploration to sites known to have been formed from metamorphic fluid.
  - (C) Using an appropriate conceptual model to select a site for further exploration
  - (D) Using geophysical methods to analyze rocks over a broad area
  - (E) Limiting exploration to sites where alluvial gold has previously been found
4. Which of the following statements about discoveries of gold deposits is supported by information in the passage?
- (A) The number of gold discoveries made annually has increased between the time of the original gold rushes and the present.
  - (B) New discoveries of gold deposits are likely to be the result of exploration techniques designed to locate buried mineralization.
  - (C) It is unlikely that newly discovered gold deposits will ever yield as much as did those deposits discovered during the original gold rushes.
  - (D) Modern explorers are divided on the question of the utility of simple prospecting methods as a source of new discoveries of gold deposits.
  - (E) Models based on the theory that gold originated from magmatic fluids have already led to new discoveries of gold deposits.
5. It can be inferred from the passage that which of the following is easiest to detect?
- (A) A gold-quartz vein system originating in magmatic fluids
  - (B) A gold-quartz vein system originating in metamorphic fluids
  - (C) A gold deposit that is mixed with granite
  - (D) A gold deposit that has shed alluvial gold
  - (E) A gold deposit that exhibits chemical halos
6. The theory mentioned in line 1 relates to the conceptual models discussed in the passage in which of the following ways?
- (A) It may furnish a valid account of ore-forming processes, and, hence, can support conceptual models that have great practical significance.
  - (B) It suggests that certain geological formations, long believed to be mineralized, are in fact mineralized, thus confirming current conceptual models.
  - (C) It suggests that there may not be enough similarity across Archean-age gold-quartz vein systems to warrant the formulation of conceptual models.
  - (D) It corrects existing theories about the chemical halos of gold deposits, and thus provides a basis for correcting current conceptual models.

- (E) It suggests that simple prospecting methods still have a higher success rate in the discovery of gold deposits than do more modern methods.
7. According to the passage, methods of exploring for gold that are widely used today are based on which of the following facts?
- (A) Most of the Earth's remaining gold deposits are still molten.
- (B) Most of the Earth's remaining gold deposits are exposed at the surface.
- (C) Most of the Earth's remaining gold deposits are buried and have no surface expression.
- (D) Only one type of gold deposit warrants exploration, since the other types of gold deposits are found in regions difficult to reach.
- (E) Only one type of gold deposit warrants exploration, since the other types of gold deposits are unlikely to yield concentrated quantities of gold.
8. It can be inferred from the passage that the efficiency of model-based gold exploration depends on which of the following?
- I . The closeness of the match between the geological features identified by the model as critical and the actual geological features of a given area
- II . The degree to which the model chosen relies on empirical observation of known mineral deposits rather than on theories of ore-forming processes
- III. The degree to which the model chosen is based on an accurate description of the events leading to mineralization
- (A) I only
- (B) II only
- (C) I and II only
- (D) I and III only
- (E) I ,II and III

#### Passage 45

- While there is no blueprint for transforming a largely government-controlled economy into a free one, the experience of the United Kingdom since 1979 clearly shows one approach that works: privatization, in which (5) state-owned industries are sold to private companies. By 1979, the total borrowings and losses of state-owned industries were running at about t3 billion a year. By selling many of these industries, the government has decreased these borrowings and losses, gained over t34 (10) billion from the sales, and now receives tax revenues from the newly privatized companies. Along with a dramatically improved overall economy, the government has been able to repay 12.5 percent of the net national debt over a two-year period.
- (15) In fact, privatization has not only rescued individual industries and a whole economy headed for disaster, but has also raised the level of performance in every area. At British Airways and British Gas, for example, productivity per employee has risen by 20 percent. At associated

- (20) British Ports, labor disruptions common in the 1970's and early 1980's have now virtually disappeared. At British Telecom, there is no longer a waiting list—as there always was before privatization—to have a telephone installed. Part of this improved productivity has come about
- (25) because the employees of privatized industries were given the opportunity to buy shares in their own companies. They responded enthusiastically to the offer of shares; at British Aerospace, 89 percent of the eligible work force bought shares; at Associated British Ports, 90 percent; and at
- (30) British Telecom, 92 percent. When people have a personal stake in something, they think about it, care about it, work to make it prosper. At the National Freight Consortium, the new employee-owners grew so concerned about their company's profits that during wage negotiations they
- (35) actually pressed their union to lower its wage demands. Some economists have suggested that giving away free shares would provide a needed acceleration of the privatization process. Yet they miss Thomas Paine's point that "what we obtain too cheap we esteem too lightly." In
- (40) order for the far-ranging benefits of individual ownership to be achieved by owners, companies, and countries, employees and other individuals must make their own decisions to buy, and they must commit some of their own resources to the choice.

1. According to the passage, all of the following were benefits of privatizing state-owned industries in the United Kingdom EXCEPT:
  - (A) Privatized industries paid taxes to the government.
  - (B) The government gained revenue from selling state-owned industries.
  - (C) The government repaid some of its national debt.
  - (D) Profits from industries that were still state-owned increased.
  - (E) Total borrowings and losses of state-owned industries decreased.
2. According to the passage, which of the following resulted in increased productivity in companies that have been privatized?
  - (A) A large number of employees chose to purchase shares in their companies.
  - (B) Free shares were widely distributed to individual shareholders.
  - (C) The government ceased to regulate major industries.
  - (D) Unions conducted wage negotiations for employees.
  - (E) Employee-owners agreed to have their wages lowered.
3. It can be inferred from the passage that the author considers labor disruptions to be
  - (A) an inevitable problem in a weak national economy
  - (B) a positive sign of employee concern about a company
  - (C) a predictor of employee reactions to a company's offer to sell shares to them
  - (D) a phenomenon found more often in state-owned industries than in private companies
  - (E) a deterrent to high performance levels in an

industry

4. The passage supports which of the following statements about employees buying shares in their own companies?
- (A) At three different companies, approximately nine out of ten of the workers were eligible to buy shares in their companies.
  - (B) Approximately 90% of the eligible workers at three different companies chose to buy shares in their companies.
  - (C) The opportunity to buy shares was discouraged by at least some labor unions.
  - (D) Companies that demonstrated the highest productivity were the first to allow their employees the opportunity to buy shares.
  - (E) Eligibility to buy shares was contingent on employees' agreeing to increased work loads.
5. Which of the following statements is most consistent with the principle described in lines 30-32?
- (A) A democratic government that decides it is inappropriate to own a particular industry has in no way abdicated its responsibilities as guardian of the public interest.
  - (B) The ideal way for a government to protect employee interests is to force companies to maintain their share of a competitive market without government subsidies.
  - (C) The failure to harness the power of self-interest is an important reason that state-owned industries perform poorly.
  - (D) Governments that want to implement privatization programs must try to eliminate all resistance to the free-market system.
  - (E) The individual shareholder will reap only a minute share of the gains from whatever sacrifices he or she makes to achieve these gains.
6. Which of the following can be inferred from the passage about the privatization process in the United Kingdom?
- (A) It depends to a potentially dangerous degree on individual ownership of shares.
  - (B) It conforms in its most general outlines to Thomas Palne's prescription for business ownership.
  - (C) It was originally conceived to include some giving away of free shares.
  - (D) It has been successful, even though privatization has failed in other countries.
  - (E) It is taking place more slowly than some economists suggest is necessary.
7. The quotation in line 39 is most probably used to
- (A) counter a position that the author of the passage believes is incorrect
  - (B) state a solution to a problem described in the previous sentence
  - (C) show how opponents of the viewpoint of the author of the passage have supported their arguments
  - (D) point out a paradox contained in a controversial viewpoint
  - (E) present a historical maxim to challenge the principle

introduced in the third paragraph

#### Passage 46

As the economic role of multinational, global corporations expands, the international economic environment will be shaped increasingly not by governments or international institutions, but by the interaction between governments (5) and global corporations, especially in the United States, Europe, and Japan. A significant factor in this shifting world economy is the trend toward regional trading blocs of nations, which has a potentially large effect on the evolution of the world trading system. Two examples of (10) this trend are the United States-Canada Free Trade Agreement (FTA) and Europe 1992, the move by the European Community (EC) to dismantle impediments to the free flow of goods, services, capital, and labor among member states by the end of 1992. However, although (15) numerous political and economic factors were operative in launching the move to integrate the EC's markets, concern about protectionism within the EC does not appear to have been a major consideration. This is in sharp contrast to the FTA, the overwhelming reason for that bilateral initiative (20) was fear of increasing United States protectionism. Nonetheless, although markedly different in origin and nature, both regional developments are highly significant in that they will foster integration in the two largest and richest markets of the world, as well as provoke questions (25) about the future direction of the world trading system.

1. The primary purpose of the passage as a whole is to
  - (A) describe an initiative and propose its continuance
  - (B) chronicle a development and illustrate its inconsistencies
  - (C) identify a trend and suggest its importance
  - (D) summarize a process and question its significance
  - (E) report a phenomenon and outline its probable future
2. According to the passage, all of the following are elements of the shifting world economy EXCEPT
  - (A) an alteration in the role played by governments
  - (B) an increase in interaction between national governments and international regulatory institutions
  - (C) an increase in the formation of multinational trading alliances
  - (D) an increase in integration in the two richest markets of the world
  - (E) a fear of increasing United States protectionism
3. The passage suggests which of the following about global corporations?
  - (A) Their continued growth depends on the existence of a fully integrated international market.
  - (B) Their potential effect on the world market is a matter of ongoing concern to international institutions.
  - (C) They will have to assume quasi-governmental functions if current economic trends continue.
  - (D) They have provided a model of economic success for regional trading blocs.
  - (E) Their influence on world economics will continue to

increase

4. According to the passage, one similarity between the FTA and Europe 1992 is that they both
- (A) overcame concerns about the role of politics in the shifting world economy
  - (B) originated out of concern over unfair trade practices by other nations
  - (C) exemplify a trend toward regionalization of commercial markets.
  - (D) place the economic needs of the trading bloc ahead of those of the member nations
  - (E) help to ensure the continued economic viability of the world community
5. Which of the following can be inferred from the passage about the European Community prior to the adoption of the Europe 1992 program?
- (A) There were restrictions on commerce between the member nations.
  - (B) The economic policies of the member nations focused on global trading issues.
  - (C) There were few impediments to trade between the member nations and the United States.
  - (D) The flow of goods between the member nations and Canada was insignificant.
  - (E) Relations between multinational corporations and the governments of the member nations were strained.
6. The author discusses the FTA and Europe 1992 most likely in order to
- (A) point out the similarities between two seemingly disparate trading alliances
  - (B) illustrate how different economic motivations produce different types of trading blocs
  - (C) provide contrasting examples of a trend that is influencing the world economy
  - (D) identify the most important characteristics of successful economic integration
  - (E) trace the history of regional trading blocs
7. Which of the following best describes the organization of the passage?
- (A) An argument is put forth and evidence for and against it given.
  - (B) An assertion is made and opposing evidence presented.
  - (C) Two hypotheses are described and shown to inconsistent with one another.
  - (D) A phenomenon is identified and illustrations of this phenomenon offered.
  - (E) A specific case of a phenomenon is discussed a generalization drawn.

#### Passage 47

In *Forces of Production*, David Noble examines the transformation of the machine-tool industry as the industry moved from reliance on skilled artisans to automation.



Noble writes from a Marxist perspective, and his central (5) argument is that management, in its decisions to automate, conspired against labor: the power that the skilled machinists wielded in the industry was intolerable to management. Noble fails to substantiate this claim, although his argument is impressive when he applies the Marxist concept of (10) "de-skilling"—the use of technology to replace skilled labor—to the automation of the machine-tool industry. In automating, the industry moved to computer-based, digitalized "numerical-control" (N/C) technology, rather than to artisan-generated "record-playback" (R/P) technology. (15) Although both systems reduced reliance on skilled labor, Noble clearly prefers R/P, with its inherent acknowledgment of workers' skills: unlike N/C, its programs were produced not by engineers at their computers, but by skilled machinists, who recorded their own movements to (20) "teach" machines to duplicate those movements. However, Noble's only evidence of conspiracy is that, although the two approaches were roughly equal in technical merit, management chose N/C. From this he concludes that automation is undertaken not because efficiency demands it OR (25) scientific advances allow it, but because it is a tool in the ceaseless war of capitalists against labor.

1. The author of the passage is primarily concerned with
  - (A) reexamining a political position and defending its validity
  - (B) examining a management decision and defending its necessity
  - (C) analyzing a scholarly study and pointing out a central weakness
  - (D) explaining a trend in automation and warning about its dangers
  - (E) chronicling the history of an industry and criticizing its development
2. According to information in the passage, the term "de-skilling" refers to the
  - (A) loss of skills to industry when skilled workers are replaced by unskilled laborers
  - (B) substitution of mechanized processes for labor formerly performed by skilled workers
  - (C) labor theory that automation is technologically comparable to skilled labor
  - (D) process by which skilled machinists "teach" machines to perform certain tasks
  - (E) exclusion of skilled workers from participation in the development of automated technology
3. Which of the following best characterizes the function of the second paragraph of the passage?
  - (A) It develops a topic introduced in the first paragraph.
  - (B) It provides evidence to refute a claim presented in the first paragraph.
  - (C) It gives examples of a phenomenon mentioned in the first paragraph.
  - (D) It presents a generalization about examples given in the first paragraph.
  - (E) It suggests two possible solutions to a problem presented in the first paragraph.

4. The passage suggests which of the following about N automation in the machine-tool industry?
- (A) It displaced fewer skilled workers than R/P automation did.
  - (B) It could have been implemented either by experienced machinists or by computer engineers.
  - (C) It was designed without the active involvement skilled machinists.
  - (D) It was more difficult to design than R/P automation was.
  - (E) It was technically superior to R/P automation.
5. Which of the following phrases most clearly reveals the attitude of the author of the passage toward Noble's central argument?
- (A) "conspired against" (line 6)
  - (B) "intolerable to management" (line 7)
  - (C) "impressive when he applies the Marxist concept" (line 9)
  - (D) "clearly prefers" (line 16)
  - (E) "only evidence of conspiracy" (line 21)
6. The author of the passage commends Noble's book for which of the following?
- (A) Concentrating on skilled as opposed to unskilled workers in its discussion of the machine-tool industry
  - (B) Offering a generalization about the motives behind the machine-tool industry's decision to automate
  - (C) Making an essential distinction between two kinds of technology employed in the machine-tool industry
  - (D) Calling into question the notion that managers conspired against labor in the automation of the machine-tool industry
  - (E) Applying the concept of de-skilling to the machine-tool industry
7. Which of the following best characterizes *Forces of Production* as it is described in the passage?
- (A) A comparison of two interpretations of how a particular industry evolved
  - (B) An examination of the origin of a particular concept in industrial economics
  - (C) A study that points out the weakness of a particular interpretation of an industrial phenomenon
  - (D) A history of a particular industry from an ideological point of view
  - (E) An attempt to relate an industrial phenomenon in one industry to a similar phenomenon in another industry

#### Passage 48

The sensation of pain cannot accurately be described as "located" at the point of an injury, or, for that matter, in any one place in the nerves or brain. Rather, pain signals—and pain relief—are delivered through a highly (5) complex interacting circuitry.

When a cell is injured, a rush of prostaglandin's

sensitizes nerve endings at the injury. Prostaglandins are chemicals produced in and released from virtually all mammalian cells when they are injured: these are the only (10) pain signals that do not originate in the nervous system. Aspirin and other similar drugs (such as indomethacin and ibuprofen) keep prostaglandins from being made by interfering with an enzyme known as prostaglandin synthetase, or cyclooxygenase. The drugs' effectiveness against pain is (15) proportional to their success in blocking this enzyme at the site of injury.

From nerve endings at the injury, pain signals move to nerves feeding into the spinal cord. The long, tubular membranes of nerve cells carry electrical impulses. When (20) electrical impulses get to the spinal cord, a pain-signaling chemical known as substance P is released there.

Substance P then excites nearby neurons to send impulses to the brain. Local anesthetics such as novocaine and xylocaine work by blocking the electrical transmission (25) along nerves in a particular area. They inhibit the flow of sodium ions through the membranes, making the nerves electrically quiescent; thus no pain signals are sent to the spinal cord or to the brain.

Recent discoveries in the study of pain have involved (30) the brain itself—the supervising organ that notices pain signals and that sends messages down to the spinal cord to regulate incoming pain traffic. Endorphins—the brain's own morphine—are a class of small peptides that help to block pain signals within the brain itself. The presence (35) of endorphins may also help to explain differences in response to pain signals, since individuals seem to differ in their ability to produce endorphins. It now appears that a number of techniques for blocking chronic pain—such as acupuncture and electrical stimulation of the central (40) brain stem—involve the release of endorphins in the brain and spinal cord.

1. The passage is primarily concerned with
  - (A) analyzing ways that enzymes and other chemicals influence how the body feels pain
  - (B) describing the presence of endorphins in the brain and discussing ways the body blocks pain within the brain itself.
  - (C) describing how pain signals are conveyed in the body and discussing ways in which the pain signals can be blocked
  - (D) demonstrating that pain can be influenced by acupuncture and electrical stimulation of the central brain stem.
  - (E) differentiating the kinds of pain that occur at different points in the body's nervous system.
2. According to the passage, which of the following is one of the first things to occur when cells are injured?
  - (A) The flow of electrical impulses through nerve cells at the site of the injury is broken.
  - (B) The production of substance P traveling through nerve cells to the brain increases.
  - (C) Endorphins begin to speed up the response of nerve cells at the site of the injury.
  - (D) A flood of prostaglandins sensitizes nerve endings at

- the site of the injury.
- (E) Nerve cells connected to the spinal cord become electrically quiescent.
3. Of the following, which is most likely attributable to the effect of endorphins as described in the passage?
- (A) After an injection of novocaine, a patient has no feeling in the area where the injection was given.
- (B) After taking ibuprofen, a person with a headache gets quick relief.
- (C) After receiving a local anesthetic, an injured person reports relief in the anestherized area.
- (D) After being given aspirin, a child with a badly scraped elbow feels better.
- (E) After acupuncture, a patient with chronic back pain reports that the pain is much less severe.
4. It can be inferred from the passage that if the prostaglandin synthetase is only partially blocked, which of the following is likely to be true?
- (A) Some endorphins will be produced, and some pain signals will be intensified.
- (B) Some substance P is likely to be produced, so some pain signals will reach the brain.
- (C) Some sodium ions will be blocked, so some pain signals will not reach the brain.
- (D) Some prostaglandins will be produced, but production of substance P will be prevented.
- (E) Some peptides in the brain will receive pain signals and begin to regulate incoming pain traffic.

#### Passage 49

Traditionally, the first firm to commercialize a new technology has benefited from the unique opportunity to shape product definitions, forcing followers to adapt to a standard or invest in an unproven alternative. Today, how-

(5) ever, the largest payoffs may go to companies that lead in developing integrated approaches for successful mass production and distribution.

Producers of the Beta format for videocassette recorders (VCR's), for example, were first to develop the VCR com-

(10) mercially in 1975, but producers of the rival VHS (Video Home System) format proved to be more successful at forming strategic alliances with other producers and distributors to manufacture and market their VCR format

Seeking to maintain exclusive control over VCR distri-

(15) bution. Beta producers were reluctant to form such alliances and eventually lost ground to VHS in the competition for the global VCR market.

Despite Beta's substantial technological head start and the fact that VHS was neither technically better nor cheaper

(20) than Beta, developers of VHS quickly turned a slight early lead in sales into a dominant position. Strategic alignments with producers of prerecorded tapes reinforced the VHS advantage. The perception among consumers that prerecorded tapes were more available in VHS format further

(25) expanded VHS's share of the market. By the end of the 1980's. Beta was no longer in production.

1. The passage is primarily concerned with which of the following?
  - (A) Evaluating two competing technologies
  - (B) Tracing the impact of a new technology by narrating a sequence of events
  - (C) Reinterpreting an event from contemporary business history
  - (D) illustrating a business strategy by means of a case history
  - (E) Proposing an innovative approach to business planning
  
2. According to the passage, today's successful firms, unlike successful firms in the past, may earn the greatest profits by
  - (A) investing in research to produce cheaper versions of existing technology
  - (B) being the first to market a competing technology
  - (C) adapting rapidly to a technological standard previously set by a competing firm
  - (D) establishing technological leadership in order to shape product definitions in advance of competing firms.
  - (E) emphasizing the development of methods for the mass production and distribution of a new technology.
  
3. According to the passage, consumers began to develop a preference for VCR's in the VHS format because they believed which of the following?
  - (A) VCR's in the VHS format were technically better than competing-format VCR's.
  - (B) VCR's in the VHS format were less expensive than competing-format VCR's.
  - (C) VHS was the first standard format for VCR's.
  - (D) VHS prerecorded videotapes were more available than Beta-format tapes.
  - (E) VCR's in the Beta format would soon cease to be produced.
  
4. The author implies that one way that VHS producers won control over the VCR market was by
  - (A) carefully restricting access to VCR technology
  - (B) giving up a slight early lead in VCR sales in order to improve long-term prospects.
  - (C) retaining a strict monopoly on the production of prerecorded videotapes.
  - (D) sharing control of the marketing of VHS-format VCR's
  - (E) sacrificing technological superiority over Betaformat VCR's in order to remain competitive in price.
  
5. The alignment of producers of VHS-format VCR's with producers of prerecorded videotapes is most similar to which of the following?
  - (A) The alignment of an automobile manufacturer with another automobile manufacturer to adopt a standard design for automobile engines.
  - (B) The alignment of an automobile manufacturer with an automotive glass company whereby the

- manufacturer agrees to purchase automobile windshields only from that one glass company
- (C) The alignment of an automobile manufacturer with a petroleum company to ensure the widespread availability of the fuel required by a new type of engine developed by the manufacturer.
- (D) The alignment of an automobile manufacturer with its dealers to adopt a plan to improve automobile design.
- (E) The alignment of an automobile dealer with an automobile rental chain to adopt a strategy for an advertising campaign to promote a new type of automobile
6. Which of the following best describes the relation of the first paragraph to the passage as a whole?
- (A) It makes a general observation to be exemplified.
- (B) It outlines a process to be analyzed.
- (C) It poses a question to be answered.
- (D) It advances an argument to be disputed.
- (E) It introduces conflicting arguments to be reconciled.

### Passage 50

- Australian researchers have discovered electroreceptors (sensory organs designed to respond to electrical fields) clustered at the tip of the spiny anteater's snout. The researchers made this discovery by exposing small areas of
- (5) the snout to extremely weak electrical fields and recording the transmission of resulting nervous activity to the brain. While it is true that tactile receptors, another kind of sensory organ on the anteater's snout, can also respond to electrical stimuli, such receptors do so only in response to
- (10) electrical field strengths about 1,000 times greater than those known to excite electroreceptors. Having discovered the electroreceptors, researchers are now investigating how anteaters utilize such a sophisticated sensory system. In one behavioral experiment, researchers
- (15) successfully trained an anteater to distinguish between two troughs of water, one with a weak electrical field and the other with none. Such evidence is consistent with researchers' hypothesis that anteaters use electroreceptors to detect electrical signals given off by prey; however,
- (20) researchers as yet have been unable to detect electrical signals emanating from termite mounds, where the favorite food of anteaters live. Still, researchers have observed anteaters breaking into a nest of ants at an oblique angle and quickly locating nesting chambers. This ability quickly
- (25) to locate unseen prey suggests, according to the researchers, that the anteaters were using their electroreceptors to locate the nesting chambers.
1. According to the passage, which of the following is a characteristic that distinguishes electroreceptors from tactile receptors?
- (A) The manner in which electroreceptors respond to electrical stimuli
- (B) The tendency of electroreceptors to be found in clusters
- (C) The unusual locations in which electroreceptors are

- found in most species.
- (D) The amount of electrical stimulation required to excite electroreceptors
- (E) The amount of nervous activity transmitted to the brain by electroreceptors when they are excited
2. Which of the following can be inferred about the experiment described in the first paragraph?
- (A) Researchers had difficulty verifying the existence of electroreceptors in the anteater because electroreceptors respond to such a narrow range of electrical field strengths.
- (B) Researchers found that the level of nervous activity in the anteater's brain increased dramatically as the strength of the electrical stimulus was increased.
- (C) Researchers found that some areas of the anteater's snout were not sensitive to a weak electrical stimulus.
- (D) Researchers found that the anteater's tactile receptors were more easily excited by a strong electrical stimulus than were the electro receptors..
- (E) Researchers tested small areas of the anteater's snout in order to ensure that only electroreceptors were responding to the stimulus.
3. The author of the passage most probably discusses the function of tactile receptors (lines 7-11) in order to
- (A) eliminate and alternative explanation of anteaters' response to electrical stimuli
- (B) highlight a type of sensory organ that has a function identical to that of electroreceptors
- (C) point out a serious complication in the research on electroreceptors in anteaters.
- (D) suggest that tactile receptors assist electroreceptors in the detection of electrical signals.
- (E) introduce a factor that was not addressed in the research on electroreceptors in anteaters.
4. Which of the following can be inferred about anteaters from the behavioral experiment mentioned in the second paragraph?
- (A) They are unable to distinguish between stimuli detected by their electroreceptors and stimuli detected by their tactile receptors.
- (B) They are unable to distinguish between the electrical signals emanating from termite mounds and those emanating from ant nests.
- (C) They can be trained to recognize consistently the presence of a particular stimulus.
- (D) They react more readily to strong than to weak stimuli.
- (E) They are more efficient at detecting stimuli in a controlled environment than in a natural environment.
5. The passage suggests that the researchers mentioned in the second paragraph who observed anteaters break into a nest of ants would most likely agree with which of the following statements?
- (A) The event they observed provides conclusive

- evidence that anteaters use their electroreceptors to locate unseen prey.
- (B) The event they observed was atypical and may not reflect the usual hunting practices of anteaters.
  - (C) It is likely that the anteaters located the ants' nesting chambers without the assistance of electroreceptors.
  - (D) Anteaters possess a very simple sensory system for use in locating prey.
  - (E) The speed with which the anteaters located their prey is greater than what might be expected on the basis of chance alone.
6. Which of the following, if true, would most strengthen the hypothesis mentioned in lines 17-19?
- (A) Researchers are able to train anteaters to break into an underground chamber that is emitting a strong electrical signal.
  - (B) Researchers are able to detect a weak electrical signal emanating from the nesting chamber of an ant colony.
  - (C) Anteaters are observed taking increasingly longer amounts of time to locate the nesting chambers of ants.
  - (D) Anteaters are observed using various angles to break into nests of ants.
  - (E) Anteaters are observed using the same angle used with nests of ants to break into the nests of other types of prey.

### Passage 51

- When A. Philip Randolph assumed the leadership of the Brotherhood of Sleeping Car Porters, he began a ten-year battle to win recognition from the Pullman Company, the largest private employer of Black people in the United States and the company that controlled the railroad industry's sleeping car and parlor service. In 1935 the Brotherhood became the first Black union recognized by a major corporation. Randolph's efforts in the battle helped transform the attitude of Black workers toward unions and toward themselves as an identifiable group; eventually, Randolph helped to weaken organized labor's antagonism toward Black workers.

- In the Pullman contest Randolph faced formidable obstacles. The first was Black workers' understandable skepticism toward unions, which had historically barred Black workers from membership. An additional obstacle was the union that Pullman itself had formed, which weakened support among Black workers for an independent entity.
- (15) (20) The Brotherhood possessed a number of advantages, however, including Randolph's own tactical abilities. In 1928 he took the bold step of threatening a strike against Pullman. Such a threat, on a national scale, under Black leadership, helped replace the stereotype of the Black worker as servant with the image of the Black worker as wage earner. In addition, the porters' very isolation aided the Brotherhood. Porters were scattered throughout the country, sleeping in dormitories in Black communities; their segregated life protected the union's internal
  - (25)



- (30) communications from interception. That the porters were a homogeneous group working for a single employer with single labor policy, thus sharing the same grievances from city to city, also strengthened the Brotherhood and encouraged racial identity and solidarity as well. But it was only
- (35) in the early 1930's that federal legislation prohibiting a company from maintaining its own unions with company money eventually allowed the Brotherhood to become recognized as the porters' representative.

Not content with this triumph, Randolph brought the

(40) Brotherhood into the American Federation of Labor, where it became the equal of the Federation's 105 other unions. He reasoned that as a member union, the Brotherhood would be in a better position to exert pressure on member unions that practiced race restrictions. Such restrictions were eventually found unconstitutional in 1944.

1. According to the passage, by 1935 the skepticism of Black workers toward unions was
  - (A) unchanged except among Black employees of railroad-related industries.
  - (B) reinforced by the actions of the Pullman Company's union
  - (C) mitigated by the efforts of Randolph
  - (D) weakened by the opening up of many unions to Black workers.
  - (E) largely alleviated because of the policies of the American Federation of Labor.
2. In using the word "understandable" (line 14), the author most clearly conveys
  - (A) sympathy with attempts by the Brotherhood between 1925 and 1935 to establish an independent union.
  - (B) concern that the obstacles faced by Randolph between 1925 and 1935 were indeed formidable
  - (C) ambivalence about the significance of unions to most Black workers in the 1920's.
  - (D) appreciation of the attitude of many Black workers in the 1920's toward unions.
  - (E) regret at the historical attitude of unions toward Black workers.
3. The passage suggests which of the following about the response of porters to the Pullman Company's own union?
  - (A) Few porters ever joined this union.
  - (B) Some porters supported this union before 1935.
  - (C) Porters, more than other Pullman employees, enthusiastically supported this union.
  - (D) The porters' response was most positive after 1935.
  - (E) The porters' response was unaffected by the general skepticism of Black workers concerning unions.
4. The passage suggests that if the grievances of porters in one part of the United States had been different from those of porters in another part of the country, which of the following would have been the case?
  - (A) It would have been more difficult for the Pullman Company to have had a single labor policy.

- (B) It would have been more difficult for the Brotherhood to control its channels of communication.
  - (C) It would have been more difficult for the Brotherhood to build its membership.
  - (D) It would have been easier for the Pullman Company's union to attract membership.
  - (E) It would have been easier for the Brotherhood to threaten strikes.
5. The passage suggests that in the 1920's a company in the United States was able to
- (A) use its own funds to set up a union
  - (B) require its employees to join the company's own union
  - (C) develop a single labor policy for all its employees with little employee dissent.
  - (D) pressure its employees to contribute money to maintain the company's own union
  - (E) use its resources to prevent the passage of federal legislation that would have facilitated the formation of independent unions.
6. The passage supplies information concerning which of the following matters related to Randolph?
- (A) The steps he took to initiate the founding of the Brotherhood
  - (B) His motivation for bringing the Brotherhood into the American Federation of Labor
  - (C) The influence he had on the passage of legislation overturning race restrictions in 1944
  - (D) The influence he had on the passage of legislation to bar companies from financing their own unions
  - (E) The success he and the Brotherhood had in influencing the policies of the other unions in the American Federation of Labor

### Passage 52

- Seeking a competitive advantage, some professional service firms (for example, firms providing advertising, accounting, or health care services) have considered offering unconditional guarantees of satisfaction. Such
- (5) guarantees specify what clients can expect and what the firm will do if it fails to fulfill these expectations. Particularly with first-time clients, an unconditional guarantee can be an effective marketing tool if the client is very cautious, the firm's fees are high, the
  - (10) negative consequences of bad service are grave, or business is difficult to obtain through referrals and word-of-mouth.
- However, an unconditional guarantee can sometimes hinder marketing efforts. With its implication that fail-
- (15) ure is possible, the guarantee may, paradoxically, cause clients to doubt the service firm's ability to deliver the promised level of service. It may conflict with a firm's desire to appear sophisticated, or may even suggest that a firm is begging for business. In legal and health care
  - (20) services, it may mislead clients by suggesting that lawsuits or medical procedures will have guaranteed out-

comes. Indeed, professional service firms with outstanding reputations and performance to match have little to gain from offering unconditional guarantees. And any firm (25) that implements an unconditional guarantee without undertaking a commensurate commitment to quality of service is merely employing a potentially costly marketing gimmick.

1. The primary function of the passage as a whole is to
  - (A) account for the popularity of a practice
  - (B) evaluate the utility of a practice
  - (C) demonstrate how to institute a practice
  - (D) weigh the ethics of using a strategy
  - (E) explain the reasons for pursuing a strategy
  
2. All of the following are mentioned in the passage as circumstances in which professional service firms can benefit from offering an unconditional guarantee EXCEPT:
  - (A) The firm is having difficulty retaining its clients of long standing.
  - (B) The firm is having difficulty getting business through client recommendations.
  - (C) The firm charges substantial fees for its services.
  - (D) The adverse effects of poor performance by the firm are significant for the client.
  - (E) The client is reluctant to incur risk.
  
3. Which of the following is cited in the passage as a goal of some professional service firms in offering unconditional guarantees of satisfaction?
  - (A) A limit on the firm's liability
  - (B) Successful competition against other firms
  - (C) Ability to justify fee increases
  - (D) Attainment of an outstanding reputation in a field
  - (E) Improvement in the quality of the firm's service
  
4. The passage's description of the issue raised by unconditional guarantees for health care or legal services most clearly implies that which of the following is true?
  - (A) The legal and medical professions have standards of practice that would be violated by attempts to fulfill such unconditional guarantees.
  - (B) The result of a lawsuit of medical procedure cannot necessarily be determined in advance by the professionals handling a client's case.
  - (C) The dignity of the legal and medical professions is undermined by any attempts at marketing of professional services, including unconditional guarantees.
  - (D) Clients whose lawsuits or medical procedures have unsatisfactory outcomes cannot be adequately compensated by financial settlements alone.
  - (E) Predicting the monetary cost of legal or health care services is more difficult than predicting the monetary cost of other types of professional services.
  
5. Which of the following hypothetical situations best

exemplifies the potential problem noted in the second sentence of the second paragraph (lines 14-17)?

- (A) A physician's unconditional guarantee of satisfaction encourages patients to sue for malpractice if they are unhappy with the treatment they receive.
  - (B) A lawyer's unconditional guarantee of satisfaction makes clients suspect that the lawyer needs to find new clients quickly to increase the firm's income.
  - (C) A business consultant's unconditional guarantee of satisfaction is undermined when the consultant fails to provide all of the services that are promised.
  - (D) An architect's unconditional guarantee of satisfaction makes clients wonder how often the architect's buildings fail to please clients.
  - (E) An accountant's unconditional guarantee of satisfaction leads clients to believe that tax returns prepared by the accountant are certain to be accurate.
6. The passage most clearly implies which of the following about the professional service firms mentioned in line 22?
- (A) They are unlikely to have offered unconditional guarantees of satisfaction in the past.
  - (B) They are usually profitable enough to be able to compensate clients according to the terms of an unconditional guarantee.
  - (C) They usually practice in fields in which the outcomes are predictable.
  - (D) Their fees are usually more affordable than those charged by other professional service firms.
  - (E) Their clients are usually already satisfied with the quality of service that is delivered.

### Passage 53

- Although genetic mutations in bacteria and viruses can lead to epidemics, some epidemics are caused by bacteria and viruses that have undergone no significant genetic change. In analyzing the latter, scientists have
- (5) discovered the importance of social and ecological factors to epidemics. Poliomyelitis, for example, emerged as an epidemic in the United States in the twentieth century; by then, modern sanitation was able to delay exposure to polio until adolescence or adulthood, at
  - (10) which time polio infection produced paralysis. Previously, infection had occurred during infancy, when it typically provided lifelong immunity without paralysis. Thus, the hygiene that helped prevent typhoid epidemics indirectly fostered a paralytic polio epidemic. Another
  - (15) example is Lyme disease, which is caused by bacteria that are transmitted by deer ticks. It occurred only sporadically during the late nineteenth century but has recently become prevalent in parts of the United States, largely due to an increase in the deer population that
  - (20) occurred simultaneously with the growth of the suburbs and increased outdoor recreational activities in the deer's habitat. Similarly, an outbreak of dengue hemor-

rhagic fever became an epidemic in Asia in the 1950's because of ecological changes that caused *Aedes aegypti*, (25) the mosquito that transmits the dengue virus, to proliferate. The stage is now set in the United States for a dengue epidemic because of the inadvertent introduction and wide dissemination of another mosquito, *Aedes albopictus*.

1. The passage suggests that a lack of modern sanitation would make which of the following most likely to occur?
  - (A) An outbreak of Lyme disease
  - (B) An outbreak of dengue hemorrhagic fever
  - (C) An epidemic of typhoid
  - (D) An epidemic of paralytic polio among infants
  - (E) An epidemic of paralytic polio among adolescents and adults
2. According to the passage, the outbreak of dengue hemorrhagic fever in the 1950's occurred for which of the following reasons?
  - (A) The mosquito *Aedes aegypti* was newly introduced into Asia.
  - (B) The mosquito *Aedes aegypti* became more numerous.
  - (C) The mosquito *Aedes albopictus* became infected with the dengue virus.
  - (D) Individuals who would normally acquire immunity to the dengue virus as infants were not infected until later in life.
  - (E) More people began to visit and inhabit areas in which mosquitos live and breed.
3. It can be inferred from the passage that Lyme disease has become prevalent in parts of the United States because of which of the following?
  - (A) The inadvertent introduction of Lyme disease bacteria to the United States
  - (B) The inability of modern sanitation methods to eradicate Lyme disease bacteria
  - (C) A genetic mutation in Lyme disease bacteria that makes them more virulent
  - (D) The spread of Lyme disease bacteria from infected humans to noninfected humans
  - (E) An increase in the number of humans who encounter deer ticks
4. Which of the following can most reasonably be concluded about the mosquito *Aedes albopictus* on the basis of information given in the passage?
  - (A) It is native to the United States.
  - (B) It can proliferate only in Asia.
  - (C) It transmits the dengue virus.
  - (D) It caused an epidemic of dengue hemorrhagic fever in the 1950's.
  - (E) It replaced *Aedes aegypti* in Asia when ecological changes altered *Aedes aegypti's* habitat.
5. Which of the following best describes the organization of the passage?

- (A) A paradox is stated, discussed and left unresolved.
  - (B) Two opposing explanations are presented, argued, and reconciled.
  - (C) A theory is proposed and is then followed by descriptions of three experiments that support the theory.
  - (D) A generalization is stated and is then followed by three instances that support the generalization.
  - (E) An argument is described and is then followed by three counterexamples that refute the argument.
6. Which of the following, if true, would most strengthen the author's assertion about the cause of the Lyme disease outbreak in the United States?
- (A) The deer population was smaller in the late nineteenth century than in the mid-twentieth century.
  - (B) Interest in outdoor recreation began to grow in the late nineteenth century.
  - (C) In recent years the suburbs have stopped growing.
  - (D) Outdoor recreation enthusiasts routinely take measures to protect themselves against Lyme disease.
  - (E) Scientists have not yet developed a vaccine that can prevent Lyme disease.

#### Passage 54

Two modes of argumentation have been used on behalf of women's emancipation in Western societies. Arguments in what could be called the "relational" feminist tradition maintain the doctrine of "equality in difference," or equity as distinct for equality. They posit that biological distinctions between the sexes result in a necessary sexual division of labor in the family and throughout society and that women's procreative labor is currently undervalued by society, to the disadvantage of women. By contrast, the individualist feminist tradition emphasizes individual human rights and celebrates women's quest for personal autonomy, while downplaying the importance of gender roles and minimizing discussion of childbearing and its attendant responsibilities.

Before the late nineteenth century, these views coexisted within the feminist movement, often within the writings of the same individual. Between 1890 and 1920, however, relational feminism, which had been the dominant strain in feminist thought, and which still predominates among European and non-Western feminists, lost ground in England and the United States. Because the concept of individual rights was already well established in the Anglo-Saxon legal and political tradition, individualist feminism came to predominate in English-speaking countries. At the same time, the goals of the two approaches began to seem increasingly irreconcilable. Individualist feminists began to advocate a totally gender-blind system with equal rights for all. Relational feminists, while agreeing that equal educational and economic opportunities outside the home should be available for all women, continued to emphasize women's special contributions to society as homemakers and

mothers; they demanded special treatment  
(35) including protective legislation for women workers, state-sponsored maternity benefits, and paid compensation for housework.

Relational arguments have a major pitfall: because they underline women's physiological and psychological  
(40) distinctiveness, they are often appropriated by political adversaries and used to endorse male privilege. But the individualist approach, by attacking gender roles, denying the significance of physiological difference, and condemning existing familial institutions as hopelessly  
(45) patriarchal, has often simply treated as irrelevant the family roles important to many women. If the individualist framework, with its claim for women's autonomy, could be harmonized with the family-oriented concerns of relational feminists, a more fruitful model for con-  
(50) temporary feminist politics could emerge.

1. The author of the passage alludes to the well-established nature of the concept of individual rights in the Anglo-Saxon legal and political tradition in order to  
(A) illustrate the influence of individualist feminist thought on more general intellectual trends in English history  
(B) argue that feminism was already a part of the larger Anglo-Saxon intellectual tradition, even though this has often gone unnoticed by critics of women's emancipation.  
(C) explain the decline in individualist thinking among feminists in non-English-speaking countries  
(D) help account for an increasing shift toward individualist feminism among feminists in English-speaking countries.  
(E) account for the philosophical differences between individualist and relational feminists in English-speaking countries
2. The passage suggests that the author of the passage believes which of the following?  
(A) The predominance of individualist feminism in English-speaking countries is a historical phenomenon, the causes of which have not yet been investigated.  
(B) The individualist and relational feminist views are irreconcilable, given their theoretical differences concerning the foundations of society.  
(C) A consensus concerning the direction of future feminist politics will probably soon emerge, given the awareness among feminists of the need for cooperation among women.  
(D) Political adversaries of feminism often misuse arguments predicated on differences between the sexes to argue that the existing social system should be maintained.  
(E) Relational feminism provides the best theoretical framework for contemporary feminist politics, but individualist feminism could contribute much toward refining and strengthening modern feminist thought.

3. It can be inferred from the passage that the individualist feminist tradition denies the validity of which of the following causal statements?
- (A) A division of labor in a social group can result in increased efficiency with regard to the performance of group tasks.
  - (B) A division of labor in a social group causes inequities in the distribution of opportunities and benefits among group members.
  - (C) A division of labor on the basis of gender in a social group is necessitated by the existence of sex-linked biological differences between male and female members of the group.
  - (D) Culturally determined distinctions based on gender in a social group foster the existence of differing attitudes and opinions among group members.
  - (E) Educational programs aimed at reducing inequalities based on gender among members of a social group can result in a sense of greater well-being for all members of the group.
4. According to the passage, relational feminists and individualist feminists agree that
- (A) individual human rights take precedence over most other social claims
  - (B) the gender-based division of labor in society should be eliminated
  - (C) laws guaranteeing equal treatment for all citizens regardless of gender should be passed
  - (D) a greater degree of social awareness concerning the importance of motherhood would be beneficial to society
  - (E) the same educational and economic opportunities should be available to both sexes
5. According to the author, which of the following was true of feminist thought in Western societies before 1890?
- (A) Individualist feminist arguments were not found in the thought or writing of non-English-speaking feminists.
  - (B) Individualist feminism was a strain in feminist thought, but another strain, relational feminism, predominated.
  - (C) Relational and individualist approaches were equally prevalent in feminist thought and writing.
  - (D) The predominant view among feminists held that the welfare of women was ultimately less important than the welfare of children.
  - (E) The predominant view among feminists held that the sexes should receive equal treatment under the law.
6. The author implies that which of the following was true of most feminist thinkers in England and the United States after 1920?
- (A) They were less concerned with politics than with intellectual issues.
  - (B) They began to reach a broader audience and their programs began to be adopted by mainstream political parties.
  - (C) They called repeatedly for international cooperation among women's groups to achieve their goals.



- (D) They moderated their initial criticism of the economic systems that characterized their societies.
- (E) They did not attempt to unite the two different feminist approaches in their thought.

**Passage 55**

Some observers have attributed the dramatic growth in temporary employment that occurred in the United states during the 1980's to increased participation in the workforce by certain groups, such as first-time or

(5) reentering workers, who supposedly prefer such arrangements. However, statistical analyses reveal that demographic changes in the workforce did not correlate with variations in the total number of temporary workers. Instead, these analyses suggest that factors affecting

(10) employers account for the rise in temporary employment. One factor is product demand: temporary employment is favored by employers who are adapting to fluctuating demand for products while at the same time seeking to reduce overall labor costs. Another

(15) factor is labor's reduced bargaining strength, which allows employers more control over the terms of employment. Given the analyses, which reveal that growth in temporary employment now far exceeds the

(20) level explainable by recent workforce entry rates of groups said to prefer temporary jobs, firms should be discouraged from creating excessive numbers of temporary positions. Government policymakers should consider mandating benefit coverage for temporary employees, promoting pay equity between temporary

(25) and permanent workers, assisting labor unions in organizing temporary workers, and encouraging firms to assign temporary jobs primarily to employees who explicitly indicate that preference.

1. The primary purpose of the passage is to
  - (A) present the results of statistical analyses and propose further studies.
  - (B) explain a recent development and predict its eventual consequences.
  - (C) identify the reasons for a trend and recommend measures to address it.
  - (D) outline several theories about a phenomenon and advocate one of them
  - (E) describe the potential consequences of implementing a new policy and argue in favor of that policy.
2. According to the passage, which of the following is true of the "factors affecting employers" that are mentioned in lines 9-10?
  - (A) Most experts cite them as having initiated the growth in temporary employment that occurred during the 1980's.
  - (B) They may account for the increase in the total number of temporary workers during the 1980's.
  - (C) They were less important than demographic change in accounting for the increase of temporary employment during the 1980's.

- (D) They included a sharp increase in the cost of labor during the 1980's.
- (E) They are more difficult to account for than at other factors involved in the growth of temporary employment during the 1980's.
3. The passage suggests which of the following about the use of temporary employment by firms during the 1980's?
- (A) It enabled firms to deal with fluctuating product demand far more efficiently than they before the 1980's.
- (B) It increased as a result of increased participation in the workforce by certain demograp groups.
- (C) It was discouraged by government-mandated policies.
- (D) It was a response to preferences indicated by certain employees for more flexible working arrangements.
- (E) It increased partly as a result of workers' reduced ability to control the terms of their employment.
4. The passage suggests which of the following about the workers who took temporary jobs during the 1980's?
- (A) Their jobs frequently led to permanent positions within firms.
- (B) They constituted a less demographically diverse group than has been suggested.
- (C) They were occasionally involved in actions organized by labor unions.
- (D) Their pay declined during the decade in comparison with the pay of permanent employees.
- (E) They did not necessarily prefer temporary employment to permanent employment.
5. The first sentence in the passage suggests that the observers mentioned in line 1 would be most likely to predict which of the following?
- (A) That the number of new temporary positions would decline as fewer workers who preferred temporary employment entered the workforce.
- (B) That the total number of temporary positions would increase as fewer workers were able to find permanent positions
- (C) That employers would have less control over the terms of workers' employment as workers increased their bargaining strength.
- (D) That more workers would be hired for temporary positions as product demand increased.
- (E) That the number of workers taking temporary positions would increase as more workers in any given demographic group entered the workforce.
6. In the context of the passage, the word "excessive" (line 21) most closely corresponds to which of the following phrases?
- (A) Far more than can be justified by worker preferences
- (B) Far more than can be explained by fluctuations in product demand.
- (C) Far more than can be beneficial to the success of the

- firms themselves.
- (D) Far more than can be accounted for by an expanding national economy.
  - (E) Far more than can be attributed to increases in the total number of people in the workforce.
7. The passage mentions each of the following as an appropriate kind of governmental action EXCEPT
- (A) getting firms to offer temporary employment primarily to a certain group of people.
  - (B) encouraging equitable pay for temporary and permanent employees
  - (C) facilitating the organization of temporary workers by labor unions.
  - (D) establishing guidelines on the proportion of temporary workers that firms should employ
  - (E) ensuring that temporary workers obtain benefits from their employers.

### Passage 56

Although numbers of animals in a given region may fluctuate from year to year, the fluctuations are often temporary and, over long periods, trivial. Scientists have advanced three theories of population control to

(5) account for this relative constancy.

The first theory attributes a relatively constant population to periodic climatic catastrophes that decimate populations with such frequency as to prevent them from exceeding some particular limit. In the case of

(10) small organisms with short life cycles, climatic changes need not be catastrophic: normal seasonal changes in photoperiod (daily amount of sunlight), for example, can govern population growth. This theory---the density-independent view---asserts that climatic factors

(15) exert the same regulatory effect on population regardless of the number of individuals in a region.

A second theory argues that population growth is primarily density-dependent---that is, the rate of growth of a population in a region decreases as the

(20) number of animals increases. The mechanisms that manage regulation may vary. For example, as numbers increase, the food supply would probably diminish, which would increase mortality. In addition, as Lotka and Volterra have shown, predators can find prey more

(25) easily in high-density populations. Other regulators include physiological control mechanisms: for example. Christian and Davis have demonstrated how the crowding that results from a rise in numbers may bring about hormonal changes in the pituitary and adrenal

(30) glands that in turn may regulate population by lowering sexual activity and inhibiting sexual maturation. There is evidence that these effects may persist for three generations in the absence of the original provocation. One challenge for density-dependent theorists is to

(35) develop models that would allow the precise prediction of the effects of crowding.

A third theory, proposed by Wynne-Edwards and termed "epideictic," argues that organisms have evolved a "code" in the form of social or epideictic behavior

(40) displays, such as winter-roosting aggregations or group vocalizing; such codes provide organisms with information on population size in a region so that they can, if necessary, exercise reproductive restraint. However, Wynne-Edwards' theory, linking animal social behavior (45) and population control, has been challenged, with some justification, by several studies.

1. The primary purpose of the passage is to
  - (A) argue against those scientists who maintain that animal populations tend to fluctuate
  - (B) compare and contrast the density-dependent and epideictic theories of population control
  - (C) provide example of some of the ways in which animals exercise reproductive restraint to control their own numbers
  - (D) suggests that theories of population control that concentrate on the social behavior of animals are more open to debate than are theories that do not
  - (E) summarize a number of scientific theories that attempt to explain why animal populations do not exceed certain limits
  
2. It can be inferred from the passage that proponents of the density-dependent theory of population control have not yet been able to
  - (A) use their theory to explain the population growth of organisms with short life cycles
  - (B) reproduce the results of the study of Christian and Davis
  - (C) explain adequately why the numbers of a population can increase as the population's rate of growth decreases
  - (D) make sufficiently accurate predictions about the effects of crowding
  - (E) demonstrate how predator populations are themselves regulated
  
3. Which of the following, if true, would best support the density-dependent theory of population control as it is described in the passage?
  - (A) As the number of foxes in Minnesota decrease, the growth rate of this population of foxes begins to increase.
  - (B) As the number of woodpeckers in Vermont decreases, the growth rate of this population of woodpeckers also begins to decrease.
  - (C) As the number of prairie dogs in Oklahoma increases, the growth rate of this population of prairie dogs also begins to increase.
  - (D) After the number of beavers in Tennessee decreases, the number of predators of these beavers begins to increase.
  - (E) After the number of eagles in Montana decreases, the food supply of this population of eagles also begins to decrease.
  
4. According to the Wynne-Edwards theory as it is described in the passage, epideictic behavior displays serve the function of

- (A) determining roosting aggregations
  - (B) locating food
  - (C) attracting predators
  - (D) regulating sexual activity
  - (E) triggering hormonal changes
5. The challenge posed to the Wynne-Edwards-theory by several studies is regarded by the author with
- (A) complete indifference
  - (B) qualified acceptance
  - (C) skeptical amusement
  - (D) perplexed astonishment
  - (E) agitated dismay
6. Which of the following statements would provide the most of logical continuation of the final paragraph of the passage?
- (A) Thus wynne-Edwards' theory raises serious questions about the constancy of animal population in a region.
  - (B) Because Wynne-Edwards' theory is able to explain more kinds of animal behavior than is the density-dependent theory, epideictic explanations of population regulation are now widely accepted.
  - (C) The results of one study, for instance, have suggested that group vocalizing is more often used to defend territory than to provide information about population density.
  - (D) Some of these studies have, in fact, worked out a systematic and complex code of social behavior that can regulate population size.
  - (E) One study, for example, has demonstrated that birds are more likely to use winter-roosting aggregations than group vocalizing in order to provide information on population size.

### Passage 57

In recent years, teachers of introductory courses in Asian American studies have been facing a dilemma nonexistent a few decades ago, when hardly any texts in that field were available. Today, excellent anthologies and other introductory texts exist, and books on individual Asian American nationality groups and on general issues important for Asian Americans are published almost weekly. Even professors who are experts in the field find it difficult to decide which of these to assign to students; nonexperts who teach in related areas and are looking for writings for and by Asian American to include in survey courses are in an even worse position.

A complicating factor has been the continuing lack of specialized one-volume reference works on Asian Americans, such as biographical dictionaries or desktop encyclopedias. Such works would enable students taking Asian American studies courses (and professors in related fields) to look up basic information on Asian American individuals, institutions, history, and culture without having to wade through mountains of primary

source material. In addition, give such works, Asian American studies professors might feel more free to include more challenging Asian American material in (25) their introductory reading lists, since good reference works allow students to acquire on their own the background information necessary to interpret difficult or unfamiliar material.

1. The author of the passage is primarily concerned with doing which of the following?
  - (A) Recommending a methodology
  - (B) Describing a course of study
  - (C) Discussing a problem
  - (D) Evaluating a past course of action
  - (E) Responding to a criticism
  
2. The "dilemma" mentioned in line 2 can best be characterized as being caused by the necessity to make a choice when faced with a
  - (A) lack of acceptable alternatives
  - (B) lack of strict standards for evaluating alternatives
  - (C) preponderance of bad alternatives as compared to good
  - (D) multitude of different alternatives
  - (E) large number of alternatives that are nearly identical in content
  
3. The passage suggests that the factor mentioned in lines 14-17 complicates professors' attempts to construct introductory reading lists for courses in Asian American studies in which of the following ways?
  - (A) By making it difficult for professors to identify primary source material and to obtain standard information on Asian American history and culture
  - (B) By preventing professors from identifying excellent anthologies and introductory texts in the field that are both recent and understandable to students
  - (C) By preventing professors from adequately evaluating the quality of the numerous texts currently being published in the field
  - (D) Such courses were offered only at schools whose libraries were rich in primary sources.
  - (E) By making it more necessary for professors to select readings for their courses that are not too challenging for students unfamiliar with Asian American history and culture
  - (E) By making it more likely that the readings professors assign to students in their courses will be drawn solely from primary sources
  
4. The passage implies that which of the following was true of introductory courses in Asian American studies a few decades ago?
  - (A) The range of different textbooks that could be assigned for such courses was extremely limited.
  - (B) The texts assigned as readings in such courses were often not very challenging for students.
  - (C) Students often complained about the texts assigned to them in such courses.

- (D) Such courses were the only means then available by which people in the United States could acquire knowledge of the field.
5. According to the passage, the existence of good one-volume reference works about Asian Americans could result in
- (A) increased agreement among professors of Asian American studies regarding the quality of the sources available in their field
  - (B) an increase in the number of students signing up for introductory courses in Asian American studies
  - (C) increased accuracy in writings that concern Asian American history and culture
  - (D) the use of introductory texts about Asian American history and culture in courses outside the field of Asian American studies
  - (E) the inclusion of a wider range of Asian American material in introductory reading lists in Asian American studies

### Passage 58

In an attempt to improve the overall performance of clerical workers, many companies have introduced computerized performance monitoring and control systems (CPMCS) that record and report a worker's computer-driven activities. However, at least one study has shown that such monitoring may not be having the desired effect. In the study, researchers asked monitored clerical workers and their supervisors how assessments of productivity affected supervisors' ratings of workers' performance. In contrast to unmonitored workers doing the same work, who without exception identified the most important element in their jobs as customer service, the monitored workers and their supervisors all responded that productivity was the critical factor in assigning ratings. This finding suggested that there should have been a strong correlation between a monitored worker's productivity and the overall rating the worker received. However, measures of the relationship between overall rating and individual elements of performance clearly supported the conclusion that supervisors gave considerable weight to criteria such as attendance, accuracy, and indications of customer satisfaction.

It is possible that productivity may be a "hygiene factor." that is, if it is too low, it will hurt the overall rating. But the evidence suggests that beyond the point at which productivity becomes "good enough," higher productivity per se is unlikely to improve a rating.

1. According to the passage, before the final results of the study were known, which of the following seemed likely?
- (A) That workers with the highest productivity would also be the most accurate
  - (B) That workers who initially achieved high productivity ratings would continue to do so consistently
  - (C) That the highest performance ratings would be

- achieved by workers with the highest productivity
- (D) That the most productive workers would be those whose supervisors claimed to value productivity
- (E) That supervisors who claimed to value productivity would place equal value on customer satisfaction
2. It can be inferred that the author of the passage discusses "unmonitored workers"(line 10) primarily in order to
- (A) compare the ratings of these workers with the ratings of monitored workers
- (B) provide an example of a case in which monitoring might be effective
- (C) provide evidence of an inappropriate use of CPMCS
- (D) emphasize the effect that CPMCS may have on workers' perceptions of their jobs
- (E) illustrate the effect that CPMCS may have on workers' ratings
3. Which of the following, if true, would most clearly have supported the conclusion referred to in lines 19-21?
- (A) Ratings of productivity correlated highly with ratings of both accuracy and attendance.
- (B) Electronic monitoring greatly increased productivity.
- (C) Most supervisors based overall ratings of performance on measures of productivity alone.
- (D) Overall ratings of performance correlated more highly with measures of productivity than the researchers expected.
- (E) Overall ratings of performance correlated more highly with measures of accuracy than with measures of productivity.
4. According to the passage, a "hygiene factor" (lines 22-23) is an aspect of a worker's performance that
- (A) has no effect on the rating of a worker's performance
- (B) is so basic to performance that it is assumed to be adequate for all workers
- (C) is given less importance than it deserves in rating a worker's performance
- (D) if not likely to affect a worker's rating unless it is judged to be inadequate
- (E) is important primarily because of the effect it has on a worker's rating
5. The primary purpose of the passage is to
- (A) explain the need for the introduction of an innovative strategy
- (B) discuss a study of the use of a particular method
- (C) recommend a course of action
- (D) resolved a difference of opinion
- (E) suggest an alternative approach

### Passage 59

Schools expect textbooks to be a valuable source of information for students. My research suggests, however, that textbooks that address the place of Native Americans within the history of the United States distort history to suit



- (5) a particular cultural value system. In some textbooks, for example, settlers are pictured as more humane, complex, skillful, and wise than Native American. In essence, textbooks stereotype and deprecate the numerous Native American cultures while reinforcing the attitude that the
- (10) European conquest of the New World denotes the superiority of European cultures. Although textbooks evaluate Native American architecture, political systems, and home-making, I contend that they do it from an ethnocentric,
- (15) European perspective without recognizing that other perspectives are possible.

One argument against my contention asserts that, by nature, textbooks are culturally biased and that I am simply underestimating children's ability to see through these

(20) biases. Some researchers even claim that by the time students are in high school, they know they cannot take textbooks literally. Yet substantial evidence exists to the contrary. Two researchers, for example, have conducted studies that suggest that children's attitudes about particular

(25) culture are strongly influenced by the textbooks used in schools. Given this, an ongoing, careful review of how school textbooks depict Native American is certainly warranted.

1. Which of the following would most logically be the topic of the paragraph immediately following the passage?
  - (A) Specific ways to evaluate the biases of United States history textbooks
  - (B) The centrality of the teacher's role in United States history courses
  - (C) Nontraditional methods of teaching United States history
  - (D) The contributions of European immigrants to the development of the United States
  - (E) Ways in which parents influence children's political attitudes
2. The primary purpose of the passage is to
  - (A) describe in detail one research study regarding the impact of history textbooks on children's attitudes and beliefs about certain cultures
  - (B) describe revisions that should be made to United States history textbooks
  - (C) discuss the difficulty of presenting an accurate history of the United States
  - (D) argue that textbooks used in schools stereotype Native Americans and influence children's attitudes
  - (E) summarize ways in which some textbooks give distorted pictures of the political systems developed by various Native American groups
3. The author mentions two researchers' studies (lines 22-25) most likely in order to
  - (A) suggest that children's political attitudes are formed primarily through textbooks
  - (B) counter the claim that children are able to see through stereotypes in textbooks
  - (C) suggest that younger children tend to interpret the messages in textbooks more literally than do older

- children
- (D) demonstrate that textbooks carry political messages meant to influence their readers
- (E) prove that textbooks are not biased in terms of their political presentations
4. The author's attitude toward the content of the history textbooks discussed in the passage is best described as one of
- (A) indifference
- (B) hesitation
- (C) neutrality
- (D) amusement
- (E) disapproval
5. It can be inferred from the passage that the researchers mentioned in line 19 would be most likely to agree with which of the following statements?
- (A) Students form attitudes about cultures other than their own primarily inside the school environment.
- (B) For the most part, seniors in high school know that textbooks can be biased.
- (C) Textbooks play a crucial role in shaping the attitudes and beliefs of students.
- (D) Elementary school students are as likely to recognize biases in textbooks as are high school students.
- (E) Students are less likely to give credence to history textbooks than to mathematics textbooks.
6. The author implies that which of the following will occur if textbooks are not carefully reviewed?
- (A) Children will remain ignorant of the European settlers' conquest of the New World.
- (B) Children will lose their ability to recognize biases in textbooks.
- (C) Children will form negative stereotypes of Native Americans.
- (D) Children will develop an understanding of ethnocentrism.
- (E) Children will stop taking textbooks seriously.

#### Passage 60

- Until recently, scientists did not know of a close vertebrate analogue to the extreme form of altruism observed in eusocial insects like ants and bees, whereby individuals cooperate, sometimes even sacrificing their own opportunities to survive and reproduce, for the good of others.

However, such a vertebrate society may exist among underground colonies of the highly social rodent *Heterocephalus glaber*, the naked mole rat.

- A naked mole rat colony, like a beehive, wasp's nest, or termite mound, is ruled by its queen, or reproducing female. Other adult female mole rats neither ovulate nor breed. The queen of the largest member of the colony, and she maintains her breeding status through a mixture of behavioral and, presumably, chemical control. Queens have been long-lived in captivity, and when they die or are removed from a colony one sees violent fighting for breeding status among the larger remaining females, leading to a takeover by a new queen.

Eusocial insect societies have rigid caste systems, each  
(20) insects's role being defined by its behavior, body shape, and  
physiology. In naked mole rat societies, on the other hand,  
differences in behavior are related primarily to reproductive  
status (reproduction being limited to the queen and a few  
males), body size, and perhaps age. Smaller nonbreeding  
(25) members, both male and female, seem to participate pri-  
marily in gathering food, transporting nest material, and  
tunneling. Larger nonreaders are active in defending the  
colony and perhaps in removing dirt from the tunnels.  
Jarvis' work has suggested that differences in growth rates  
may influence the length of time that an individual performs  
(30) a task, regardless of its age.

Cooperative breeding has evolved many times in verte-  
brates, but unlike naked mole rats, most cooperatively  
breeding vertebrates (except the wild dog, *Lycaon pictus*)  
(35) are dominated by a pair of breeders rather than by a single  
breeding female. The division of labor within social groups  
is less pronounced among other vertebrates than among  
naked mole rats, colony size is much smaller, and mating  
by subordinate females may not be totally suppressed,  
(40) whereas in naked mole rat colonies subordinate females are  
not sexually active, and many never breed.

1. Which of the following most accurately states the main idea of the passage?
  - (A) Naked mole rat colonies are the only known examples of cooperatively breeding vertebrate societies.
  - (B) Naked mole rat colonies exhibit social organization based on a rigid caste system.
  - (C) Behavior in naked mole rat colonies may well be a close vertebrate analogue to behavior in eusocial insect societies.
  - (D) The mating habits of naked mole rats differ from those of any other vertebrate species.
  - (E) The basis for the division of labor among naked mole rats is the same as that among eusocial insects.
2. The passage suggests that Jarvis' work has called into question which of the following explanatory variables for naked mole rat behavior?
  - (A) Size
  - (B) Age
  - (C) Reproductive status
  - (D) Rate of growth
  - (E) Previously exhibited behavior
3. It can be inferred from the passage that the performance of tasks in naked mole rat colonies differs from task performance in eusocial insect societies in which of the following ways?
  - (A) In naked mole rat colonies, all tasks are performed cooperatively.
  - (B) In naked mole rat colonies, the performance of tasks is less rigidly determined by body shape.
  - (C) In naked mole rat colonies, breeding is limited to the largest animals.
  - (D) In eusocial insect societies, reproduction is limited to a single female.

- (E) In eusocial insect societies, the distribution of tasks is based on body size.
4. According to the passage, which of the following is a supposition rather than a fact concerning the queen in a naked mole rat colony?
- (A) She is the largest member of the colony.  
(B) She exerts chemical control over the colony.  
(C) She mates with more than one male.  
(D) She attains her status through aggression.  
(E) She is the only breeding female.
5. The passage supports which of the following inferences about breeding among *Lycaon pictus*?
- (A) The largest female in the social group does not maintain reproductive status by means of behavioral control.  
(B) An individual's ability to breed is related primarily to its rate of growth.  
(C) Breeding is the only task performed by the breeding female.  
(D) Breeding in the social group is not cooperative.  
(E) Breeding is not dominated by a single pair of dogs.

### Passage 61

Coral reefs are one of the most fragile, biologically complex, and diverse marine ecosystems on Earth. This ecosystem is one of the fascinating paradoxes of the biosphere: how do clear, and thus nutrient-poor, waters support such prolific and productive communities? Part of the answer lies within the tissues of the corals themselves. Symbiotic cells of algae known as zooxanthellae carry out photosynthesis using the metabolic wastes of the coral thereby producing food for themselves, for their corals, (5) hosts, and even for other members of the reef community. This symbiotic process allows organisms in the reef community to use sparse nutrient resources efficiently.

Unfortunately for coral reefs, however, a variety of human activities are causing worldwide degradation of shallow marine habitats by adding nutrients to the (15) water. Agriculture, slash-and-burn land clearing, sewage disposal and manufacturing that creates waste by-products all increase nutrient loads in these waters. Typical symptoms of reef decline are destabilized herbivore populations and (20) an increasing abundance of algae and filter-feeding animals. Declines in reef communities are consistent with observations that nutrient input is increasing in direct proportion to growing human populations, thereby threatening reef communities sensitive to subtle changes in nutrient input to their waters. (25)

1. The passage is primarily concerned with
- (A) describing the effects of human activities on algae in coral reefs  
(B) explaining how human activities are posing a threat to coral reef communities  
(C) discussing the process by which coral reefs deteriorate in nutrient-poor waters  
(D) explaining how coral reefs produce food for

- themselves
- (E) describing the abundance of algae and filter-feeding animals in coral reef areas
2. The passage suggests which of the following about coral reef communities?
- (A) Coral reef communities may actually be more likely to thrive in waters that are relatively low in nutrients.
- (B) The nutrients on which coral reef communities thrive are only found in shallow waters.
- (C) Human population growth has led to changing ocean temperatures, which threatens coral reef communities.
- (D) The growth of coral reef communities tends to destabilize underwater herbivore populations.
- (E) Coral reef communities are more complex and diverse than most ecosystems located on dry land.
3. The author refers to "filter-feeding animals" (line 20) in order to
- (A) provide an example of a characteristic sign of reef deterioration
- (B) explain how reef communities acquire sustenance for survival
- (C) identify a factor that helps herbivore populations thrive
- (D) indicate a cause of decreasing nutrient input in waters that reefs inhabit
- (E) identify members of coral reef communities that rely on coral reefs for nutrients
4. According to the passage, which of the following is a factor that is threatening the survival of coral reef communities?
- (A) The waters they inhabit contain few nutrient resources.
- (B) A decline in nutrient input is disrupting their symbiotic relationship with zooxanthellae
- (C) The degraded waters of their marine habitats have reduced their ability to carry out photosynthesis
- (D) They are too biologically complex to survive in habitats with minimal nutrient input.
- (E) Waste by-products result in an increase in nutrient input to reef communities.
5. It can be inferred from the passage that the author describes coral reef communities as paradoxical most likely for which of the following reasons?
- (A) They are thriving even though human activities have depleted the nutrients in their environment.
- (B) They are able to survive in spite of an overabundance of algae inhabiting their waters.
- (C) They are able to survive in an environment with limited food resources.
- (D) Their metabolic wastes contribute to the degradation of the waters that they inhabit.
- (E) They are declining even when the water surrounding them remains clear.

### Passage 62

Two divergent definitions have dominated sociologists' discussions of the nature of ethnicity. The first emphasizes the primordial and unchanging character of ethnicity. In this view, people have an essential need for belonging that (5) is satisfied by membership in groups based on shared ancestry and culture. A different conception of ethnicity de-emphasizes the cultural component and defines ethnic groups as interest groups. In this view, ethnicity serves as a way of mobilizing a certain population behind issues (10) relating to its economic position. While both of these definitions are useful, neither fully captures the dynamic and changing aspects of ethnicity in the United States. Rather, ethnicity is more satisfactorily conceived of as a process in which preexisting communal bonds and common (15) cultural attributes are adapted for instrumental purposes according to changing real-life situations.

One example of this process is the rise of participation by Native American people in the broader United States political system since the Civil Rights movement of the (20) 1960's. Besides leading Native Americans to participate more actively in politics (the number of Native American legislative officeholders more than doubled), this movement also evoked increased interest in tribal history and traditional culture. Cultural and instrumental components of (25) ethnicity are not mutually exclusive, but rather reinforce one another.

The Civil Rights movement also brought changes in the uses to which ethnicity was put by Mexican American people. In the 1960's, Mexican Americans formed (30) community-based political groups that emphasized ancestral heritage as a way of mobilizing constituents. Such emerging issues as immigration and voting rights gave Mexican American advocacy groups the means by which to promote ethnic solidarity. Like European ethnic groups in the (35) nineteenth-century United States, late-twentieth-century Mexican American leaders combined ethnic with contemporary civic symbols. In 1968 Henry Cisneros, then mayor of San Antonio, Texas, cited Mexican leader Benito Juarez as a model for Mexican Americans in their fight for con- (40) temporary civil rights. And every year, Mexican Americans celebrate *Cinco de Mayo* as fervently as many Irish American people embrace St. Patrick's Day (both are major holidays in the countries of origin), with both holidays having been reinvented in the context of the United States and linked to ideals, symbols, and heroes of the United States.

1. Which of the following best states the main idea of the passage?
  - (A) In their definitions of the nature of ethnicity, sociologists have underestimated the power of the primordial human need to belong.
  - (B) Ethnicity is best defined as a dynamic process that combines cultural components with shared political and economic interests.
  - (C) In the United States in the twentieth century, ethnic groups have begun to organize in order to further their political and economic interests.

- (D) Ethnicity in the United States has been significantly changed by the Civil Rights movement.
- (E) The two definitions of ethnicity that have dominated sociologists discussions are incompatible and should be replaced by an entirely new approach.
2. Which is the following statements about the first two definitions of ethnicity discussed in the first paragraph is supported by the passage?
- (A) One is supported primarily by sociologists, and the other is favored by members of ethnic groups.
- (B) One emphasizes the political aspects of ethnicity, and the other focuses on the economic aspects.
- (C) One is the result of analysis of United States populations, and the other is the result of analysis of European populations.
- (D) One focuses more on the ancestral components of ethnicity than does the other.
- (E) One focuses more on immigrant groups than does the other.
3. The author of the passage refers to Native American people in the second paragraph in order to provide an example of
- (A) the ability of membership in groups based on shared ancestry and culture to satisfy an essential human need.
- (B) how ethnic feelings have both motivated and been strengthened by political activity
- (C) how the Civil Rights movement can help promote solidarity among United States ethnic groups
- (D) how participation in the political system has helped to improve a group's economic situation
- (E) the benefits gained from renewed study of ethnic history and culture
4. The passage supports which of the following statements about the Mexican American community?
- (A) In the 1960's the Mexican American community began to incorporate the customs of another ethnic group in the United States into the observation of its own ethnic holidays.
- (B) In the 1960's Mexican American community groups promoted ethnic solidarity primarily in order to effect economic change
- (C) In the 1960's leader of the Mexican American community concentrated their efforts on promoting a renaissance of ethnic history and culture
- (D) In the 1960's members of the Mexican American community were becoming increasingly concerned about the issue of voting rights.
- (E) In the 1960's the Mexican American community had greater success in mobilizing constituents than did other ethnic groups in the United States.
5. Which of the following types of ethnic cultural expression is discussed in the passage?
- (A) The retelling of traditional narratives
- (B) The wearing of traditional clothing
- (C) The playing of traditional music

- (D) The celebration of traditional holidays  
(E) The preparation of traditional cuisine
6. Information in the passage supports which of the following statements about many European ethnic groups in the nineteenth-century United States?
- (A) They emphasized economic interests as a way of mobilizing constituents behind certain issues.  
(B) They conceived of their own ethnicity as being primordial in nature.  
(C) They created cultural traditions that fused United States symbols with those of their countries of origin.  
(D) They de-emphasized the cultural components of their communities in favor of political interests.  
(E) They organized formal community groups designed to promote a renaissance of ethnic history and culture.
7. The passage suggests that in 1968 Henry Cisneros most likely believed that
- (A) many Mexican American would respond positively to the example of Benito Juarez.  
(B) many Mexican American were insufficiently educated in Mexican history  
(C) the fight for civil rights in the United States had many strong parallels in both Mexican and Irish history.  
(D) the quickest way of organizing community-based groups was to emulate the tactics of Benito Juarez  
(E) Mexican Americans should emulate the strategies of Native American political leaders.

### Passage 63

The fact that superior service can generate a competitive advantage for a company does not mean that every attempt at improving service will create such an advantage. Investments in service, like those in production and distribution, (5) must be balanced against other types of investments on the basis of direct, tangible benefits such as cost reduction and increased revenues. If a company is already effectively on a par with its competitors because it provides service that avoids a damaging reputation and keeps customers from (10) leaving at an unacceptable rate, then investment in higher service levels may be wasted, since service is a deciding factor for customers only in extreme situations.

This truth was not apparent to managers of one regional bank, which failed to improve its competitive position (15) despite its investment in reducing the time a customer had to wait for a teller. The bank managers did not recognize the level of customer inertia in the consumer banking industry that arises from the inconvenience of switching banks. Nor did they analyze their service improvement to (20) determine whether it would attract new customers by producing a new standard of service that would excite customers or by proving difficult for competitors to copy. The only merit of the improvement was that it could easily be described to customers.



1. The primary purpose of the passage is to
  - (A) contrast possible outcomes of a type of business investment
  - (B) suggest more careful evaluation of a type of business investment
  - (C) illustrate various ways in which a type of business investment could fail to enhance revenues
  - (D) trace the general problems of a company to a certain type of business investment
  - (E) criticize the way in which managers tend to analyze the costs and benefits of business investments
  
2. According to the passage, investments in service are comparable to investments in production and distribution in terms of the
  - (A) tangibility of the benefits that they tend to confer
  - (B) increased revenues that they ultimately produce
  - (C) basis on which they need to be weighed
  - (D) insufficient analysis that managers devote to them
  - (E) degree of competitive advantage that they are likely to provide
  
3. The passage suggests which of the following about service provided by the regional bank prior to its investment in enhancing that service?
  - (A) It enabled the bank to retain customers at an acceptable rate
  - (B) It threatened to weaken the bank's competitive position with respect to other regional banks
  - (C) It had already been improved after having caused damage to the bank's reputation in the past.
  - (D) It was slightly superior to that of the bank's regional competitors.
  - (E) It needed to be improved to attain parity with the service provided by competing banks.
  
4. The passage suggests that bank managers failed to consider whether or not the service improvement mentioned in line 19
  - (A) was too complicated to be easily described to prospective customers
  - (B) made a measurable change in the experiences of customers in the bank's offices
  - (C) could be sustained if the number of customers increased significantly
  - (D) was an innovation that competing banks could have imitated
  - (E) was adequate to bring the bank's general level of service to a level that was comparable with that of its competitors
  
5. The discussion of the regional bank (line 13-24) serves which of the following functions within the passage as a whole?
  - (A) It describes an exceptional case in which investment in service actually failed to produce a competitive advantage.
  - (B) It illustrates the pitfalls of choosing to invest in service at a time when investment is needed

- more urgently in another area.
- (C) It demonstrates the kind of analysis that managers apply when they choose one kind of service investment over another
  - (D) It supports the argument that investments in certain aspects of service are more advantageous than investments in other aspects of service.
  - (E) It provides an example of the point about investment in service made in the first paragraph.
6. The author uses the word "only" in line 23 most likely in order to
- (A) highlight the oddity of the service improvement
  - (B) emphasize the relatively low value of the investment in service improvement
  - (C) distinguish the primary attribute of the service improvement from secondary attributes
  - (D) single out a certain merit of the service improvement from other merits
  - (E) point out the limited duration of the actual service improvement

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Teststreatms



## CRITICAL REASONING TEST SECTION 1

30 Minutes 20 Questions

1. Nearly one in three subscribers to *Financial Forecaster* is a millionaire, and over half are in top management. Shouldn't you subscribe to *Financial Forecaster* now?

A reader who is neither a millionaire nor in top management would be most likely to act in accordance with the advertisement's suggestion if he or she drew which of the following questionable conclusions invited by the advertisement?

- (A) Among finance-related periodicals, *Financial Forecaster* provides the most detailed financial information.
- (B) Top managers cannot do their jobs properly without reading *Financial Forecaster*.
- (C) The advertisement is placed where those who will be likely to read it are millionaires.
- (D) The subscribers mentioned were helped to become millionaires or join top management by reading *Financial Forecaster*.
- (E) Only those who will in fact become millionaires, or at least top managers, will read the advertisement.

Questions 2-3 are based on the following.

Contrary to the charges made by some of its opponents, the provisions of the new deficit-reduction law for indiscriminate cuts in the federal budget are justified. Opponents should remember that the New Deal pulled this country out of great economic troubles even though some of its programs were later found to be unconstitutional.

2. The author's method of attacking the charges of certain opponents of the new deficit-reduction law is to
- (A) attack the character of the opponents rather than their claim
  - (B) imply an analogy between the law and some New Deal programs
  - (C) point out that the opponents' claims imply a dilemma
  - (D) show that the opponents' reasoning leads to an absurd conclusion
  - (E) show that the New Deal also called for indiscriminate cuts in the federal budget

3. The opponents could effectively defend their position against the author's strategy by pointing out that
- (A) the expertise of those opposing the law is outstanding
  - (B) the lack of justification for the new law does not imply that those who drew it up were either inept or immoral
  - (C) the practical application of the new law will not entail indiscriminate budget cuts
  - (D) economic troubles present at the time of the New Deal were equal in severity to those that have led to the present law
  - (E) the fact that certain flawed programs or laws have improved the economy does not prove that every such program can do so

4. In Millington, a city of 50,000 people, Mercedes Pedrosa, a realtor, calculated that a family with Millington's median family income, \$28,000 a year, could afford to buy Millington's median-priced \$77,000 house. This calculation was based on an 11.2 percent mortgage interest rate and on the realtor's assumption that a family could only afford to pay up to 25 percent of its income for housing.

Which of the following corrections of a figure appearing in the passage above, if it were the only correction that needed to be made, would yield a new calculation showing that even incomes below the median family income would enable families in Millington to afford Millington's median-priced house?

- (A) Millington's total population was 45,000 people.
- (B) Millington's median annual family income was \$27,000
- (C) Millington's median-priced house cost \$80,000
- (D) The rate at which people in Millington had to pay mortgage interest was only 10 percent.
- (E) Families in Millington could only afford to pay up to 22 percent of their annual income for housing.

5. Psychological research indicates that college hockey and football players are more quickly moved to hostility and aggression than are college athletes in noncontact sports such as swimming. But the researchers' conclusion—that contact sports encourage and teach participants to be hostile and aggressive—is untenable. The football and hockey players were probably more hostile and aggressive to start with than the swimmers.

Which of the following, if true, would most strengthen the conclusion drawn by the psychological researchers?

- (A) The football and hockey players became more hostile and aggressive during the season and remained so during the off-season, whereas there was no increase in aggressiveness among the swimmers.
- (B) The football and hockey players, but not the swimmers, were aware at the start of the experiment that they were being tested for aggressiveness.
- (C) The same psychological research indicated that the football and hockey players had a great respect for cooperation and team play, whereas the swimmers were most concerned with excelling as individual competitors.
- (D) The research studies were designed to include no college athletes who participated in both contact and noncontact sports.
- (E) Throughout the United States, more incidents of fan violence occur at baseball games than occur at hockey or football games.

6. Ross: The profitability of Company X, restored to private ownership five years ago, is clear evidence that businesses will always fare better under private than under public ownership.

Julia: Wrong. A close look at the records shows that X has been profitable since the appointment of a first-class manager, which happened while X was still in the public sector.

Which of the following best describes the weak point in Ross's claim on which Julia's response focuses?

- (A) The evidence Ross cites comes from only a single observed case, that of Company X.
- (B) The profitability of Company X might be only temporary.
- (C) Ross's statement leaves open the possibility that the cause he cites came after the effect he attributes to it.
- (D) No mention is made of companies that are partly government owned and partly privately owned.
- (E) No exact figures are given for the current profits of Company X.

7. Stronger patent laws are needed to protect inventions from being pirated. With that protection, manufacturers would be encouraged to invest in the development of new products and technologies. Such investment frequently results in an increase in a manufacturer's productivity.

Which of the following conclusions can most properly be drawn from the information above?

- (A) Stronger patent laws tend to benefit financial institutions as well as manufacturers.
- (B) Increased productivity in manufacturing is likely to be accompanied by the creation of more manufacturing jobs.
- (C) Manufacturers will decrease investment in the development of new products and technologies unless there are stronger patent laws.
- (D) The weakness of current patent laws has been a cause of economic recession.
- (E) Stronger patent laws would stimulate improvements in productivity for many manufacturers.

8. Which of the following best completes the passage below?

At large amusement parks, live shows are used very deliberately to influence crowd movements. Lunchtime performances relieve the pressure on a park's restaurants. Evening performances have a rather different purpose: to encourage visitors to stay for supper. Behind this surface divergence in immediate purpose there is the unified underlying goal of \_\_\_\_\_.

- (A) keeping the lines at the various rides short by drawing off part of the crowd
- (B) enhancing revenue by attracting people who come only for the live shows and then leave the park
- (C) avoiding as far as possible traffic jams caused by visitors entering or leaving the park
- (D) encouraging as many people as possible to come to the park in order to eat at the restaurants
- (E) utilizing the restaurants at optimal levels for as much of the day as possible

9. James weighs more than Kelly.  
Luis weighs more than Mark.  
Mark weighs less than Ned.  
Kelly and Ned are exactly the same weight.

If the information above is true, which of the following must also be true?

- (A) Luis weighs more than Ned.
- (B) Luis weighs more than James.
- (C) Kelly weighs less than Luis.
- (D) James weighs more than Mark
- (E) Kelly weighs less than Mark.

*Questions 10-11* are based on the following.

Partly because of bad weather, but also partly because some major pepper growers have switched to high-priced cocoa, world production of pepper has been running well below worldwide sales for three years. Pepper is consequently in relatively short supply. The price of pepper has soared in response: it now equals that of cocoa.

10. Which of the following can be inferred from the passage?

- (A) Pepper is a profitable crop only if it is grown on a large scale.
- (B) World consumption of pepper has been unusually high for three years.
- (C) World production of pepper will return to previous levels once normal weather returns.
- (D) Surplus stocks of pepper have been reduced in the past three years.
- (E) The profits that the growers of pepper have made in the past three years have been unprecedented.

11. Some observers have concluded that the rise in the price of pepper means that the switch by some growers from pepper to cocoa left those growers no better off than if none of them had switched; this conclusion, however, is unwarranted because it can be inferred to be likely that

- (A) those growers could not have foreseen how high the price of pepper would go
- (B) the initial cost involved in switching from pepper to cocoa is substantial
- (C) supplies of pepper would not be as low as they are if those growers had not switched crops
- (D) cocoa crops are as susceptible to being reduced by bad weather as are pepper crops
- (E) as more growers turn to growing cocoa, cocoa supplies will increase and the price of cocoa will fall precipitously.



12. Using computer techniques, researchers analyze layers of paint that lie buried beneath the surface layers of old paintings. They claim, for example, that additional mountainous scenery once appeared in Leonardo da Vinci's *Mona Lisa*, which was later painted over. Skeptics reply to these claims, however, that X-ray examinations of the *Mona Lisa* do not show hidden mountains.

Which of the following, if true, would tend most to weaken the force of the skeptics' objections?

- (A) There is no written or anecdotal record that Leonardo da Vinci ever painted over major areas of his *Mona Lisa*.
  - (B) Painters of da Vinci's time commonly created images of mountainous scenery in the backgrounds of portraits like the *Mona Lisa*.
  - (C) No one knows for certain what parts of the *Mona Lisa* may have been painted by da Vinci's assistants rather than by da Vinci himself.
  - (D) Infrared photography of the *Mona Lisa* has revealed no trace of hidden mountainous scenery.
  - (E) Analysis relying on X-rays only has the capacity to detect lead-based white pigments in layers of paint beneath a painting's surface layers.
13. While Governor Verdant has been in office, the state's budget has increased by an average of 6 percent each year. While the previous governor was in office, the state's budget increased by an average of 11.5 percent each year. Obviously, the austere budgets during Governor Verdant's term have caused the slowdown in the growth in state spending.

Which of the following, if true, would most seriously weaken the conclusion drawn above?

- (A) The rate of inflation in the state averaged 10 percent each year during the previous governor's term in office and 3 percent each year during Verdant's term.
- (B) Both federal and state income tax rates have been lowered considerably during Verdant's term in office.
- (C) In each year of Verdant's term in office, the state's budget has shown some increase in spending over the previous year.
- (D) During Verdant's term in office, the state has either discontinued or begun to charge private citizens for numerous services that the state offered free to citizens during the previous governor's term.
- (E) During the previous governor's term in office, the state introduced several so-called "austerity" budgets intended to reduce the growth in state spending.

14. Federal agricultural programs aimed at benefiting one group whose livelihood depends on farming often end up harming another such group.

Which of the following statements provides support for the claim above?

- I . An effort to help feed-grain producers resulted in higher prices for their crops, but the higher prices decreased the profits of livestock producers.
  - II . In order to reduce crop surpluses and increase prices, growers of certain crops were paid to leave a portion of their land idle, but the reduction was not achieved because improvements in efficiency resulted in higher production on the land in use.
  - III. Many farm workers were put out of work when a program meant to raise the price of grain provided grain growers with an incentive to reduce production by giving them surplus grain from government reserves.
- (A) I , but not II and not III
  - (B) II , but not I and not III
  - (C) I and III, but not II
  - (D) II and III, but not I
  - (E) I , II and III

15. Technological education is worsening. People between eighteen and twenty-four, who are just emerging from their formal education, are more likely to be technologically illiterate than somewhat older adults. And yet, issues for public referenda will increasingly involve aspects of technology.

Which of the following conclusions can be properly drawn from the statements above?

- (A) If all young people are to make informed decisions on public referenda, many of them must learn more about technology.
- (B) Thorough studies of technological issues and innovations should be made a required part of the public and private school curriculum.
- (C) It should be suggested that prospective voters attend applied science courses in order to acquire a minimal competency in technical matters.
- (D) If young people are not to be overly influenced by famous technocrats, they must increase their knowledge of pure science.
- (E) On public referenda issues, young people tend to confuse real or probable technologies with impossible ideals.

16. In a political system with only two major parties, the entrance of a third-party candidate into an election race damages the chances of only one of the two major candidates. The third-party candidate always attracts some of the voters who might otherwise have voted for one of the two major candidates, but not voters who support the other candidate. Since a third-party candidacy affects the two major candidates unequally, for reasons neither of them has any control over, the practice is unfair and should not be allowed.

If the factual information in the passage above is true, which of the following can be most reliably inferred from it?

- (A) If the political platform of the third party is a compromise position between that of the two major parties, the third party will draw its voters equally from the two major parties.
- (B) If, before the emergence of a third party, voters were divided equally between the two major parties, neither of the major parties is likely to capture much more than one-half of the vote.
- (C) A third-party candidate will not capture the votes of new voters who have never voted for candidates of either of the two major parties.
- (D) The political stance of a third party will be more radical than that of either of the two major parties.
- (E) The founders of a third party are likely to be a coalition consisting of former leaders of the two major parties.

17. Companies considering new cost-cutting manufacturing processes often compare the projected results of making the investment against the alternative of not making the investment with costs, selling prices, and share of market remaining constant.

Which of the following, assuming that each is a realistic possibility, constitutes the most serious disadvantage for companies of using the method above for evaluating the financial benefit of new manufacturing processes?

- (A) The costs of materials required by the new process might not be known with certainty.
  - (B) In several years interest rates might go down, reducing the interest costs of borrowing money to pay for the investment.
  - (C) Some cost-cutting processes might require such expensive investments that there would be no net gain for many years, until the investment was paid for by savings in the manufacturing process.
  - (D) Competitors that do invest in a new process might reduce their selling prices and thus take market share away from companies that do not.
  - (E) The period of year chosen for averaging out the cost of the investment might be somewhat longer or shorter, thus affecting the result.
18. There are far fewer children available for adoption than there are people who want to adopt. Two million couples are currently waiting to adopt, but in 1982, the last year for which figures exist, there were only some 50,000 adoptions.

Which of the following statements, if true, most strengthens the author's claim that there are far fewer children available for adoption than there are people who want to adopt?

- (A) The number of couples waiting to adopt has increased significantly in the last decade.
- (B) The number of adoptions in the current year is greater than the number of adoptions in any preceding year.
- (C) The number of adoptions in a year is approximately equal to the number of children available for adoption in that period.
- (D) People who seek to adopt children often go through a long process of interviews and investigation by adoption agencies.
- (E) People who seek to adopt children generally make very good parents.

Questions 19-20 are based on the following

Archaeologists seeking the location of a legendary siege and destruction of a city are excavating in several possible places, including a middle and a lower layer of a large mound. The bottom of the middle layer contains some pieces of pottery of type 3, known to be from a later period than the time of the destruction of the city, but the lower layer does not.

19. Which of the following hypotheses is best supported by the evidence above?
- (A) The lower layer contains the remains of the city where the siege took place.
  - (B) The legend confuses stories from two different historical periods.
  - (C) The middle layer does not represent the period of the siege.
  - (D) The siege lasted for a long time before the city was destroyed.
  - (E) The pottery of type 3 was imported to the city by traders.
20. The force of the evidence cited above is most seriously weakened if which of the following is true?
- (A) Gerbils, small animals long native to the area, dig large burrows into which objects can fall when the burrows collapse.
  - (B) Pottery of types 1 and 2, found in the lower level, was used in the cities from which, according to the legend, the besieging forces came.
  - (C) Several pieces of stone from a lower-layer wall have been found incorporated into the remains of a building in the middle layer.
  - (D) Both the middle and the lower layer show evidence of large-scale destruction of habitations by fire.
  - (E) Bronze axheads of a type used at the time of the siege were found in the lower level of excavation.

## CRITICAL REASONING TEST SECTION 2

30 Minutes 20 Questions

1. After the national speed limit of 55 miles per hour was imposed in 1974, the number of deaths per mile driven on a highway fell abruptly as a result. Since then, however, the average speed of vehicles on highways has risen, but the number of deaths per mile driven on a highway has continued to fall.

Which of the following conclusions can be properly drawn from the statements above?

- (A) The speed limit alone is probably not responsible for the continued reduction in highway deaths in the years after 1974.
- (B) People have been driving less since 1974.
- (C) Driver-education courses have been more effective since 1974 in teaching drivers to drive safely.
- (D) In recent years highway patrols have been less effective in catching drivers who speed.
- (E) The change in the speed limit cannot be responsible for the abrupt decline in highway deaths in 1974.

2. Neighboring landholders: Air pollution from the giant aluminum refinery that has been built next to our land is killing our plants.

Company spokesperson: The refinery is not to blame, since our study shows that the damage is due to insects and fungi.

Which of the following, if true, most seriously weakens the conclusion drawn by the company spokesperson?

- (A) The study did not measure the quantity of pollutants emitted into the surrounding air by the aluminum refinery.
- (B) The neighboring landholders have made no change in the way they take care of their plants.
- (C) Air pollution from the refinery has changed the chemical balance in the plants' environment, allowing the harmful insects and fungi to thrive.
- (D) Pollutants that are invisible and odorless are emitted into the surrounding air by the refinery.
- (E) The various species of insects and fungi mentioned in the study have been occasionally found in the locality during the past hundred years.

3. Sales taxes tend to be regressive, affecting poor people more severely than wealthy people. When all purchases of consumer goods are taxed at a fixed percentage of the purchase price, poor people pay a larger proportion of their income in sales taxes than wealthy people do.

It can be correctly inferred on the basis of the statements above that which of the following is true?

- (A) Poor people constitute a larger proportion of the taxpaying population than wealthy people do.
  - (B) Poor people spend a larger proportion of their income on purchases of consumer goods than wealthy people do.
  - (C) Wealthy people pay, on average, a larger amount of sales taxes than poor people do.
  - (D) The total amount spent by all poor people on purchases of consumer goods exceeds the total amount spent by all wealthy people on consumer goods.
  - (E) The average purchase price of consumer goods bought by wealthy people is higher than that of consumer goods bought by poor people.
4. Reviewing historical data, medical researchers in California found that counties with the largest number of television sets per capita have had the lowest incidence of a serious brain disease, mosquito-borne encephalitis. The researchers have concluded that people in these counties stay indoors more and thus avoid exposure to the disease. The researchers' conclusion would be most strengthened if which of the following were true?
- (A) Programs designed to control the size of disease-bearing mosquito populations have not affected the incidence of mosquito-borne encephalitis.
  - (B) The occupations of county residents affect their risk of exposure to mosquito-borne encephalitis more than does television-watching.
  - (C) The incidence of mosquito-borne encephalitis in counties with the largest number of television sets per capita is likely to decrease even further.
  - (D) The more time people in a county spend outdoors, the greater their awareness of the dangers of mosquito-borne encephalitis.
  - (E) The more television sets there are per capita in a county, the more time the average county resident spends watching television.

5. The city's public transportation system should be removed from the jurisdiction of the municipal government, which finds it politically impossible either to raise fares or to institute cost-saving reductions in service. If public transportation were handled by a private firm, profits would be vigorously pursued, thereby eliminating the necessity for covering operating costs with government funds.

The statements above best support the conclusion that

- (A) the private firms that would handle public transportation would have experience in the transportation industry
  - (B) political considerations would not prevent private firms from ensuring that revenues cover operating costs
  - (C) private firms would receive government funding if it were needed to cover operating costs
  - (D) the public would approve the cost-cutting actions taken by the private firm
  - (E) the municipal government would not be resigned to accumulating merely enough income to cover costs
6. To entice customers away from competitors, Red Label supermarkets have begun offering discounts on home appliances to customers who spend \$50 or more on any shopping trip to Red Label. Red Label executives claim that the discount program has been a huge success, since cash register receipts of \$50 or more are up thirty percent since the beginning of the program.

Which of the following, if true, most seriously weakens the claim of the Red Label executives?

- (A) Most people who switched to Red Label after the program began spend more than \$50 each time they shop at Red Label.
- (B) Most people whose average grocery bill is less than \$50 would not be persuaded to spend more by any discount program.
- (C) Most people who received discounts on home appliances through Red Label's program will shop at Red Label after the program ends.
- (D) Since the beginning of the discount program, most of the people who spend \$50 or more at Red Label are people who have never before shopped there and whose average grocery bill has always been higher than \$50.
- (E) Almost all of the people who have begun spending \$50 or more at Red Label since the discount program began are longtime customers who have increased the average amount of their shopping bills by making fewer trips.



7. Throughout the 1950's, there were increases in the numbers of dead birds found in agricultural areas after pesticide sprayings. Pesticide manufacturers claimed that the publicity given to bird deaths stimulated volunteers to look for dead birds, and that the increase in numbers reported was attributable to the increase in the number of people looking.

Which of the following statements, if true, would help to refute the claim of the pesticide manufacturers?

- (A) The publicity given to bird deaths was largely regional and never reached national proportions.
- (B) Pesticide sprayings were timed to coincide with various phases of the life cycles of the insects they destroyed.
- (C) No provision was made to ensure that a dead bird would not be reported by more than one observer.
- (D) Initial increases in bird deaths had been noticed by agricultural workers long before any publicity had been given to the matter.
- (E) Dead birds of the same species as those found in agricultural areas had been found along coastal areas where no farming took place.

8. Teenagers are often priced out of the labor market by the government-mandated minimum-wage level because employers cannot afford to pay that much for extra help. Therefore, if Congress institutes a subminimum wage, a new lower legal wage for teenagers, the teenage unemployment rate, which has been rising since 1960, will no longer increase.

Which of the following, if true, would most weaken the argument above?

- (A) Since 1960 the teenage unemployment rate has risen when the minimum wage has risen.
- (B) Since 1960 the teenage unemployment rate has risen even when the minimum wage remained constant.
- (C) Employers often hire extra help during holiday and warm weather seasons.
- (D) The teenage unemployment rate rose more quickly in the 1970's than it did in the 1960's.
- (E) The teenage unemployment rate has occasionally declined in the years since 1960.

9. Which of the following best completes the passage below?

The computer industry's estimate that it loses millions of dollars when users illegally copy programs without paying for them is greatly exaggerated. Most of the illegal copying is done by people with no serious interest in the programs. Thus, the loss to the industry is much smaller than estimated because

- (A) many users who illegally copy programs never find any use for them
  - (B) most of the illegally copied programs would not be purchased even if purchasing them were the only way to obtain them
  - (C) even if the computer industry received all the revenue it claims to be losing, it would still be experiencing financial difficulties
  - (D) the total market value of all illegal copies is low in comparison to the total revenue of the computer industry
  - (E) the number of programs that are frequently copied illegally is low in comparison to the number of programs available for sale
10. This year the New Hampshire Division of Company X, set a new record for annual sales by that division. This record is especially surprising since the New Hampshire Division has the smallest potential market and the lowest sales of any of Company X's divisions.

Which of the following identifies a flaw in the logical coherence of the statement above?

- (A) If overall sales for Company X were sharply reduced, the New Hampshire Division's new sales record is irrelevant to the company's prosperity.
- (B) Since the division is competing against its own record, the comparison of its sales record with that of other divisions is irrelevant.
- (C) If this is the first year that the New Hampshire Division has been last in sales among Company X's divisions, the new record is not surprising at all.
- (D) If overall sales for Company X were greater than usual, it is not surprising that the New Hampshire Division was last in sales.
- (E) Since the New Hampshire Division has the smallest potential market, it is not surprising that it had the lowest sales.

11. Statement of a United States copper mining company:  
Import quotas should be imposed on the less expensive copper mined outside the country to maintain the price of copper in this country; otherwise, our companies will not be able to stay in business.

Response of a United States copper wire manufacturer:  
United States wire and cable manufacturers purchase about 70 percent of the copper mined in the United States. If the copper prices we pay are not at the international level, our sales will drop, and then the demand for United States copper will go down.

If the factual information presented by both companies is accurate, the best assessment of the logical relationship between the two arguments is that the wire manufacturer's argument

- (A) is self-serving and irrelevant to the proposal of the mining company
- (B) is circular, presupposing what it seeks to prove about the proposal of the mining company
- (C) shows that the proposal of the mining company would have a negative effect on the mining company's own business
- (D) fails to give a reason why the proposal of the mining company should not be put into effect to alleviate the concern of the mining company for staying in business
- (E) establishes that even the mining company's business will prosper if the mining company's proposal is rejected

12. Y has been believed to cause Z. A new report, noting that Y and Z are often observed to be preceded by X, suggests that X, not Y, may be the cause of Z.

Which of the following further observations would best support the new report's suggestion?

- (A) In cases where X occurs but Y does not, X is usually followed by Z.
- (B) In cases where X occurs, followed by Y, Y is usually followed by Z.
- (C) In cases where Y occurs but X does not, Y is usually followed by Z.
- (D) In cases where Y occurs but Z does not, Y is usually preceded by X.
- (E) In cases where Z occurs, it is usually preceded by X and Y.

13. Mr. Primm: If hospitals were private enterprises, dependent on profits for their survival, there would be no teaching hospitals, because of the intrinsically high cost of running such hospitals.

Ms. Nakai: I disagree. The medical challenges provided by teaching hospitals attract the very best physicians. This, in turn, enables those hospitals to concentrate on nonroutine cases.

Which of the following, if true, would most strengthen Ms. Nakai's attempt to refute Mr. Primm's claim?

- (A) Doctors at teaching hospitals command high salaries.
  - (B) Sophisticated, nonroutine medical care commands a high price.
  - (C) Existing teaching hospitals derive some revenue from public subsidies.
  - (D) The patient mortality rate at teaching hospitals is high.
  - (E) The modern trend among physicians is to become highly specialized.
14. A recent survey of all auto accident victims in Dole County found that, of the severely injured drivers and front-seat passengers, 80 percent were not wearing seat belts at the time of their accidents. This indicates that, by wearing seat belts, drivers and front-seat passengers can greatly reduce their risk of being severely injured if they are in an auto accident.
- The conclusion above is not properly drawn unless which of the following is true?
- (A) Of all the drivers and front-seat passengers in the survey, more than 20 percent were wearing seat belts at the time of their accidents.
  - (B) Considerably more than 20 percent of drivers and front-seat passengers in Dole County always wear seat belts when traveling by car.
  - (C) More drivers and front-seat passengers in the survey than rear-seat passengers were very severely injured.
  - (D) More than half of the drivers and front-seat passengers in the survey were not wearing seat belts at the time of their accidents.
  - (E) Most of the auto accidents reported to police in Dole County do not involve any serious injury.

15. Six months or so after getting a video recorder, many early buyers apparently lost interest in obtaining videos to watch on it. The trade of businesses selling and renting videos is still buoyant, because the number of homes with video recorders is still growing. But clearly, once the market for video recorders is saturated, businesses distributing videos face hard times.

Which of the following, if true, would most seriously weaken the conclusion above?

- (A) The market for video recorders would not be considered saturated until there was one in 80 percent of homes.
- (B) Among the items handled by video distributors are many films specifically produced as video features.
- (C) Few of the early buyers of video recorders raised any complaints about performance aspects of the new product.
- (D) The early buyers of a novel product are always people who are quick to acquire novelties, but also often as quick to tire of them.
- (E) In a shrinking market, competition always intensifies and marginal businesses fail.

16. Advertiser: The revenue that newspapers and magazines earn by publishing advertisements allows publishers to keep the prices per copy of their publications much lower than would otherwise be possible. Therefore, consumers benefit economically from advertising.

Consumer: But who pays for the advertising that pays for low-priced newspapers and magazines? We consumers do, because advertisers pass along advertising costs to us through the higher prices they charge for their products.

Which of the following best describes how the consumer counters the advertiser's argument?

- (A) By alleging something that, if true, would weaken the plausibility of the advertiser's conclusion
- (B) By questioning the truth of the purportedly factual statement on which the advertiser's conclusion is based
- (C) By offering an interpretation of the advertiser's opening statement that, if accurate, shows that there is an implicit contradiction in it
- (D) By pointing out that the advertiser's point of view is biased
- (E) By arguing that the advertiser too narrowly restricts the discussion to the effects of advertising that are economic

17. Mr. Lawson: We should adopt a national family policy that includes legislation requiring employers to provide paid parental leave and establishing government-sponsored day care. Such laws would decrease the stress levels of employees who have responsibility for small children. Thus, such laws would lead to happier, better-adjusted families.

Which of the following, if true, would most strengthen the conclusion above?

- (A) An employee's high stress level can be a cause of unhappiness and poor adjustment for his or her family.
- (B) People who have responsibility for small children and who work outside the home have higher stress levels than those who do not.
- (C) The goal of a national family policy is to lower the stress levels of parents.
- (D) Any national family policy that is adopted would include legislation requiring employers to provide paid parental leave and establishing government-sponsored day care.
- (E) Most children who have been cared for in daycare centers are happy and well adjusted.

18. Lark Manufacturing Company initiated a voluntary Quality Circles program for machine operators. Independent surveys of employee attitudes indicated that the machine operators participating in the program were less satisfied with their work situations after two years of the program's existence than they were at the program's start. Obviously, any workers who participate in a Quality Circles program will, as a result, become less satisfied with their jobs.

Each of the following, if true, would weaken the conclusion drawn above EXCEPT:

- (A) The second survey occurred during a period of recession when rumors of cutbacks and layoffs at Lark Manufacturing were plentiful .
- (B) The surveys also showed that those Lark machine operators who neither participated in Quality Circles nor knew anyone who did so reported the same degree of lessened satisfaction with their work situations as did the Lark machine operators who participated in Quality Circles.
- (C) While participating in Quality Circles at Lark Manufacturing, machine operators exhibited two of the primary indicators of improved job satisfaction: increased productivity and decreased absenteeism.

- (D) Several workers at Lark Manufacturing who had participated in Quality Circles while employed at other companies reported that, while participating in Quality Circles in their previous companies, their work satisfaction had increased.
- (E) The machine operators who participated in Quality Circles reported that, when the program started, they felt that participation might improve their work situations.

Questions 19-20 are based on the following.

Blood banks will shortly start to screen all donors for NANB hepatitis. Although the new screening tests are estimated to disqualify up to 5 percent of all prospective blood donors, they will still miss two-thirds of donors carrying NANB hepatitis. Therefore, about 10 percent of actual donors will still supply NANB-contaminated blood.

19. The argument above depends on which of the following assumptions?
- (A) Donors carrying NANB hepatitis do not, in a large percentage of cases, carry other infections for which reliable screening tests are routinely performed.
  - (B) Donors carrying NANB hepatitis do not, in a large percentage of cases, develop the disease themselves at any point.
  - (C) The estimate of the number of donors who would be disqualified by tests for NANB hepatitis is an underestimate.
  - (D) The incidence of NANB hepatitis is lower among the potential blood donors than it is in the population at large.
  - (E) The donors who will still supply NANB-contaminated blood will donate blood at the average frequency for all donors.
20. Which of the following inferences about the consequences of instituting the new tests is best supported by the passage above?
- (A) The incidence of new cases of NANB hepatitis is likely to go up by 10 percent.
  - (B) Donations made by patients specifically for their own use are likely to become less frequent.
  - (C) The demand for blood from blood banks is likely to fluctuate more strongly.
  - (D) The blood supplies available from blood banks are likely to go down.
  - (E) The number of prospective first-time donors is likely to go up by 5 percent.

### CRITICAL REASONING TEST SECTION 3

30 Minutes 20 Questions

1. Child's World, a chain of toy stores, has relied on a "supermarket concept" of computerized inventory control and customer self-service to eliminate the category of sales clerks from its force of employees. It now plans to employ the same concept in selling children's clothes.

The plan of Child's World assumes that

- (A) supermarkets will not also be selling children's clothes in the same manner
- (B) personal service by sales personnel is not required for selling children's clothes successfully
- (C) the same kind of computers will be used in inventory control for both clothes and toys at Child's World
- (D) a self-service plan cannot be employed without computerized inventory control
- (E) sales clerks are the only employees of Child's World who could be assigned tasks related to inventory control

2. Continuous indoor fluorescent light benefits the health of hamsters with inherited heart disease. A group of them exposed to continuous fluorescent light survived twenty-five percent longer than a similar group exposed instead to equal periods of indoor fluorescent light and of darkness.

The method of the research described above is most likely to be applicable in addressing which of the following questions?

- (A) Can industrial workers who need to see their work do so better by sunlight or by fluorescent light?
- (B) Can hospital lighting be improved to promote the recovery of patients?
- (C) How do deep-sea fish survive in total darkness?
- (D) What are the inherited illnesses to which hamsters are subject?
- (E) Are there plants that require specific periods of darkness in order to bloom?

3. Millions of identical copies of a plant can be produced using new tissue-culture and cloning techniques.

If plant propagation by such methods in laboratories proves economical, each of the following, if true, represents a benefit of the new techniques to farmers EXCEPT:

- (A) The techniques allow the development of superior strains to take place more rapidly, requiring fewer generations of plants grown to maturity.



- (B) It is less difficult to care for plants that will grow at rates that do not vary widely.
- (C) Plant diseases and pests, once they take hold, spread more rapidly among genetically uniform plants than among those with genetic variations.
- (D) Mechanical harvesting of crops is less difficult if plants are more uniform in size.
- (E) Special genetic traits can more easily be introduced into plant strains with the use of the new techniques.

4. Which of the following best completes the passage below?

Sales campaigns aimed at the faltering personal computer market have strongly emphasized ease of use, called user-friendliness. This emphasis is oddly premature and irrelevant in the eyes of most potential buyers, who are trying to address the logically prior issue of whether---

- (A) user-friendliness also implies that owners can service their own computers
- (B) personal computers cost more the more user-friendly they are
- (C) currently available models are user-friendly enough to suit them
- (D) the people promoting personal computers use them in their own homes
- (E) they have enough sensible uses for a personal computer to justify the expense of buying one

5. A weapons-smuggling incident recently took place in country Y. We all know that Y is a closed society. So Y's government must have known about the weapons.

Which of the following is an assumption that would make the conclusion above logically correct?

- (A) If a government knows about a particular weapons-smuggling incident, it must have intended to use the weapons for its own purposes.
- (B) If a government claims that it knew nothing about a particular weapons-smuggling incident, it must have known everything about it.
- (C) If a government does not permit weapons to enter a country, it is a closed society.
- (D) If a country is a closed society, its government has a large contingent of armed guards patrolling its borders.
- (E) If a country is a closed society, its government has knowledge about everything that occurs in the country.

6. Banning cigarette advertisements in the mass media will not reduce the number of young people who smoke. They know that cigarettes exist and they know how to get them. They do not need the advertisements to supply that information.

The above argument would be most weakened if which of the following were true?

- (A) Seeing or hearing an advertisement for a product tends to increase people's desire for that product.
  - (B) Banning cigarette advertisements in the mass media will cause an increase in advertisements in places where cigarettes are sold.
  - (C) Advertisements in the mass media have been an exceedingly large part of the expenditures of the tobacco companies.
  - (D) Those who oppose cigarette use have advertised against it in the mass media ever since cigarettes were found to be harmful.
  - (E) Older people tend to be less influenced by mass-media advertisements than younger people tend to be.
7. People tend to estimate the likelihood of an event's occurrence according to its salience; that is, according to how strongly and how often it comes to their attention.

By placement and headlines, newspapers emphasize stories about local crime over stories about crime elsewhere and about many other major events.

It can be concluded on the basis of the statements above that, if they are true, which of the following is most probably also true?

- (A) The language used in newspaper headlines about local crime is inflammatory and fails to respect the rights of suspects.
- (B) The coverage of international events in newspapers is neglected in favor of the coverage of local events.
- (C) Readers of local news in newspapers tend to overestimate the amount of crime in their own localities relative to the amount of crime in other places.
- (D) None of the events concerning other people that are reported in newspapers is so salient in people's minds as their own personal experiences.
- (E) The press is the news medium that focuses people's attention most strongly on local crimes.

to increase.

8. By analyzing the garbage of a large number of average-sized households, a group of modern urban anthropologists has found that a household discards less food the more standardized—made up of canned and prepackaged foods—its diet is. The more standardized a household's diet is, however, the greater the quantities of fresh produce the household throws away.

Which of the following can be properly inferred from the passage?

- (A) An increasing number of households rely on a highly standardized diet.
- (B) The less standardized a household's diet is, the more nonfood waste the household discards.
- (C) The less standardized a household's diet is, the smaller is the proportion of fresh produce in the household's food waste.
- (D) The less standardized a household's diet is, the more canned and prepackaged foods the household discards as waste.
- (E) The more fresh produce a household buys, the more fresh produce it throws away.

Questions 9–10 are based on the following.

In the past, teachers, bank tellers, and secretaries were predominantly men; these occupations slipped in pay and status when they became largely occupied by women. Therefore, if women become the majority in currently male-dominated professions like accounting, law, and medicine, the income and prestige of these professions will also drop.

9. The argument above is based on

- (A) another argument that contains circular reasoning
- (B) an attempt to refute a generalization by means of an exceptional case
- (C) an analogy between the past and the future
- (D) an appeal to popular beliefs and values
- (E) an attack on the character of the opposition.

10. Which of the following, if true, would most likely be part of the evidence used to refute the conclusion above?

- (A) Accountants, lawyers, and physicians attained their current relatively high levels of income and prestige at about the same time that the pay and status of teachers, bank tellers, and secretaries slipped.
- (B) When large numbers of men join a female-dominated occupation, such as airline flight attendant, the status and pay of the occupation tend

- (C) The demand for teachers and secretaries has increased significantly in recent years, while the demand for bank tellers has remained relatively stable.
- (D) If present trends in the awarding of law degrees to women continue, it will be at least two decades before the majority of lawyers are women.
- (E) The pay and status of female accountants, lawyers, and physicians today are governed by significantly different economic and sociological forces than were the pay and status of female teachers, bank tellers, and secretaries in the past.

11. An electric-power company gained greater profits and provided electricity to consumers at lower rates per unit of electricity by building larger-capacity more efficient plants and by stimulating greater use of electricity within its area. To continue these financial trends, the company planned to replace an old plant by a plant with triple the capacity of its largest plant.

The company's plan as described above assumed each of the following EXCEPT:

- (A) Demand for electricity within the company's area of service would increase in the future.
- (B) Expenses would not rise beyond the level that could be compensated for by efficiency or volume of operation, or both.
- (C) The planned plant would be sufficiently reliable in

service to contribute a net financial benefit to the company as a whole.

- (D) Safety measures to be instituted for the new plant would be the same as those for the plant it would replace.
- (E) The tripling of capacity would not result in insuperable technological obstacles to efficiency.

Questions 12-13 are based on the following

Meteorologists say that if only they could design an accurate mathematical model of the atmosphere with all its complexities, they could forecast the weather with real precision. But this is an idle boast, immune to any evaluation, for any inadequate weather forecast would obviously be blamed on imperfections in the model.

12. Which of the following, if true, could best be used as a basis for arguing against the author's position that the meteorologists' claim cannot be evaluated?
- (A) Certain unusual configurations of data can serve as the basis for precise weather forecasts even though the exact causal mechanisms are not understood.

- (B) Most significant gains in the accuracy of the relevant mathematical models are accompanied by clear gains in the precision of weather forecasts.
  - (C) Mathematical models of the meteorological aftermath of such catastrophic events as volcanic eruptions are beginning to be constructed.
  - (D) Modern weather forecasts for as much as a full day ahead are broadly correct about 80 percent of the time.
  - (E) Meteorologists readily concede that the accurate mathematical model they are talking about is not now in their power to construct.
13. Which of the following, if true, would cast the most serious doubt on the meteorologists' boast, aside from the doubt expressed in the passage above?
- (A) The amount of energy that the Earth receives from the Sun is monitored closely and is known not to be constant.
  - (B) Volcanic eruptions, the combustion of fossil fuels, and several other processes that also cannot be quantified with any accuracy are known to have a significant and continuing impact on the constitution of the atmosphere.
  - (C) As current models of the atmosphere are improved, even small increments in complexity will mean large increases in the number of computers required for the representation of the models.
  - (D) Frequent and accurate data about the atmosphere collected at a large number of points both on and above the ground are a prerequisite for the construction of a good model of the atmosphere.
  - (E) With existing models of the atmosphere, large scale weather patterns can be predicted with greater accuracy than can relatively local weather patterns.

14. Of the countries that were the world's twenty largest exporters in 1953, four had the same share of total world exports in 1984 as in 1953. These countries can therefore serve as models for those countries that wish to keep their share of the global export trade stable over the years.

Which of the following, if true, casts the most serious doubt on the suitability of those four countries as models in the sense described?

- (A) Many countries wish to increase their share of world export trade, not just keep it stable.
- (B) Many countries are less concerned with exports alone than with the balance between exports and imports.

- (C) With respect to the mix of products each exports, the four countries are very different from each other.
- (D) Of the four countries, two had a much larger, and two had a much smaller, share of total world exports in 1970 than in 1984.
- (E) The exports of the four countries range from 15 percent to 75 percent of the total national output.

Questions 15-16 are based on the following

In the United States, the Postal Service has a monopoly on first-class mail, but much of what is sent first class could be transmitted electronically. Electronic transmittal operators argue that if the Postal Service were to offer electronic transmission, it would have an unfair advantage, since its electronic transmission service could be subsidized from the profits of the monopoly.

15. Which of the following, if each is true, would allay the electronic transmittal operators' fears of unfair competition?
- (A) If the Postal Service were to offer electronic transmission, it could not make a profit on first-class mail.
  - (B) If the Postal Service were to offer electronic transmission, it would have a monopoly on that kind of service.
  - (C) Much of the material that is now sent by first-class mail could be delivered much faster by special package couriers, but is not sent that way because of cost.
  - (D) There is no economy of scale in electronic transmission—that is, the cost per transaction does not go down as more pieces of information are transmitted.
  - (E) Electronic transmission will never be cost-effective for material not sent by first-class mail such as newspapers and bulk mail.
16. Which of the following questions can be answered on the basis of the information in the passage above?
- (A) Is the Postal Service as efficient as privately owned electric transmission services?
  - (B) If private operators were allowed to operate first-class mail services, would they choose to do so?
  - (C) Do the electronic transmittal operators believe that the Postal Service makes a profit on first-class mail?
  - (D) Is the Postal Service prohibited from offering electronic transmission services ?
  - (E) Is the Postal Service expected to have a monopoly on electronic transmission?

17. Lists of hospitals have been compiled showing which hospitals have patient death rates exceeding the national average. The data have been adjusted to allow for differences in the ages of patients.

Each of the following, if true, provides a good logical ground for hospitals to object to interpreting rank on these lists as one of the indices of the quality of hospital care EXCEPT:

- (A) Rank order might indicate insignificant differences, rather than large differences, in numbers of patient deaths.
  - (B) Hospitals that keep patients longer are likely to have higher death rates than those that discharge patients earlier but do not record deaths of patients at home after discharge.
  - (C) Patients who are very old on admission to a hospital are less likely than younger patients to survive the same types of illnesses or surgical procedures.
  - (D) Some hospitals serve a larger proportion of low-income patients, who tend to be more seriously ill when admitted to a hospital.
  - (E) For-profit hospitals sometimes do not provide intensive-care units and other expensive services for very sick patients but refer or transfer such patients to other hospitals.
18. Teresa: Manned spaceflight does not have a future, since it cannot compete economically with other means of accomplishing the objectives of spaceflight.

Edward: No mode of human transportation has a better record of reliability: two accidents in twenty-five years. Thus manned spaceflight definitely has a positive future.

Which of the following is the best logical evaluation of Edward's argument as a response to Teresa's argument?

- (A) It cites evidence that, if true, tends to disprove the evidence cited by Teresa in drawing her conclusion.
- (B) It indicates a logical gap in the support that Teresa offers for her conclusion.
- (C) It raises a consideration that outweighs the argument Teresa makes.
- (D) It does not meet Teresa's point because it assumes that there is no serious impediment to transporting people into space, but this was the issue raised by Teresa.
- (E) It fails to respond to Teresa's argument because it does not address the fundamental issue of whether space activities should have priority over other claims on the national budget.



19. Black Americans are, on the whole, about twice as likely as White Americans to develop high blood pressure. This likelihood also holds for westernized Black Africans when compared to White Africans.

Researchers have hypothesized that this predisposition in westernized Blacks may reflect an interaction between western high-salt diets and genes that adapted to an environmental scarcity of salt.

Which of the following statements about present-day, westernized Black Africans, if true, would most tend to confirm the researchers' hypothesis?

- (A) The blood pressures of those descended from peoples situated throughout their history in Senegal and Gambia, where salt was always available, are low.
- (B) The unusually high salt consumption in certain areas of Africa represents a serious health problem.
- (C) Because of their blood pressure levels, most White Africans have markedly decreased their salt consumption.
- (D) Blood pressures are low among the Yoruba, who, throughout their history, have been situated far inland from sources of sea salt and far south of Saharan salt mines.
- (E) No significant differences in salt metabolism have been found between those people who have had salt available throughout their history and those who have not.

20. The following proposal to amend the bylaws of an organization was circulated to its members for comment.

When more than one nominee is to be named for an office, prospective nominees must consent to nomination and before giving such consent must be told who the other nominees will be.

Which of the following comments concerning the logic of the proposal is accurate if it cannot be known who the actual nominees are until prospective nominees have given their consent to be nominated?

- (A) The proposal would make it possible for each of several nominees for an office to be aware of who all of the other nominees are.
- (B) The proposal would widen the choice available to those choosing among the nominees.
- (C) If there are several prospective nominees, the proposal would deny the last nominee equal treatment with the first.
- (D) The proposal would enable a prospective nominee to withdraw from competition with a specific person without making that withdrawal known.
- (E) If there is more than one prospective nominee, the proposal would make it impossible for anyone to become a nominee.

## CRITICAL REASONING TEST SECTION 4

30 Minutes 20 Questions

1. Which of the following best completes the passage below?

In a survey of job applicants, two-fifths admitted to being at least a little dishonest. However, the survey may underestimate the proportion of job applicants who are dishonest, because——.

- (A) some dishonest people taking the survey might have claimed on the survey to be honest
- (B) some generally honest people taking the survey might have claimed on the survey to be dishonest
- (C) some people who claimed on the survey to be at least a little dishonest may be very dishonest
- (D) some people who claimed on the survey to be dishonest may have been answering honestly
- (E) some people who are not job applicants are probably at least a little dishonest

Questions 2-3 are based on the following.

The average life expectancy for the United States population as a whole is 73.9 years, but children born in Hawaii will live an average of 77 years, and those born in Louisiana, 71.7 years. If a newlywed couple from Louisiana were to begin their family in Hawaii, therefore, their children would be expected to live longer than would be the case if the family remained in Louisiana.

2. Which of the following, if true, would most seriously weaken the conclusion drawn in the passage?

- (A) Insurance company statisticians do not believe that moving to Hawaii will significantly lengthen the average Louisianian's life.
- (B) The governor of Louisiana has falsely alleged that statistics for his state are inaccurate.
- (C) The longevity ascribed to Hawaii's current population is attributable mostly to genetically determined factors.
- (D) Thirty percent of all Louisianians can expect to live longer than 77 years.
- (E) Most of the Hawaiian Islands have levels of air pollution well below the national average for the United States.

3. Which of the following statements, if true, would most significantly strengthen the conclusion drawn in the passage?
- (A) As population density increases in Hawaii, life expectancy figures for that state are likely to be revised downward.
  - (B) Environmental factors tending to favor longevity are abundant in Hawaii and less numerous in Louisiana.
  - (C) Twenty-five percent of all Louisianians who move to Hawaii live longer than 77 years.
  - (D) Over the last decade, average life expectancy has risen at a higher rate for Louisianians than for Hawaiians.
  - (E) Studies show that the average life expectancy for Hawaiians who move permanently to Louisiana is roughly equal to that of Hawaiians who remain in Hawaii.
4. Insurance Company X is considering issuing a new policy to cover services required by elderly people who suffer from diseases that afflict the elderly. Premiums for the policy must be low enough to attract customers. Therefore, Company X is concerned that the income from the policies would not be sufficient to pay for the claims that would be made.

Which of the following strategies would be most likely to minimize Company X's losses on the policies?

- (A) Attracting middle-aged customers unlikely to submit claims for benefits for many years
- (B) Insuring only those individuals who did not suffer any serious diseases as children
- (C) Including a greater number of services in the policy than are included in other policies of lower cost
- (D) Insuring only those individuals who were rejected by other companies for similar policies
- (E) Insuring only those individuals who are wealthy enough to pay for the medical services

5. A program instituted in a particular state allows parents to prepay their children's future college tuition at current rates. The program then pays the tuition annually for the child at any of the state's public colleges in which the child enrolls. Parents should participate in the program as a means of decreasing the cost for their children's college education.

Which of the following, if true, is the most appropriate reason for parents not to participate in the program?

- (A) The parents are unsure about which public college in the state the child will attend.
- (B) The amount of money accumulated by putting the prepayment funds in an interest-bearing account today will be greater than the total cost of tuition for any of the public colleges when the child enrolls.
- (C) The annual cost of tuition at the state's public colleges is expected to increase at a faster rate than the annual increase in the cost of living.
- (D) Some of the state's public colleges are contemplating large increases in tuition next year.
- (E) The prepayment plan would not cover the cost of room and board at any of the state's public colleges.

6. Company Alpha buys free-travel coupons from people who are awarded the coupons by Bravo Airlines for flying frequently on Bravo airplanes. The coupons are sold to people who pay less for the coupons than they would pay by purchasing tickets from Bravo. This marketing of coupons results in lost revenue for Bravo.

To discourage the buying and selling of free-travel coupons, it would be best for Bravo Airlines to restrict the

- (A) number of coupons that a person can be awarded in a particular year
- (B) use of the coupons to those who were awarded the coupons and members of their immediate families
- (C) days that the coupons can be used to Monday through Friday
- (D) amount of time that the coupons can be used after they are issued
- (E) number of routes on which travelers can use the coupons

7. The ice on the front windshield of the car had formed when moisture condensed during the night. The ice melted quickly after the car was warmed up the next morning because the defrosting vent, which blows only on the front windshield, was turned on full force.

Which of the following, if true, most seriously jeopardizes the validity of the explanation for the speed with which the ice melted?

- (A) The side windows had no ice condensation on them.
- (B) Even though no attempt was made to defrost the back window, the ice there melted at the same rate as did the ice on the front windshield.
- (C) The speed at which ice on a window melts increases as the temperature of the air blown on the window increases.
- (D) The warm air from the defrosting vent for the front windshield cools rapidly as it dissipates throughout the rest of the car.
- (E) The defrosting vent operates efficiently even when the heater, which blows warm air toward the feet or faces of the driver and passengers, is on.

8. To prevent some conflicts of interest, Congress could prohibit high-level government officials from accepting positions as lobbyists for three years after such officials leave government service. One such official concluded, however, that such a prohibition would be unfortunate because it would prevent high-level government officials from earning a livelihood for three years.

The official's conclusion logically depends on which of the following assumptions?

- (A) Laws should not restrict the behavior of former government officials.
- (B) Lobbyists are typically people who have previously been high-level government officials.
- (C) Low-level government officials do not often become lobbyists when they leave government service.
- (D) High-level government officials who leave government service are capable of earning a livelihood only as lobbyists.
- (E) High-level government officials who leave government service are currently permitted to act as lobbyists for only three years.

9. A conservation group in the United States is trying to change the long-standing image of bats as frightening creatures. The group contends that bats are feared and persecuted solely because they are shy animals that are active only at night.

Which of the following, if true, would cast the most serious doubt on the accuracy of the group's contention?

- (A) Bats are steadily losing natural roosting places such as caves and hollow trees and are thus turning to more developed areas for roosting.
- (B) Bats are the chief consumers of nocturnal insects and thus can help make their hunting territory more pleasant for humans.
- (C) Bats are regarded as frightening creatures not only in the United States but also in Europe, Africa, and South America.
- (D) Raccoons and owls are shy and active only at night; yet they are not generally feared and persecuted.
- (E) People know more about the behavior of other greatly feared animal species, such as lions, alligators, and snakes, than they do about the behavior of bats.

10. Meteorite explosions in the Earth's atmosphere as large as the one that destroyed forests in Siberia, with approximately the force of a twelve-megaton nuclear blast, occur about once a century.

The response of highly automated systems controlled by complex computer programs to unexpected circumstances is unpredictable.

Which of the following conclusions can most properly be drawn, if the statements above are true, about a highly automated nuclear-missile defense system controlled by a complex computer program?

- (A) Within a century after its construction, the system would react inappropriately and might accidentally start a nuclear war.
- (B) The system would be destroyed if an explosion of a large meteorite occurred in the Earth's atmosphere.
- (C) It would be impossible for the system to distinguish the explosion of a large meteorite from the explosion of a nuclear weapon.
- (D) Whether the system would respond inappropriately to the explosion of a large meteorite would depend on the location of the blast.
- (E) It is not certain what the system's response to the explosion of a large meteorite would be, if its designers did not plan for such a contingency.

Questions 11-12 are based on the following.

The fewer restrictions there are on the advertising of legal services, the more lawyers there are who advertise their services, and the lawyers who advertise a specific service usually charge less for that service than lawyers who do not advertise. Therefore, if the state removes any of its current restrictions, such as the one against advertisements that do not specify fee arrangements, overall consumer legal costs will be lower than if the state retains its current restrictions.

11. If the statements above are true, which of the following must be true?
- (A) Some lawyers who now advertise will charge more for specific services if they do not have to specify fee arrangements in the advertisements.
  - (B) More consumers will use legal services if there are fewer restrictions on the advertising of legal services.
  - (C) If the restriction against advertisements that do not specify fee arrangements is removed, more lawyers will advertise their services.
  - (D) If more lawyers advertise lower prices for specific services, some lawyers who do not advertise will also charge less than they currently charge for those services.
  - (E) If the only restrictions on the advertising of legal services were those that apply to every type of advertising, most lawyers would advertise their services.
12. Which of the following, if true, would most seriously weaken the argument concerning overall consumer legal costs?
- (A) The state has recently removed some other restrictions that had limited the advertising of legal services.
  - (B) The state is unlikely to remove all of the restrictions that apply solely to the advertising of legal services.
  - (C) Lawyers who do not advertise generally provide legal services of the same quality as those provided by lawyers who do advertise.
  - (D) Most lawyers who now specify fee arrangements in their advertisements would continue to do so even if the specification were not required.
  - (E) Most lawyers who advertise specific services do not lower their fees for those services when they begin to advertise.



13. Defense Department analysts worry that the ability of the United States to wage a prolonged war would be seriously endangered if the machine-tool manufacturing base shrinks further. Before the Defense Department publicly connected this security issue with the import quota issue, however, the machine-tool industry raised the national security issue in its petition for import quotas.

Which of the following, if true, contributes most to an explanation of the machine-tool industry's raising the issue above regarding national security?

- (A) When the aircraft industries retooled, they provided a large amount of work for tool builders.
- (B) The Defense Department is only marginally concerned with the effects of foreign competition on the machine-tool industry.
- (C) The machine-tool industry encountered difficulty in obtaining governmental protection against imports on grounds other than defense.
- (D) A few weapons important for defense consist of parts that do not require extensive machining.
- (E) Several federal government programs have been designed which will enable domestic machine-tool manufacturing firms to compete successfully with foreign toolmakers.

14. Opponents of laws that require automobile drivers and passengers to wear seat belts argue that in a free society people have the right to take risks as long as the people do not harm others as a result of taking the risks. As a result, they conclude that it should be each person's decision whether or not to wear a seat belt.

Which of the following, if true, most seriously weakens the conclusion drawn above?

- (A) Many new cars are built with seat belts that automatically fasten when someone sits in the front seat.
- (B) Automobile insurance rates for all automobile owners are higher because of the need to pay for the increased injuries or deaths of people not wearing seat belts.
- (C) Passengers in airplanes are required to wear seat belts during takeoffs and landings.
- (D) The rate of automobile fatalities in states that do not have mandatory seat-belt laws is greater than the rate of fatalities in states that do have such laws.
- (E) In automobile accidents, a greater number of passengers who do not wear seat belts are injured than are passengers who do wear seat belts.

15. The cost of producing radios in Country Q is ten percent less than the cost of producing radios in Country Y. Even after transportation fees and tariff charges are added, it is still cheaper for a company to import radios from Country Q to Country Y than to produce radios in Country Y.

The statements above, if true, best support which of the following assertions?

- (A) Labor costs in Country Q are ten percent below those in Country Y.
  - (B) Importing radios from Country Q to Country Y will eliminate ten percent of the manufacturing jobs in Country Y.
  - (C) The tariff on a radio imported from Country Q to Country Y is less than ten percent of the cost of manufacturing the radio in Country Y.
  - (D) The fee for transporting a radio from Country Q to Country Y is more than ten percent of the cost of manufacturing the radio in Country Q.
  - (E) It takes ten percent less time to manufacture a radio in Country Q than it does in Country Y.
16. During the Second World War, about 375,000 civilians died in the United States and about 408,000 members of the United States armed forces died overseas. On the basis of those figures, it can be concluded that it was not much more dangerous to be overseas in the armed forces during the Second World War than it was to stay at home as a civilian.

Which of the following would reveal most clearly the absurdity of the conclusion drawn above?

- (A) Counting deaths among members of the armed forces who served in the United States in addition to deaths among members of the armed forces serving overseas
- (B) Expressing the difference between the numbers of deaths among civilians and members of the armed forces as a percentage of the total number of deaths
- (C) Separating deaths caused by accidents during service in the armed forces from deaths caused by combat injuries
- (D) Comparing death rates per thousand members of each group rather than comparing total numbers of deaths
- (E) Comparing deaths caused by accidents in the United States to deaths caused by combat in the armed forces.

17. One state adds a 7 percent sales tax to the price of most products purchased within its jurisdiction. This tax, therefore, if viewed as tax on income, has the reverse effect of the federal income tax: the lower the income, the higher the annual percentage rate at which the income is taxed.

The conclusion above would be properly drawn if which of the following were assumed as a premise?

- (A) The amount of money citizens spend on products subject to the state tax tends to be equal across income levels.
  - (B) The federal income tax favors citizens with high incomes, whereas the state sales tax favors citizens with low incomes.
  - (C) Citizens with low annual incomes can afford to pay a relatively higher percentage of their incomes in state sales tax, since their federal income tax is relatively low.
  - (D) The lower a state's sales tax, the more it will tend to redistribute income from the more affluent citizens to the rest of society.
  - (E) Citizens who fail to earn federally taxable income are also exempt from the state sales tax.
18. The average age of chief executive officers (CEO's) in a large sample of companies is 57. The average age of CEO's in those same companies 20 years ago was approximately eight years younger. On the basis of those data, it can be concluded that CEO's in general tend to be older now.

Which of the following casts the most doubt on the conclusion drawn above?

- (A) The dates when the CEO's assumed their current positions have not been specified.
- (B) No information is given concerning the average number of years that CEO's remain in office.
- (C) The information is based only on companies that have been operating for at least 20 years.
- (D) Only approximate information is given concerning the average age of the CEO's 20 years ago.
- (E) Information concerning the exact number of companies in the sample has not been given.

Questions 19-20 are based on the following.

Surveys show that every year only 10 percent of cigarette smokers switch brands. Yet the manufacturers have been spending an amount equal to 10 percent of their gross receipts on cigarette promotion in magazines. It follows from these figures that inducing cigarette smokers to switch brands did not pay, and that cigarette companies would have been no worse off economically if they had dropped their advertising.

19. Of the following, the best criticism of the conclusion that inducing cigarette smokers to switch brands did not pay is that the conclusion is based on
- (A) computing advertising costs as a percentage of gross receipts, not of overall costs
  - (B) past patterns of smoking and may not carry over to the future
  - (C) the assumption that each smoker is loyal to a single brand of cigarettes at any one time
  - (D) the assumption that each manufacturer produces only one brand of cigarettes
  - (E) figures for the cigarette industry as a whole and may not hold for a particular company
20. Which of the following, if true, most seriously weakens the conclusion that cigarette companies could have dropped advertising without suffering economically?
- (A) Cigarette advertisements provide a major proportion of total advertising revenue for numerous magazines.
  - (B) Cigarette promotion serves to attract first-time smokers to replace those people who have stopped smoking.
  - (C) There exists no research conclusively demonstrating that increases in cigarette advertising are related to increases in smoking.
  - (D) Advertising is so firmly established as a major business activity of cigarette manufacturers that they would be unlikely to drop it.
  - (E) Brand loyalty is typically not very strong among those who smoke inexpensive cigarettes.

**CRITICAL REASONING TEST SECTION 5**  
**30 MINUTES 20 QUESTIONS**

1. Toughened hiring standards have not been the primary cause of the present staffing shortage in public schools. The shortage of teachers is primarily caused by the fact that in recent years teachers have not experienced any improvements in working conditions and their salaries have not kept pace with salaries in other professions.

Which of the following, if true, would most support the claims above?

- (A) Many teachers already in the profession would not have been hired under the new hiring standards.
  - (B) Today more teachers are entering the profession with a higher educational level than in the past.
  - (C) Some teachers have cited higher standards for hiring as a reason for the current staffing shortage.
  - (D) Many teachers have cited low pay and lack of professional freedom as reasons for their leaving the profession.
  - (E) Many prospective teachers have cited the new hiring standards as a reason for not entering the profession.
2. A proposed ordinance requires the installation in new homes of sprinklers automatically triggered by the presence of a fire. However, a home builder argued that because more than ninety percent of residential fires are extinguished by a household member, residential sprinklers would only marginally decrease property damage caused by residential fires.

Which of the following, if true, would most seriously weaken the home builder's argument?

- (A) Most individuals have no formal training in how to extinguish fires.
- (B) Since new homes are only a tiny percentage of available housing in the city, the new ordinance would be extremely narrow in scope.
- (C) The installation of smoke detectors in new residences costs significantly less than the installation of sprinklers.
- (D) In the city where the ordinance was proposed, the average time required by the fire department to respond to a fire was less than the national average.
- (E) The largest proportion of property damage that results from residential fires is caused by fires that start when no household member is present.

3. Even though most universities retain the royalties from faculty members' inventions, the faculty members retain the royalties from books and articles they write. Therefore, faculty members should retain the royalties from the educational computer software they develop.

The conclusion above would be more reasonably drawn if which of the following were inserted into the argument as an additional premise?

- (A) Royalties from inventions are higher than royalties from educational software programs.
  - (B) Faculty members are more likely to produce educational software programs than inventions.
  - (C) Inventions bring more prestige to universities than do books and articles.
  - (D) In the experience of most universities, educational software programs are more marketable than are books and articles.
  - (E) In terms of the criteria used to award royalties, educational software programs are more nearly comparable to books and articles than to inventions.
4. Increases in the level of high-density lipoprotein (HDL) in the human bloodstream lower bloodstream-cholesterol levels by increasing the body's capacity to rid itself of excess cholesterol. Levels of HDL in the bloodstream of some individuals are significantly increased by a program of regular exercise and weight reduction.

Which of the following can be correctly inferred from the statements above?

- (A) Individuals who are underweight do not run any risk of developing high levels of cholesterol in the bloodstream.
- (B) Individuals who do not exercise regularly have a high risk of developing high levels of cholesterol in the bloodstream late in life.
- (C) Exercise and weight reduction are the most effective methods of lowering bloodstream cholesterol levels in humans.
- (D) A program of regular exercise and weight reduction lowers cholesterol levels in the bloodstream of some individuals.
- (E) Only regular exercise is necessary to decrease cholesterol levels in the bloodstream of individuals of average weight.

5. When limitations were in effect on nuclear-arms testing, people tended to save more of their money, but when nuclear-arms testing increased, people tended to spend more of their money. The perceived threat of nuclear catastrophe, therefore, decreases the willingness of people to postpone consumption for the sake of saving money.

The argument above assumes that

- (A) the perceived threat of nuclear catastrophe has increased over the years.
- (B) most people supported the development of nuclear arms
- (C) people's perception of the threat of nuclear catastrophe depends on the amount of nuclear-arms testing being done
- (D) the people who saved the most money when nuclear-arms testing was limited were the ones who supported such limitations
- (E) there are more consumer goods available when nuclear-arms testing increases

6. Which of the following best completes the passage below?

People buy prestige when they buy a premium product. They want to be associated with something special. Mass-marketing techniques and price-reduction strategies should not be used because \_\_\_\_\_.

- (A) affluent purchasers currently represent a shrinking portion of the population of all purchasers
- (B) continued sales depend directly on the maintenance of an aura of exclusivity
- (C) purchasers of premium products are concerned with the quality as well as with the price of the products
- (D) expansion of the market niche to include a broader spectrum of consumers will increase profits
- (E) manufacturing a premium brand is not necessarily more costly than manufacturing a standard brand of the same product

7. A cost-effective solution to the problem of airport congestion is to provide high-speed ground transportation between major cities lying 200 to 500 miles apart. The successful implementation of this plan would cost far less than expanding existing airports and would also reduce the number of airplanes clogging both airports and airways.

Which of the following, if true, could proponents of the plan above most appropriately cite as a piece of evidence for the soundness of their plan?

- (A) An effective high-speed ground-transportation system would require major repairs to many highways and mass-transit improvements.
- (B) One-half of all departing flights in the nation's busiest airport head for a destination in a major city 225 miles away.
- (C) The majority of travelers departing from rural airports are flying to destinations in cities over 600 miles away.
- (D) Many new airports are being built in areas that are presently served by high-speed ground-transportation systems.
- (E) A large proportion of air travelers are vacationers who are taking long-distance flights.

Questions 8-9 are based on the following.

If there is an oil-supply disruption resulting in higher international oil prices, domestic oil prices in open-market countries such as the United States will rise as well, whether such countries import all or none of their oil.

8. If the statement above concerning oil-supply disruptions is true, which of the following policies in an open-market nation is most likely to reduce the long-term economic impact on that nation of sharp and unexpected increases in international oil prices?
- (A) Maintaining the quantity of oil imported at constant yearly levels
  - (B) Increasing the number of oil tankers in its fleet
  - (C) Suspending diplomatic relations with major oil-producing nations
  - (D) Decreasing oil consumption through conservation
  - (E) Decreasing domestic production of oil



9. Which of the following conclusions is best supported by the statement above?

- (A) Domestic producers of oil in open-market countries are excluded from the international oil market when there is a disruption in the international oil supply.
- (B) International oil-supply disruptions have little, if any, effect on the price of domestic oil as long as an open-market country has domestic supplies capable of meeting domestic demand.
- (C) The oil market in an open-market country is actually part of the international oil market, even if most of that country's domestic oil is usually sold to consumers within its borders.
- (D) Open-market countries that export little or none of their oil can maintain stable domestic oil prices even when international oil prices rise sharply.
- (E) If international oil prices rise, domestic distributors of oil in open-market countries will begin to import more oil than they export.

10. The average normal infant born in the United States weighs between twelve and fourteen pounds at the age of three months. Therefore, if a three-month-old child weighs only ten pounds, its weight gain has been below the United States average.

Which of the following indicates a flaw in the reasoning above?

- (A) Weight is only one measure of normal infant development.
- (B) Some three-month-old children weigh as much as seventeen pounds.
- (C) It is possible for a normal child to weigh ten pounds at birth.
- (D) The phrase "below average" does not necessarily mean insufficient.
- (E) Average weight gain is not the same as average weight.

11. Red blood cells in which the malarial-fever parasite resides are eliminated from a person's body after 120 days. Because the parasite cannot travel to a new generation of red blood cells, any fever that develops in a person more than 120 days after that person has moved to a malaria-free region is not due to the malarial parasite.

Which of the following, if true, most seriously weakens the conclusion above?

- (A) The fever caused by the malarial parasite may resemble the fever caused by flu viruses.
- (B) The anopheles mosquito, which is the principal insect carrier of the malarial parasite, has been eradicated in many parts of the world.
- (C) Many malarial symptoms other than the fever, which can be suppressed with antimalarial medication, can reappear within 120 days after the medication is discontinued.
- (D) In some cases, the parasite that causes malarial fever travels to cells of the spleen, which are less frequently eliminated from a person's body than are red blood cells.
- (E) In any region infested with malaria-carrying mosquitoes, there are individuals who appear to be immune to malaria.

12. Fact 1: Television advertising is becoming less effective: the proportion of brand names promoted on television that viewers of the advertising can recall is slowly decreasing.

Fact 2: Television viewers recall commercials aired first or last in a cluster of consecutive commercials far better than they recall commercials aired somewhere in the middle.

Fact 2 would be most likely to contribute to an explanation of fact 1 if which of the following were also true?

- (A) The average television viewer currently recalls fewer than half the brand names promoted in commercials he or she saw.
- (B) The total time allotted to the average cluster of consecutive television commercials is decreasing.
- (C) The average number of hours per day that people spend watching television is decreasing.
- (D) The average number of clusters of consecutive commercials per hour of television is increasing.
- (E) The average number of television commercials in a cluster of consecutive commercials is increasing.

13. The number of people diagnosed as having a certain intestinal disease has dropped significantly in a rural county this year, as compared to last year. Health officials attribute this decrease entirely to improved sanitary conditions at water-treatment plants, which made for cleaner water this year and thus reduced the incidence of the disease.

Which of the following, if true, would most seriously weaken the health officials' explanation for the lower incidence of the disease?

- (A) Many new water-treatment plants have been built in the last five years in the rural county.
  - (B) Bottled spring water has not been consumed in significantly different quantities by people diagnosed as having the intestinal disease, as compared to people who did not contract the disease.
  - (C) Because of a new diagnostic technique, many people who until this year would have been diagnosed as having the intestinal disease are now correctly diagnosed as suffering from intestinal ulcers.
  - (D) Because of medical advances this year, far fewer people who contract the intestinal disease will develop severe cases of the disease.
  - (E) The water in the rural county was brought up to the sanitary standards of the water in neighboring counties ten years ago.
14. The price the government pays for standard weapons purchased from military contractors is determined by a pricing method called "historical costing." Historical costing allows contractors to protect their profits by adding a percentage increase, based on the current rate of inflation, to the previous year's contractual price.

Which of the following statements, if true, is the best basis for a criticism of historical costing as an economically sound pricing method for military contracts?

- (A) The government might continue to pay for past inefficient use of funds.
- (B) The rate of inflation has varied considerably over the past twenty years.
- (C) The contractual price will be greatly affected by the cost of materials used for the products.
- (D) Many taxpayers question the amount of money the government spends on military contracts.
- (E) The pricing method based on historical costing might not encourage the development of innovative weapons.

15. Some who favor putting governmental enterprises into private hands suggest that conservation objectives would in general be better served if private environmental groups were put in charge of operating and financing the national park system, which is now run by the government.

Which of the following, assuming that it is a realistic possibility, argues most strongly against the suggestion above?

- (A) Those seeking to abolish all restrictions on exploiting the natural resources of the parks might join the private environmental groups as members and eventually take over their leadership.
  - (B) Private environmental groups might not always agree on the best ways to achieve conservation objectives.
  - (C) If they wished to extend the park system, the private environmental groups might have to seek contributions from major donors and the general public.
  - (D) There might be competition among private environmental groups for control of certain park areas.
  - (E) Some endangered species, such as the California condor, might die out despite the best efforts of the private environmental groups, even if those groups are not hampered by insufficient resources.
16. A recent spate of launching and operating mishaps with television satellites led to a corresponding surge in claims against companies underwriting satellite insurance. As a result, insurance premiums shot up, making satellites more expensive to launch and operate. This, in turn, has added to the pressure to squeeze more performance out of currently operating satellites.

Which of the following, if true, taken together with the information above, best supports the conclusion that the cost of television satellites will continue to increase?

- (A) Since the risk to insurers of satellites is spread over relatively few units, insurance premiums are necessarily very high.
- (B) When satellites reach orbit and then fail, the causes of failure are generally impossible to pinpoint with confidence.
- (C) The greater the performance demands placed on satellites, the more frequently those satellites break down.
- (D) Most satellites are produced in such small numbers that no economies of scale can be realized.
- (E) Since many satellites are built by unwieldy international consortia, inefficiencies are inevitable.

17. Tocqueville, a nineteenth-century writer known for his study of democracy in the United States, believed that a government that centralizes power in one individual or institution is dangerous to its citizens. Biographers claim that Tocqueville disliked centralized government because he blamed Napoleon's rule for the poverty of his childhood in Normandy.

Which of the following, if true, would cast the most serious doubt on the biographers' claim?

- (A) Although Napoleon was popularly blamed at the time for the terrible living conditions in Normandy, historians now know that bad harvests were really to blame for the poor economic conditions.
  - (B) Napoleon was notorious for refusing to share power with any of his political associates.
  - (C) Tocqueville said he knew that if his father had not suffered ill health, his family would have had a steady income and a comfortable standard of living.
  - (D) Although Tocqueville asserted that United States political life was democratic, the United States of the nineteenth century allowed political power to be concentrated in a few institutions.
  - (E) Tocqueville once wrote in a letter that, although his childhood was terribly impoverished, it was not different from the experience of his friends and neighbors in Normandy.
18. Radio interferometry is a technique for studying details of celestial objects that combines signals intercepted by widely spaced radio telescopes. This technique requires ultraprecise timing, exact knowledge of the locations of the telescopes, and sophisticated computer programs. The successful interferometric linking of an Earth-based radio telescope with a radio telescope on an orbiting satellite was therefore a significant technological accomplishment.

Which of the following can be correctly inferred from the statements above?

- (A) Special care was taken in the launching of the satellite so that the calculations of its orbit would be facilitated.
- (B) The signals received on the satellite are stronger than those received by a terrestrial telescope.
- (C) The resolution of detail achieved by the satellite-Earth interferometer system is inferior to that achieved by exclusively terrestrial systems.
- (D) The computer programs required for making use of the signals received by the satellite required a long time for development.
- (E) The location of an orbiting satellite relative to locations on Earth can be well enough known for interferometric purposes.

19. Recent estimates predict that between 1982 and 1995 the greatest increase in the number of people employed will be in the category of low-paying service occupations. This category, however, will not increase its share of total employment, whereas the category of high-paying service occupations will increase its share.

If the estimates above are accurate, which of the following conclusions can be drawn?

- (A) In 1982 more people were working in low-paying service occupations than were working in high-paying service occupations.
- (B) In 1995 more people will be working in high-paying service occupations than will be working in low-paying service occupations.
- (C) Nonservice occupations will account for the same share of total employment in 1995 as in 1982.
- (D) Many of the people who were working in low-paying service occupations in 1982 will be working in high-paying service occupations by 1995.
- (E) The rate of growth for low-paying service occupations will be greater than the overall rate of employment growth between 1982 and 1995.

20. For a local government to outlaw all strikes by its workers is a costly mistake, because all its labor disputes must then be settled by binding arbitration, without any negotiated public-sector labor settlements guiding the arbitrators. Strikes should be outlawed only for categories of public-sector workers for whose services no acceptable substitute exists.

The statements above best support which of the following conclusions?

- (A) Where public-service workers are permitted to strike, contract negotiations with those workers are typically settled without a strike.
- (B) Where strikes by all categories of public-sector workers are outlawed, no acceptable substitutes for the services provided by any of those workers are available.
- (C) Binding arbitration tends to be more advantageous for public-service workers where it is the only available means of settling labor disputes with such workers.
- (D) Most categories of public-sector workers have no counterparts in the private sector.
- (E) A strike by workers in a local government is unlikely to be settled without help from an arbitrator.

**CRITICAL REASONING TEST SECTION 6**  
**30 MINUTES 20 QUESTIONS**

1. Rural households have more purchasing power than do urban or suburban households at the same income level, since some of the income urban and suburban households use for food and shelter can be used by rural households for other needs.

Which of the following inferences is best supported by the statement made above?

- (A) The average rural household includes more people than does the average urban or suburban household.
  - (B) Rural households have lower food and housing costs than do either urban or suburban households.
  - (C) Suburban households generally have more purchasing power than do either rural or urban households.
  - (D) The median income of urban and suburban households is generally higher than that of rural households.
  - (E) All three types of households spend more of their income on food and housing than on all other purchases combined.
2. In 1985 state border colleges in Texas lost the enrollment of more than half, on average, of the Mexican nationals they had previously served each year. Teaching faculties have alleged that this extreme drop resulted from a rise in tuition for international and out-of-state students from \$40 to \$120 per credit hour.

Which of the following, if feasible, offers the best prospects for alleviating the problem of the drop in enrollment of Mexican nationals as the teaching faculties assessed it?

- (A) Providing grants-in-aid to Mexican nationals to study in Mexican universities
- (B) Allowing Mexican nationals to study in Texas border colleges and to pay in-state tuition rates, which are the same as the previous international rate
- (C) Reemphasizing the goals and mission of the Texas state border colleges as serving both in-state students and Mexican nationals
- (D) Increasing the financial resources of Texas colleges by raising the tuition for in-state students attending state institutions
- (E) Offering career counseling for those Mexican nationals who graduate from state border colleges and intend to return to Mexico

3. Affirmative action is good business. So asserted the National Association of Manufacturers while urging retention of an executive order requiring some federal contractors to set numerical goals for hiring minorities and women. "Diversity in work force participation has produced new ideas in management, product development, and marketing," the association claimed.

The association's argument as it is presented in the passage above would be most strengthened if which of the following were true?

- (A) The percentage of minority and women workers in business has increased more slowly than many minority and women's groups would prefer.
- (B) Those businesses with the highest percentages of minority and women workers are those that have been the most innovative and profitable
- (C) Disposable income has been rising as fast among minorities and women as among the population as a whole.
- (D) The biggest growth in sales in the manufacturing sector has come in industries that market the most innovative products.
- (E) Recent improvements in management practices have allowed many manufacturers to experience enormous gains in worker productivity.

Questions 4-5 refer to the following.

If the airspace around centrally located airports were restricted to commercial airliners and only those private planes equipped with radar, most of the private-plane traffic would be forced to use outlying airfields. Such a reduction in the amount of private-plane traffic would reduce the risk of midair collision around the centrally located airports.

4. The conclusion drawn in the first sentence depends on which of the following assumptions?

- (A) Outlying airfields would be as convenient as centrally located airports for most pilots of private planes.
- (B) Most outlying airfields are not equipped to handle commercial-airline traffic.
- (C) Most private planes that use centrally located airports are not equipped with radar.
- (D) Commercial airliners are at greater risk of becoming involved in midair collisions than are private planes.
- (E) A reduction in the risk of midair collision would eventually lead to increases in commercial-airline traffic.



5. Which of the following, if true, would most strengthen the conclusion drawn in the second sentence?

- (A) Commercial airliners are already required by law to be equipped with extremely sophisticated radar systems.
- (B) Centrally located airports are experiencing over-crowded airspace primarily because of sharp increases in commercial-airline traffic.
- (C) Many pilots of private planes would rather buy radar equipment than be excluded from centrally located airports.
- (D) The number of midair collisions that occur near centrally located airports has decreased in recent years.
- (E) Private planes not equipped with radar systems cause a disproportionately large number of midair collisions around centrally located airports.

6. Which of the following best completes the passage below?

Established companies concentrate on defending what they already have. Consequently, they tend not to be innovative themselves and tend to underestimate the effects of the innovations of others. The clearest example of this defensive strategy is the fact that.....

- (A) ballpoint pens and soft-tip markers have eliminated the traditional market for fountain pens, clearing the way for the marketing of fountain pens as luxury or prestige items
- (B) a highly successful automobile was introduced by the same company that had earlier introduced a model that had been a dismal failure
- (C) a once-successful manufacturer of slide rules reacted to the introduction of electronic calculators by trying to make better slide rules
- (D) one of the first models of modern accounting machines, designed for use in the banking industry, was purchased by a public library as well as by banks
- (E) the inventor of a commonly used anesthetic did not intend the product to be used by dentists, who currently account for almost the entire market for that drug

7. Most archaeologists have held that people first reached the Americas less than 20,000 years ago by crossing a land bridge into North America. But recent discoveries of human shelters in South America dating from 32,000 years ago have led researchers to speculate that people arrived in South America first, after voyaging across the Pacific, and then spread northward.

Which of the following, if it were discovered, would be pertinent evidence against the speculation above?

- (A) A rock shelter near Pittsburgh, Pennsylvania, contains evidence of use by human beings 19,000 years ago.
- (B) Some North American sites of human habitation predate any sites found in South America.
- (C) The climate is warmer at the 32,000-year-old south American site than at the oldest known North American site.
- (D) The site in South America that was occupied 32,000 years ago was continuously occupied until 6,000 years ago.
- (E) The last Ice Age, between 11,500 and 20,000 years ago, considerably lowered worldwide sea levels.

8. In Asia, where palm trees are non-native, the trees' flowers have traditionally been pollinated by hand, which has kept palm fruit productivity unnaturally low. When weevils known to be efficient pollinators of palm flowers were introduced into Asia in 1980, palm fruit productivity increased—by up to fifty percent in some areas—but then decreased sharply in 1984.

Which of the following statements, if true, would best explain the 1984 decrease in productivity?

- (A) Prices for palm fruit fell between 1980 and 1984 following the rise in production and a concurrent fall in demand.
- (B) Imported trees are often more productive than native trees because the imported ones have left behind their pests and diseases in their native lands.
- (C) Rapid increases in productivity tend to deplete trees of nutrients needed for the development of the fruit-producing female flowers.
- (D) The weevil population in Asia remained at approximately the same level between 1980 and 1984.
- (E) Prior to 1980 another species of insect pollinated the Asian palm trees, but not as efficiently as the species of weevil that was introduced in 1980.

9. Since the mayor's publicity campaign for Greenville's bus service began six months ago, morning automobile traffic into the midtown area of the city has decreased seven percent. During the same period, there has been an equivalent rise in the number of persons riding buses into the midtown area. Obviously, the mayor's publicity campaign has convinced many people to leave their cars at home and ride the bus to work..

Which of the following, if true, casts the most serious doubt on the conclusion drawn above?

- (A) Fares for all bus routes in Greenville have risen an average of five percent during the past six months.
- (B) The mayor of Greenville rides the bus to City Hall in the city's midtown area.
- (C) Road reconstruction has greatly reduced the number of lanes available to commuters in major streets leading to the midtown area during the past six months.
- (D) The number of buses entering the midtown area of Greenville during the morning hours is exactly the same now as it was one year ago.
- (E) Surveys show that longtime bus riders are no more satisfied with the Greenville bus service than they were before the mayor's publicity campaign began.

10. In the aftermath of a worldwide stock-market crash, Country T claimed that the severity of the stock-market crash it experienced resulted from the accelerated process of denationalization many of its industries underwent shortly before the crash.

Which of the following, if it could be carried out, would be most useful in an evaluation of Country T's assessment of the causes of the severity of its stock-market crash?

- (A) Calculating the average loss experienced by individual traders in Country T during the crash
- (B) Using economic theory to predict the most likely date of the next crash in Country T
- (C) Comparing the total number of shares sold during the worst days of the crash in Country T to the total number of shares sold in Country T just prior to the crash.
- (D) Comparing the severity of the crash in Country T to the severity of the crash in countries otherwise economically similar to Country T that have not experienced recent denationalization
- (E) Comparing the long-term effects of the crash on the purchasing power of the currency of Country T to the immediate, more severe short-term effects of the crash on the purchasing power of the currency of Country T

11. With the emergence of biotechnology companies, it was feared that they would impose silence about proprietary results on their in-house researchers and their academic consultants. This constraint, in turn, would slow the development of biological science and engineering.

Which of the following, if true, would tend to weaken most seriously the prediction of scientific secrecy described above?

- (A) Biotechnological research funded by industry has reached some conclusions that are of major scientific importance.
  - (B) When the results of scientific research are kept secret, independent researchers are unable to build on those results.
  - (C) Since the research priorities of biotechnology companies are not the same as those of academic institutions, the financial support of research by such companies distorts the research agenda.
  - (D) To enhance the companies' standing in the scientific community, the biotechnology companies encourage employees to publish their results, especially results that are important.
  - (E) Biotechnology companies devote some of their research resources to problems that are of fundamental scientific importance and that are not expected to produce immediate practical applications.
12. Some people have questioned the judge's objectivity in cases of sex discrimination against women. But the record shows that in sixty percent of such cases, the judge has decided in favor of the women. This record demonstrates that the judge has not discriminated against women in cases of sex discrimination against women.

The argument above is flawed in that it ignores the possibility that

- (A) a large number of the judge's cases arose out of allegations of sex discrimination against women
- (B) many judges find it difficult to be objective in cases of sex discrimination against women
- (C) the judge is biased against women defendants or plaintiffs in cases that do not involve sex discrimination
- (D) the majority of the cases of sex discrimination against women that have reached the judge's court have been appealed from a lower court
- (E) the evidence shows that the women should have won in more than sixty percent of the judge's cases involving sex discrimination against women

13. The tobacco industry is still profitable and projections are that it will remain so. In the United States this year, the total amount of tobacco sold by tobacco-farmers has increased, even though the number of adults who smoke has decreased.

Each of the following, if true, could explain the simultaneous increase in tobacco sales and decrease in the number of adults who smoke EXCEPT.

- (A) During this year, the number of women who have begun to smoke is greater than the number of men who have quit smoking.
  - (B) The number of teen-age children who have begun to smoke this year is greater than the number of adults who have quit smoking during the same period.
  - (C) During this year, the number of nonsmokers who have begun to use chewing tobacco or snuff is greater than the number of people who have quit smoking.
  - (D) The people who have continued to smoke consume more tobacco per person than they did in the past.
  - (E) More of the cigarettes made in the United States this year were exported to other countries than was the case last year.
14. Kale has more nutritional value than spinach. But since collard greens have more nutritional value than lettuce, it follows that kale has more nutritional value than lettuce.

Any of the following, if introduced into the argument as an additional premise, makes the argument above logically correct EXCEPT:

- (A) Collard greens have more nutritional value than kale.
- (B) Spinach has more nutritional value than lettuce.
- (C) Spinach has more nutritional value than collard greens.
- (D) Spinach and collard greens have the same nutritional value.
- (E) Kale and collard greens have the same nutritional value.

15. On the basis of a decrease in the college-age population, many colleges now anticipate increasingly smaller freshman classes each year. Surprised by a 40 percent increase in qualified applicants over the previous year, however, administrators at Nice College now plan to hire more faculty for courses taken by all freshmen.

Which of the following statements about Nice College's current qualified applicants, if true, would strongly suggest that the administrators' plan is flawed?

- (A) A substantially higher percentage than usual plan to study for advanced degrees after graduation from college.
- (B) According to their applications, their level of participation in extracurricular activities and varsity sports is unusually high.
- (C) According to their applications, none of them lives in a foreign country.
- (D) A substantially lower percentage than usual rate Nice College as their first choice among the colleges to which they are applying.
- (E) A substantially lower percentage than usual list mathematics as their intended major.

Questions 16-17 are based on the following.

A researcher discovered that people who have low levels of immune-system activity tend to score much lower on tests of mental health than do people with normal or high immune-system activity. The researcher concluded from this experiment that the immune system protects against mental illness as well as against physical disease.

16. The researcher's conclusion depends on which of the following assumptions?

- (A) High immune-system activity protects against mental illness better than normal immune-system activity does.
- (B) Mental illness is similar to physical disease in its effects on body system.
- (C) People with high immune-system activity cannot develop mental illness.
- (D) Mental illness does not cause people's immune-system activity to decrease.
- (E) Psychological treatment of mental illness is not as effective as is medical treatment.

17. The researcher's conclusion would be most seriously weakened if it were true that
- (A) there was a one-year delay between the completion of a pilot study for the experiment and the initiation of the experiment itself
  - (B) people's levels of immune-system activity are not affected by their use of medications
  - (C) a few people with high immune-system activity had scores on the test of mental health that were similar to the scores of people who had normal immune-system activity
  - (D) people who have low immune-system activity tend to contract more viral infections than do people with normal or high immune-system activity
  - (E) high levels of stress first cause mental illness and then cause decreased immune-system activity in normal individuals

18. The value of a product is determined by the ratio of its quality to its price. The higher the value of a product, the better will be its competitive position. Therefore, either increasing the quality or lowering the price of a given product will increase the likelihood that consumer will select that product rather than a competing one.

Which of the following, if true, would most strengthen the conclusion drawn above?

- (A) It is possible to increase both the quality and the price of a product without changing its competitive position.
- (B) For certain segments of the population of consumers, higher-priced brands of some product lines are preferred to the lower-priced brands.
- (C) Competing products often try to appeal to different segments of the population of consumers.
- (D) The competitive position of a product can be affected by such factors as advertising and brand loyalty.
- (E) Consumers' perceptions of the quality of a product are based on the actual quality of the product.

19. In January there was a large drop in the number of new houses sold, because interest rates for mortgages were falling and many consumers were waiting to see how low the rates would go. This large sales drop was accompanied by a sharp rise in the average price of new houses sold.

Which of the following, if true, best explains the sharp rise in the average price of new houses?

- (A) Sales of higher-priced houses were unaffected by the sales drop because their purchasers have fewer constraints limiting the total amount they pay.
  - (B) Labor agreements of builders with construction unions are not due to expire until the next January.
  - (C) The prices of new houses have been rising slowly over the past three years because there is an increasing shortage of housing.
  - (D) There was a greater amount of moderate-priced housing available for resale by owners during January than in the preceding three months.
  - (E) Interest rates for home mortgages are expected to rise sharply later in the year if predictions of increased business activity in general prove to be accurate.
20. Seven countries signed a treaty binding each of them to perform specified actions on a certain fixed date, with the actions of each conditional on simultaneous action taken by the other countries. Each country was also to notify the six other countries when it had completed its action.

The simultaneous-action provision of the treaty leaves open the possibility that

- (A) the compliance date was subject to postponement, according to the terms of the treaty
- (B) one of the countries might not be required to make any changes or take any steps in order to comply with the treaty, whereas all the other countries are so required.
- (C) each country might have a well-founded excuse, based on the provision, for its own lack of compliance
- (D) the treaty specified that the signal for one of the countries to initiate action was notification by the other countries that they had completed action
- (E) there was ambiguity with respect to the date after which all actions contemplated in the treaty are to be complete.



**CRITICAL REASONING TEST SECTION 7**  
**30 MINUTES 20 QUESTIONS**

1. A milepost on the towpath read “21” on the side facing the hiker as she approached it and “23” on its back. She reasoned that the next milepost forward on the path would indicate that she was halfway between one end of the path and the other. However, the milepost one mile further on read “20” facing her and “24” behind.

Which of the following, if true, would explain the discrepancy described above?

- (A) The numbers on the next milepost had been reversed.
  - (B) The numbers on the mileposts indicate kilometers, not miles.
  - (C) The facing numbers indicate miles to the end of the path, not miles from the beginning.
  - (D) A milepost was missing between the two the hiker encountered.
  - (E) The mileposts had originally been put in place for the use of mountain bikers, not for hikers.
2. Airline: Newly developed collision-avoidance systems, although not fully tested to discover potential malfunctions, must be installed immediately in passenger planes. Their mechanical warnings enable pilots to avoid crashes.
- Pilots: Pilots will not fly in planes with collision-avoidance systems that are not fully tested. Malfunctioning systems could mislead pilots, causing crashes.
- The pilots’ objection is most strengthened if which of the following is true?
- (A) It is always possible for mechanical devices to malfunction.
  - (B) Jet engines, although not fully tested when first put into use, have achieved exemplary performance and safety records.
  - (C) Although collision-avoidance systems will enable pilots to avoid some crashes, the likely malfunctions of the not-fully-tested systems will cause even more crashes.
  - (D) Many airline collisions are caused in part by the exhaustion of overworked pilots.
  - (E) Collision-avoidance systems, at this stage of development, appear to have worked better in passenger planes than in cargo planes during experimental flights made over a six-month period.

3. Guitar strings often go “dead”—become less responsive and bright in tone—after a few weeks of intense use. A researcher whose son is a classical guitarist hypothesized that dirt and oil, rather than changes in the material properties of the string, were responsible. Which of the following investigations is most likely to yield significant information that would help to evaluate the researcher’s hypothesis?
- (A) Determining if a metal alloy is used to make the strings used by classical guitarists
  - (B) Determining whether classical guitarists make their strings go dead faster than do folk guitarists
  - (C) Determining whether identical lengths of string, of the same gauge, go dead at different rates when strung on various brands of guitars.
  - (D) Determining whether a dead string and a new string produce different qualities of sound
  - (E) Determining whether smearing various substances on new guitar strings causes them to go dead
4. Most consumers do not get much use out of the sports equipment they purchase. For example, seventeen percent of the adults in the United States own jogging shoes, but only forty-five percent of the owners jog more than once a year, and only seventeen percent jog more than once a week. Which of the following, if true, casts most doubt on the claim that most consumers get little use out of the sports equipment they purchase?
- (A) Joggers are most susceptible to sports injuries during the first six months in which they jog.
  - (B) Joggers often exaggerate the frequency with which they jog in surveys designed to elicit such information.
  - (C) Many consumers purchase jogging shoes for use in activities other than jogging.
  - (D) Consumers who take up jogging often purchase an athletic shoe that can be used in other sports.
  - (E) Joggers who jog more than once a week are often active participants in other sports as well.

5. Two decades after the Emerald River Dam was built, none of the eight fish species native to the Emerald River was still reproducing adequately in the river below the dam. Since the dam reduced the annual range of water temperature in the river below the dam from 50 degrees to 6 degrees, scientists have hypothesized that sharply rising water temperatures must be involved in signaling the native species to begin the reproductive cycle.

Which of the following statements, if true, would most strengthen the scientists' hypothesis?

- (A) The native fish species were still able to reproduce only in side streams of the river below the dam where the annual temperature range remains approximately 50 degrees.
- (B) Before the dam was built, the Emerald River annually overflowed its banks, creating backwaters that were critical breeding areas for the native species of fish.
- (C) The lowest recorded temperature of the Emerald River before the dam was built was 34 degrees, whereas the lowest recorded temperature of the river after the dam was built has been 43 degrees.
- (D) Nonnative species of fish, introduced into the Emerald River after the dam was built, have begun competing with the declining native fish species for food and space.
- (E) Five of the fish species native to the Emerald River are not native to any other river in North America.

6. It is true that it is against international law to sell plutonium to countries that do not yet have nuclear weapons. But if United States companies do not do so, companies in other countries will.

Which of the following is most like the argument above in its logical structure?

- (A) It is true that it is against the police department's policy to negotiate with kidnappers. But if the police want to prevent loss of life, they must negotiate in some cases.
- (B) It is true that it is illegal to refuse to register for military service. But there is a long tradition in the United States of conscientious objection to serving in the armed forces.
- (C) It is true that it is illegal for a government official to participate in a transaction in which there is an apparent conflict of interest. But if the facts are examined carefully, it will clearly be seen that there was no actual conflict of interest in the defendant's case.
- (D) It is true that it is against the law to burglarize people's homes. But someone else certainly would have burglarized that house if the defendant had not done so first.
- (E) It is true that company policy forbids supervisors to fire employees without two written warnings. But there have been many supervisors who have disobeyed this policy.

7. In recent years many cabinetmakers have been winning acclaim as artists. But since furniture must be useful, cabinetmakers must exercise their craft with an eye to the practical utility of their product. For this reason, cabinetmaking is not art.

Which of the following is an assumption that supports drawing the conclusion above from the reason given for that conclusion?

- (A) Some furniture is made to be placed in museums, where it will not be used by anyone.
- (B) Some cabinetmakers are more concerned than others with the practical utility of the products they produce.
- (C) Cabinetmakers should be more concerned with the practical utility of their products than they currently are.
- (D) An object is not an art object if its maker pays attention to the object's practical utility.
- (E) Artists are not concerned with the monetary value of their products.

8. Although custom prosthetic bone replacements produced through a new computer-aided design process will cost more than twice as much as ordinary replacements, custom replacements should still be cost-effective. Not only will surgery and recovery time be reduced, but custom replacements should last longer, thereby reducing the need for further hospital stays.

Which of the following must be studied in order to evaluate the argument presented above?

- (A) The amount of time a patient spends in surgery *versus* the amount of time spent recovering from surgery
- (B) The amount by which the cost of producing custom replacements has declined with the introduction of the new technique for producing them
- (C) The degree to which the use of custom replacements is likely to reduce the need for repeat surgery when compared with the use of ordinary replacements
- (D) The degree to which custom replacements produced with the new technique are more carefully manufactured than are ordinary replacements
- (E) The amount by which custom replacements produced with the new technique will drop in cost as the production procedures become standardized and applicable on a larger scale

9. Extinction is a process that can depend on a variety of ecological, geographical, and physiological variables. These variables affect different species of organisms in different ways, and should, therefore, yield a random pattern of extinctions. However, the fossil record shows that extinction occurs in a surprisingly definite pattern, with many species vanishing at the same time. Which of the following, if true, forms the best basis for at least a partial explanation of the patterned extinctions revealed by the fossil record?

- (A) Major episodes of extinction can result from widespread environmental disturbances that affect numerous different species.
- (B) Certain extinction episodes selectively affect organisms with particular sets of characteristics unique to their species.
- (C) Some species become extinct because of accumulated gradual changes in their local environments.
- (D) In geologically recent times, for which there is no fossil record, human intervention has changed the pattern of extinctions.
- (E) Species that are widely dispersed are the least likely to become extinct.

10. Neither a rising standard of living nor balanced trade, by itself, establishes a country's ability to compete in the international marketplace. Both are required simultaneously since standards of living can rise because of growing trade deficits and trade can be balanced by means of a decline in a country's standard of living.

If the facts stated in the passage above are true, a proper test of a country's ability to be competitive is its ability to

- (A) balance its trade while its standard of living rises
- (B) balance its trade while its standard of living falls
- (C) increase trade deficits while its standard of living rises
- (D) decrease trade deficits while its standard of living falls
- (E) keep its standard of living constant while trade deficits rise.

11. Certain messenger molecules fight damage to the lungs from noxious air by telling the muscle cells encircling the lungs' airways to contract. This partially seals off the lungs. An asthma attack occurs when the messenger molecules are activated unnecessarily, in response to harmless things like pollen or household dust.

Which of the following, if true, points to the most serious flaw of a plan to develop a medication that would prevent asthma attacks by blocking receipt of any messages sent by the messenger molecules referred to above?

- (A) Researchers do not yet know how the body produces the messenger molecules that trigger asthma attacks.
- (B) Researchers do not yet know what makes one person's messenger molecules more easily activated than another's.
- (C) Such a medication would not become available for several years, because of long lead times in both development and manufacture.
- (D) Such a medication would be unable to distinguish between messages triggered by pollen and household dust and messages triggered by noxious air.
- (E) Such a medication would be a preventative only and would be unable to alleviate an asthma attack once it had started.

12. Since the routine use of antibiotics can give rise to resistant bacteria capable of surviving antibiotic environments, the presence of resistant bacteria in people could be due to the human use of prescription antibiotics. Some scientists, however, believe that most resistant bacteria in people derive from human consumption of bacterially infected meat.

Which of the following statements, if true, would most significantly strengthen the hypothesis of the scientists?

- (A) Antibiotics are routinely included in livestock feed so that livestock producers can increase the rate of growth of their animals.
- (B) Most people who develop food poisoning from bacterially infected meat are treated with prescription antibiotics.
- (C) The incidence of resistant bacteria in people has tended to be much higher in urban areas than in rural areas where meat is of comparable quality.
- (D) People who have never taken prescription antibiotics are those least likely to develop resistant bacteria.
- (E) Livestock producers claim that resistant bacteria in animals cannot be transmitted to people through infected meat.

13. The recent decline in the value of the dollar was triggered by a prediction of slower economic growth in the coming year. But that prediction would not have adversely affected the dollar had it not been for the government's huge budget deficit, which must therefore be decreased to prevent future currency declines. Which of the following, if true, would most seriously weaken the conclusion about how to prevent future currency declines?

- (A) The government has made little attempt to reduce the budget deficit.
- (B) The budget deficit has not caused a slowdown in economic growth.
- (C) The value of the dollar declined several times in the year prior to the recent prediction of slower economic growth.
- (D) Before there was a large budget deficit, predictions of slower economic growth frequently caused declines in the dollar's value.
- (E) When there is a large budget deficit, other events in addition to predictions of slower economic growth sometimes trigger declines in currency value.

14. Which of the following best completes the passage below?

At a recent conference on environmental threats to the North Sea, most participating countries favored uniform controls on the quality of effluents, whether or not specific environmental damage could be attributed to a particular source of effluent. What must, of course, be shown, in order to avoid excessively restrictive controls, is that \_\_\_\_\_.

- (A) any uniform controls that are adopted are likely to be implemented without delay
- (B) any substance to be made subject to controls can actually cause environmental damage
- (C) the countries favoring uniform controls are those generating the largest quantities of effluents
- (D) all of any given pollutant that is to be controlled actually reaches the North Sea at present
- (E) environmental damage already inflicted on the North Sea is reversible

15. Traditionally, decision-making by managers that is reasoned step-by-step has been considered preferable to intuitive decision-making. However, a recent study found that top managers used intuition significantly more than did most middle-or lower-level managers. This confirms the alternative view that intuition is actually more effective than careful, methodical reasoning.

The conclusion above is based on which of the following assumptions?

- (A) Methodical, step-by-step reasoning is inappropriate for making many real-life management decisions.
  - (B) Top managers have the ability to use either intuitive reasoning or methodical, step-by-step reasoning in making decisions.
  - (C) The decisions made by middle-and lower-level managers can be made as easily by using methodical reasoning as by using intuitive reasoning.
  - (D) Top managers use intuitive reasoning in making the majority of their decisions.
  - (E) Top managers are more effective at decision-making than middle-or lower-level managers
16. The imposition of quotas limiting imported steel will not help the big American steel mills. In fact, the quotas will help “mini-mills” flourish in the United States. Those small domestic mills will take more business from the big American steel mills than would have been taken by the foreign steel mills in the absence of quotas.

Which of the following, if true, would cast the most serious doubt on the claim made in the last sentence above?

- (A) Quality rather than price is a major factor in determining the type of steel to be used for a particular application.
- (B) Foreign steel mills have long produced grades of steel comparable in quality to the steel produced by the big American mills.
- (C) American quotas on imported goods have often induced other countries to impose similar quotas on American goods.
- (D) Domestic “mini-mills” consistently produce better grades of steel than do the big American mills.
- (E) Domestic “mini-mills” produce low-volume, specialized types of steels that are not produced by the big American steel mills.



17. Correctly measuring the productivity of service workers is complex. Consider, for example, postal workers: they are often said to be more productive if more letters are delivered per postal worker. But is this really true? what if more letters are lost or delayed per worker at the same time that more are delivered?

The objection implied above to the productivity measure described is based on doubts about the truth of which of the following statements?

- (A) Postal workers are representative of service workers in general.
  - (B) The delivery of letters is the primary activity of the postal service.
  - (C) Productivity should be ascribed to categories of workers, not to individuals.
  - (D) The quality of services rendered can appropriately be ignored in computing productivity.
  - (E) The number of letters delivered is relevant to measuring the productivity of postal workers.
18. Male bowerbirds construct elaborately decorated nests, or bowers. Basing their judgment on the fact that different local populations of bowerbirds of the same species build bowers that exhibit different building and decorative styles, researchers have concluded that the bowerbirds' building styles are a culturally acquired, rather than a genetically transmitted, trait. Which of the following, if true, would most strengthen the conclusion drawn by the researchers?
- (A) There are more common characteristics than there are differences among the bower-building styles of the local bowerbird population that has been studied most extensively
  - (B) Young male bowerbirds are inept at bower-building and apparently spend years watching their elders before becoming accomplished in the local bower style.
  - (C) The bowers of one species of bowerbird lack the towers and ornamentation characteristic of the bowers of most other species of bowerbird.
  - (D) Bowerbirds are found only in New Guinea and Australia, where local populations of the birds apparently seldom have contact with one another.
  - (E) It is well known that the song dialects of some songbirds are learned rather than transmitted genetically.

19. A greater number of newspapers are sold in Town S than in Town T. Therefore, the citizens of Town S are better informed about major world events than are the citizens of Town T.

Each of the following, if true, weakens the conclusion above EXCEPT:

- (A) Town S has a larger population than Town T.
- (B) Most citizens of Town T work in Town S and buy their newspapers there.
- (C) The average citizen of Town S spends less time reading newspapers than does the average citizen of Town T.
- (D) A weekly newspaper restricted to the coverage of local events is published in Town S.
- (E) The average newsstand price of newspapers sold in Town S is lower than the average price of newspapers sold in Town T.

20. One analyst predicts that Hong Kong can retain its capitalist ways after it becomes part of mainland China in 1997 as long as a capitalist Hong Kong is useful to China; that a capitalist Hong Kong will be useful to China as long as Hong Kong is prosperous; and that Hong Kong will remain prosperous as long as it retains its capitalist ways.

If the predictions above are correct, which of the following further predictions can logically be derived from them?

- (A) If Hong Kong fails to stay prosperous, it will no longer remain part of mainland China.
- (B) If Hong Kong retains its capitalist ways until 1997, it will be allowed to do so afterward.
- (C) If there is a world economic crisis after 1997, it will not adversely affect the economy of Hong Kong.
- (D) Hong Kong will be prosperous after 1997
- (E) The citizens of Hong Kong will have no restrictions placed on them by the government of mainland China.

**CRITICAL REASONING TEST SECTION 8**  
**30 MINUTES 20 QUESTIONS**

1. A drug that is highly effective in treating many types of infection can, at present, be obtained only from the bark of the ibora, a tree that is quite rare in the wild. It takes the bark of 5,000 tree to make one kilogram of the drug. It follows, therefore, that continued production of the drug must inevitably lead to the ibora's extinction.

Which of the following, if true, most seriously weakens the argument above?

- (A) The drug made from ibora bark is dispensed to doctors from a central authority.
  - (B) The drug made from ibora bark is expensive to produce.
  - (C) The leaves of the ibora are used in a number of medical products.
  - (D) The ibora can be propagated from cuttings and grown under cultivation.
  - (E) The ibora generally grows in largely inaccessible places.
2. High levels of fertilizer and pesticides, needed when farmers try to produce high yield of the same crop year after year, pollute water supplies. Experts therefore urge farmers to diversify their crops and to rotate their plantings yearly.

To receive governmental price-support benefits for a crop, farmers must have produced that same crop for the past several years.

The statements above, if true, best support which of the following conclusions?

- (A) The rules for governmental support of farm prices work against efforts to reduce water pollution.
- (B) The only solution to the problem of water pollution from fertilizers and pesticides is to take farmland out of production.
- (C) Farmers can continue to make a profit by rotating diverse crops, thus reducing costs for chemicals, but not by planting the same crop each year.
- (D) New farming techniques will be developed to make it possible for farmers to reduce the application of fertilizers and pesticides.
- (E) Governmental price supports for farm products are set at levels that are not high enough to allow farmers to get out of debt.

3. Shelby Industries manufactures and sells the same gauges as Jones Industries. Employee wages account for forty percent of the cost of manufacturing gauges at both Shelby Industries and Jones Industries. Shelby Industries is seeking a competitive advantage over Jones Industries. Therefore, to promote this end, Shelby Industries should lower employee wages.

Which of the following, if true, would most weaken the argument above?

- (A) Because they make a small number of precision instruments, gauge manufacturers cannot receive volume discounts on raw materials.
  - (B) Lowering wages would reduce the quality of employee work, and this reduced quality would lead to lowered sales.
  - (C) Jones Industries has taken away twenty percent of Shelby Industries' business over the last year.
  - (D) Shelby Industries pays its employees, on average, ten percent more than does Jones Industries.
  - (E) Many people who work for manufacturing plants live in areas in which the manufacturing plant they work for is the only industry.
4. Some communities in Florida are populated almost exclusively by retired people and contain few, if any, families with small children. Yet these communities are home to thriving businesses specializing in the rental of furniture for infants and small children.

Which of the following, if true, best reconciles the seeming discrepancy described above?

- (A) The businesses specializing in the rental of children's furniture buy their furniture from distributors outside of Florida.
- (B) The few children who do reside in these communities all know each other and often make overnight visits to one another's houses.
- (C) Many residents of these communities who move frequently prefer renting their furniture to buying it outright.
- (D) Many residents of these communities must provide for the needs of visiting grandchildren several weeks a year.
- (E) Children's furniture available for rental is of the same quality as that available for sale in the stores.

5. Large national budget deficits do not cause large trade deficits. If they did, countries with the largest budget deficits would also have the largest trade deficits. In fact, when deficit figures are adjusted so that different countries are reliably comparable to each other, there is no such correlation.

If the statements above are all true, which of the following can properly be inferred on the basis of them?

- (A) Countries with large national budget deficits tend to restrict foreign trade.
  - (B) Reliable comparisons of the deficit figures of one country with those of another are impossible.
  - (C) Reducing a country's national budget deficit will not necessarily result in a lowering of any trade deficit that country may have.
  - (D) When countries are ordered from largest to smallest in terms of population, the smallest countries generally have the smallest budget and trade deficits.
  - (E) Countries with the largest trade deficits never have similarly large national budget deficits.
6. "Fast cycle time" is a strategy of designing a manufacturing organization to eliminate bottlenecks and delays in production. Not only does it speed up production, but it also assures quality. The reason is that the bottlenecks and delays cannot be eliminated unless all work is done right the first time.

The claim about quality made above rests on a questionable presupposition that

- (A) any flaw in work on a product would cause a bottleneck or delay and so would be prevented from occurring on a "fast cycle" production line
- (B) the strategy of "fast cycle time" would require fundamental rethinking of product design
- (C) the primary goal of the organization is to produce a product of unexcelled quality, rather than to generate profits for stockholders
- (D) "fast cycle time" could be achieved by shaving time off each of the component processes in production cycle
- (E) "fast cycle time" is a concept in business strategy that has not yet been put into practice in a factory

7. Many breakfast cereals are fortified with vitamin supplements. Some of these cereals provide 100 percent of the recommended daily requirement of vitamins. Nevertheless, a well-balanced breakfast, including a variety of foods, is a better source of those vitamins than are such fortified breakfast cereals alone.

Which of the following, if true, would most strongly support the position above?

- (A) In many foods, the natural combination of vitamins with other nutrients makes those vitamins more usable by the body than are vitamins added in vitamin supplements.
  - (B) People who regularly eat cereals fortified with vitamin supplements sometimes neglect to eat the foods in which the vitamins occur naturally.
  - (C) Foods often must be fortified with vitamin supplements because naturally occurring vitamins are removed during processing.
  - (D) Unprocessed cereals are naturally high in several of the vitamins that are usually added to fortified breakfast cereals.
  - (E) Cereals containing vitamin supplements are no harder to digest than similar cereals without added vitamins.
8. Which of the following best completes the passage below?  
The more worried investors are about losing their money, the more they will demand a high potential return on their investment; great risks must be offset by the chance of great rewards. This principle is the fundamental one in determining interest rates, and it is illustrated by the fact that—.
- (A) successful investors are distinguished by an ability to make very risky investments without worrying about their money
  - (B) lenders receive higher interest rates on unsecured loans than on loans backed by collateral
  - (C) in times of high inflation, the interest paid to depositors by banks can actually be below the rate of inflation
  - (D) at any one time, a commercial bank will have a single rate of interest that it will expect all of its individual borrowers to pay
  - (E) the potential return on investment in a new company is typically lower than the potential return on investment in a well-established company

9. A famous singer recently won a lawsuit against an advertising firm for using another singer in a commercial to evoke the famous singer's well-known rendition of a certain song. As a result of the lawsuit, advertising firms will stop using imitators in commercials. Therefore, advertising costs will rise, since famous singers' services cost more than those of their imitators.

The conclusion above is based on which of the following assumptions?

- (A) Most people are unable to distinguish a famous singer's rendition of a song from a good imitator's rendition of the same song.
- (B) Commercials using famous singers are usually more effective than commercials using imitators of famous singers.
- (C) The original versions of some well-known songs are unavailable for use in commercials.
- (D) Advertising firms will continue to use imitators to mimic the physical mannerisms of famous singers.
- (E) The advertising industry will use well-known renditions of songs in commercials.

10. A certain mayor has proposed a fee of five dollars per day on private vehicles entering the city, claiming that the fee will alleviate the city's traffic congestion. The mayor reasons that, since the fee will exceed the cost of round-trip bus fare from many nearby points, many people will switch from using their cars to using the bus.

Which of the following statements, if true, provides the best evidence that the mayor's reasoning is flawed?

- (A) Projected increases in the price of gasoline will increase the cost of taking a private vehicle into the city.
- (B) The cost of parking fees already makes it considerably more expensive for most people to take a private vehicle into the city than to take a bus.
- (C) Most of the people currently riding the bus do not own private vehicles.
- (D) Many commuters opposing the mayor's plan have indicated that they would rather endure traffic congestion than pay a five-dollar-per day fee.
- (E) During the average workday, private vehicles owned and operated by people living within the city account for twenty percent of the city's traffic congestion.

11. A group of children of various ages was read stories in which people caused harm, some of those people doing so intentionally, and some accidentally. When asked about appropriate punishments for those who had caused harm, the younger children, unlike the older ones, assigned punishments that did not vary according to whether the harm was done intentionally or accidentally. Younger children, then, do not regard people's intentions as relevant to punishment.

Which of the following, if true, would most seriously weaken the conclusion above?

- (A) In interpreting these stories, the listeners had to draw on a relatively mature sense of human psychology in order to tell whether harm was produced intentionally or accidentally.
  - (B) In these stories, the severity of the harm produced was clearly stated.
  - (C) Younger children are as likely to produce harm unintentionally as are older children.
  - (D) The older children assigned punishment in a way that closely resembled the way adults had assigned punishment in a similar experiment.
  - (E) The younger children assigned punishments that varied according to the severity of the harm done by the agents in the stories.
12. When hypnotized subjects are told that they are deaf and are then asked whether they can hear the hypnotist, they reply, "No." Some theorists try to explain this result by arguing that the selves of hypnotized subjects are dissociated into separate parts, and that the part that is deaf is dissociated from the part that replies.

Which of the following challenges indicates the most serious weakness in the attempted explanation described above?

- (A) Why does the part that replies not answer, "Yes"?
- (B) Why are the observed facts in need of any special explanation?
- (C) Why do the subjects appear to accept the hypnotist's suggestion that they are deaf?
- (D) Why do hypnotized subjects all respond the same way in the situation described?
- (E) Why are the separate parts of the self the same for all subjects?



Questions 13-14 are based on the following.

The program to control the entry of illegal drugs into the country was a failure in 1987. If the program had been successful, the wholesale price of most illegal drugs would not have dropped substantially in 1987.

13. The argument in the passage depends on which of the following assumptions?
- (A) The supply of illegal drugs dropped substantially in 1987.
  - (B) The price paid for most illegal drugs by the average consumer did not drop substantially in 1987.
  - (C) Domestic production of illegal drugs increased at a higher rate than did the entry of such drugs into the country.
  - (D) The wholesale price of a few illegal drugs increased substantially in 1987.
  - (E) A drop in demand for most illegal drugs in 1987 was not the sole cause of the drop in their wholesale price.
14. The argument in the passage would be most seriously weakened if it were true that
- (A) in 1987 smugglers of illegal drugs, as a group, had significantly more funds at their disposal than did the country's customs agents
  - (B) domestic production of illegal drugs increased substantially in 1987
  - (C) the author's statements were made in order to embarrass the officials responsible for the drug-control program
  - (D) in 1987 illegal drugs entered the country by a different set of routes than they did in 1986
  - (E) the country's citizens spent substantially more money on illegal drugs in 1987 than they did in 1986.

15. Excavation of the ancient city of Kourion on the island of Cyprus revealed a pattern of debris and collapsed buildings typical of towns devastated by earthquakes. Archaeologists have hypothesized that the destruction was due to a major earthquake known to have occurred near the island in A.D.365.

Which of the following, if true, most strongly supports the archaeologists' hypothesis?

- (A) Bronze ceremonial drinking vessels that are often found in graves dating from years preceding and following A.D.365 were also found in several graves near Kourion.
  - (B) No coins minted after A.D.365 were found in Kourion, but coins minted before that year were found in abundance.
  - (C) Most modern histories of Cyprus mention that an earthquake occurred near the island in A.D.365.
  - (D) Several small statues carved in styles current in Cyprus in the century between A.D.300 and 400 were found in Kourion.
  - (E) Stone inscriptions in a form of the Greek alphabet that was definitely used in Cyprus after A.D.365 were found in Kourion.
16. Sales of telephones have increased dramatically over the last year. In order to take advantage of this increase, Mammoth Industries plans to expand production of its own model of telephone, while continuing its already very extensive advertising of this product.

Which of the following, if true, provides most support for the view that Mammoth Industries cannot increase its sales of telephones by adopting the plan outlined above?

- (A) Although it sells all of the telephones that it produces, Mammoth Industries' share of all telephone sales has declined over the last year.
- (B) Mammoth Industries' average inventory of telephones awaiting shipment to retailers has declined slightly over the last year.
- (C) Advertising has made the brand name of Mammoth Industries' telephones widely known, but few consumers know that Mammoth Industries owns this brand.
- (D) Mammoth Industries' telephone is one of three brands of telephone that have together accounted for the bulk of the last year's increase in sales.
- (E) Despite a slight decline in the retail price, sales of Mammoth Industries' telephones have fallen in the last year.

17. Many institutions of higher education suffer declining enrollments during periods of economic slowdown. At two-year community colleges, however, enrollment figures boom during these periods when many people have less money and there is more competition for jobs.

Each of the following, if true, helps to explain the enrollment increases in two-year community colleges described above EXCEPT:

- (A) During periods of economic slowdown, two-year community colleges are more likely than four-year colleges to prepare their students for the jobs that are still available.
- (B) During periods of economic prosperity, graduates of two-year community colleges often continue their studies at four-year colleges.
- (C) Tuition at most two-year community colleges is a fraction of that at four-year colleges.
- (D) Two-year community colleges devote more resources than do other colleges to attracting those students especially affected by economic slowdowns.
- (E) Students at two-year community colleges, but not those at most four-year colleges, can control the cost of their studies by choosing the number of courses they take each term.

Question 18-19 are based on the following.

Hardin argued that grazing land held in common (that is, open to any user) would always be used less carefully than private grazing land. Each rancher would be tempted to overuse common land because the benefits would accrue to the individual, while the costs of reduced land quality that results from overuse would be spread among all users. But a study comparing 217 million acres of common grazing land with 433 million acres of private grazing land showed that the common land was in better condition.

18. The answer to which of the following questions would be most useful in evaluating the significance, in relation to Hardin's claim, of the study described above?
- (A) Did any of the ranchers whose land was studied use both common and private land?
  - (B) Did the ranchers whose land was studied tend to prefer using common land over using private land for grazing?
  - (C) Was the private land that was studied of comparable quality to the common land before either was used for grazing?
  - (D) Were the users of the common land that was studied at least as prosperous as the users of the private land?
  - (E) Were there any owners of herds who used only common land, and no private land, for grazing?

19. Which of the following, if true and known by the ranchers, would best help explain the results of the study?
- (A) With private grazing land, both the costs and the benefits of overuse fall to the individual user.
  - (B) The cost in reduced land quality that is attributable to any individual user is less easily measured with common land than it is with private land.
  - (C) An individual who overuses common grazing land might be able to achieve higher returns than other users can, with the result that he or she would obtain a competitive advantage.
  - (D) If one user of common land overuses it even slightly, the other users are likely to do so even more, with the consequence that the costs to each user outweigh the benefits.
  - (E) There are more acres of grazing land held privately than there are held in common.
20. In tests for pironoma, a serious disease, a false positive result indicates that people have pironoma when, in fact, they do not; a false negative result indicates that people do not have pironoma when, in fact, they do. To detect pironoma most accurately, physicians should use the laboratory test that has the lowest proportion of false positive results.

Which of the following, if true, gives the most support to the recommendation above?

- (A) The accepted treatment for pironoma does not have damaging side effects.
- (B) The laboratory test that has the lowest proportion of false positive results causes the same minor side effects as do the other laboratory tests used to detect pironoma.
- (C) In treating pironoma patients, it is essential to begin treatment as early as possible, since even a week of delay can result in loss of life.
- (D) The proportion of inconclusive test results is equal for all laboratory tests used to detect pironoma.
- (E) All laboratory tests to detect pironoma have the same proportion of false negative results.

**CRITICAL REASONING TEST SECTION 9**  
**30 MINUTES 20 QUESTIONS**

Questions 1-2 are based on the following.

Companies O and P each have the same number of employees who work the same number of hours per week. According to records maintained by each company, the employees of Company O had fewer job-related accidents last year than did the employees of Company P. Therefore, employees of Company O are less likely to have job-related accidents than are employees of Company P.

1. Which of the following, if true, would most strengthen the conclusion above?
  - (A) Company P manufactures products that are more hazardous for workers to produce than does Company O.
  - (B) Company P holds more safety inspections than does Company O.
  - (C) Company P maintains a more modern infirmary than does Company O.
  - (D) Company O paid more for new job-related medical claims than did Company P.
  - (E) Company P provides more types of health-care benefits than does Company O.
  
2. Which of the following, if true, would most weaken the conclusion above?
  - (A) The employees of Company P lost more time at work due to job-related accidents than did the employees of Company O.
  - (B) Company P considered more types of accidents to be job-related than did Company O.
  - (C) The employees of Company P were sick more often than were the employees of Company O.
  - (D) Several employees of Company O each had more than one job-related accident.
  - (E) The majority of job-related accidents at Company O involved a single machine.

3. In comparison to the standard typewriter keyboard, the EFCO keyboard, which places the most-used keys nearest the typist's strongest fingers, allows faster typing and results in less fatigue. Therefore, replacement of standard keyboards with the EFCO keyboard will result in an immediate reduction of typing costs.

Which of the following, if true, would most weaken the conclusion drawn above?

- (A) People who use both standard and EFCO keyboards report greater difficulty in the transition from the EFCO keyboard to the standard keyboard than in the transition from the standard keyboard to the EFCO keyboard.
- (B) EFCO keyboards are no more expensive to manufacture than are standard keyboards and require less frequent repair than do standard keyboards.
- (C) The number of businesses and government agencies that use EFCO keyboards is increasing each year.
- (D) The more training and experience an employee has had with the standard keyboard, the more costly it is to train that employee to use the EFCO keyboard.
- (E) Novice typists can learn to use the EFCO keyboard in about the same amount of time it takes them to learn to use the standard keyboard.

Questions 4-5 are based on the following.

Half of the subjects in an experiment—the experimental group—consumed large quantities of a popular artificial sweetener. Afterward, this group showed lower cognitive abilities than did the other half of the subjects—the control group—who did not consume the sweetener. The detrimental effects were attributed to an amino acid that is one of the sweetener's principal constituents.

4. Which of the following, if true, would best support the conclusion that some ingredient of the sweetener was responsible for the experimental results?
- (A) Most consumers of the sweetener do not consume as much of it as the experimental group members did.
  - (B) The amino acid referred to in the conclusion is a component of all proteins, some of which must be consumed for adequate nutrition.
  - (C) The quantity of the sweetener consumed by individuals in the experimental group is considered safe by federal food regulators.
  - (D) The two groups of subjects were evenly matched with regard to cognitive abilities prior to the experiment.
  - (E) A second experiment in which subjects consumed large quantities of the sweetener lacked a control group of subjects who were not given the sweetener.

5. Which of the following, if true, would best help explain how the sweetener might produce the observed effect?
- (A) The government's analysis of the artificial sweetener determined that it was sold in relatively pure form.
  - (B) A high level of the amino acid in the blood inhibits the synthesis of a substance required for normal brain functioning.
  - (C) Because the sweetener is used primarily as a food additive, adverse reactions to it are rarely noticed by consumers.
  - (D) The amino acid that is a constituent of the sweetener is also sold separately as a dietary supplement.
  - (E) Subjects in the experiment did not know whether they were consuming the sweetener or a second, harmless substance.
6. Adult female rats who have never before encountered rat pups will start to show maternal behaviors after being confined with a pup for about seven days. This period can be considerably shortened by disabling the female's sense of smell or by removing the scent-producing glands of the pup.
- Which of the following hypotheses best explains the contrast described above?
- (A) The sense of smell in adult female rats is more acute than that in rat pups.
  - (B) The amount of scent produced by rat pups increases when they are in the presence of a female rat that did not bear them.
  - (C) Female rats that have given birth are more affected by olfactory cues than are female rats that have never given birth.
  - (D) A female rat that has given birth shows maternal behavior toward rat pups that she did not bear more quickly than does a female rat that has never given birth.
  - (E) The development of a female rat's maternal interest in a rat pup that she did not bear is inhibited by the odor of the pup.

7. The interview is an essential part of a successful hiring program because, with it, job applicants who have personalities that are unsuited to the requirements of the job will be eliminated from consideration.

The argument above logically depends on which of the following assumptions?

- (A) A hiring program will be successful if it includes interviews.
  - (B) The interview is a more important part of a successful hiring program than is the development of a job description.
  - (C) Interviewers can accurately identify applicants whose personalities are unsuited to the requirements of the job.
  - (D) The only purpose of an interview is to evaluate whether job applicants' personalities are suited to the requirements of the job.
  - (E) the fit of job applicants' personalities to the requirements of the job was once the most important factor in making hiring decisions.
8. An overly centralized economy, not the changes in the climate, is responsible for the poor agricultural production in Country X since its new government came to power. Neighboring Country Y has experienced the same climatic conditions, but while agricultural production has been falling in Country X, it has been rising in Country Y.

Which of the following, if true, would most weaken the argument above?

- (A) Industrial production also is declining in Country X.
- (B) Whereas Country Y is landlocked, Country X has a major seaport.
- (C) Both Country X and Country Y have been experiencing drought conditions.
- (D) The crops that have always been grown in Country X are different from those that have always been grown in Country Y.
- (E) Country X's new government instituted a centralized economy with the intention of ensuring an equitable distribution of goods.



9. Useful protein drugs, such as insulin, must still be administered by the cumbersome procedure of injection under the skin. If proteins are taken orally, they are digested and cannot reach their target cells. Certain nonprotein drugs, however, contain chemical bonds that are not broken down by the digestive system. They can, thus, be taken orally.

The statements above most strongly support a claim that a research procedure that successfully accomplishes which of the following would be beneficial to users of protein drugs?

- (A) Coating insulin with compounds that are broken down by target cells, but whose chemical bonds are resistant to digestion
  - (B) Converting into protein compounds, by procedures that work in the laboratory, the nonprotein drugs that resist digestion
  - (C) Removing permanently from the digestive system any substances that digest proteins
  - (D) Determining, in a systematic way, what enzymes and bacteria are present in the normal digestive system and whether they tend to be broken down within the body
  - (E) Determining the amount of time each nonprotein drug takes to reach its target cells.
10. Country Y uses its scarce foreign-exchange reserves to buy scrap iron for recycling into steel. Although the steel thus produced earns more foreign exchange than it costs, that policy is foolish. Country Y's own territory has vast deposits of iron ore, which can be mined with minimal expenditure of foreign exchange.

Which of the following, if true, provides the strongest support for Country Y's policy of buying scrap iron abroad?

- (A) The price of scrap iron on international markets rose significantly in 1987.
- (B) Country Y's foreign-exchange reserves dropped significantly in 1987.
- (C) There is virtually no difference in quality between steel produced from scrap iron and that produced from iron ore.
- (D) Scrap iron is now used in the production of roughly half the steel used in the world today, and experts predict that scrap iron will be used even more extensively in the future.
- (E) Furnaces that process scrap iron can be built and operated in Country Y with substantially less foreign exchange than can furnaces that process iron ore.

11. Last year the rate of inflation was 1.2 percent, but for the current year it has been 4 percent. We can conclude that inflation is on an upward trend and the rate will be still higher next year.

Which of the following, if true, most seriously weakens the conclusion above?

- (A) The inflation figures were computed on the basis of a representative sample of economic data rather than all of the available data.
  - (B) Last year a dip in oil prices brought inflation temporarily below its recent stable annual level of 4 percent.
  - (C) Increases in the pay of some workers are tied to the level of inflation, and at an inflation rate of 4 percent or above, these pay raises constitute a force causing further inflation.
  - (D) The 1.2 percent rate of inflation last year represented a ten-year low.
  - (E) Government intervention cannot affect the rate of inflation to any significant degree.
12. Because no employee wants to be associated with bad news in the eyes of a superior, information about serious problems at lower levels is progressively softened and distorted as it goes up each step in the management hierarchy. The chief executive is, therefore, less well informed about problems at lower levels than are his or her subordinates at those levels.

The conclusion drawn above is based on the assumption that

- (A) problems should be solved at the level in the management hierarchy at which they occur
- (B) employees should be rewarded for accurately reporting problems to their superiors
- (C) problem-solving ability is more important at higher levels than it is at lower levels of the management hierarchy
- (D) chief executives obtain information about problems at lower levels from no source other than their subordinates
- (E) some employees are more concerned about truth than about the way they are perceived by their superiors

13. In the United States in 1986, the average rate of violent crime in states with strict gun-control laws was 645 crimes per 100,000 persons—about 50 percent higher than the average rate in the eleven states where strict gun-control laws have never been passed. Thus one way to reduce violent crime is to repeal strict gun control laws.

Which of the following, if true, would most weaken the argument above?

- (A) The annual rate of violent crime in states with strict gun-control laws has decreased since the passage of those laws.
- (B) In states with strict gun-control laws, few individuals are prosecuted for violating such laws.
- (C) In states without strict gun-control laws, many individuals have had no formal training in the use of firearms.
- (D) The annual rate of nonviolent crime is lower in states with strict gun-control laws than in states without such laws.
- (E) Less than half of the individuals who reside in states without strict gun-control laws own a gun.

14. Corporate officers and directors commonly buy and sell, for their own portfolios, stock in their own corporations. Generally, when the ratio of such inside sales to inside purchases falls below 2 to 1 for a given stock, a rise in stock prices is imminent. In recent days, while the price of MEGA Corporation stock has been falling, the corporation's officers and directors have bought up to nine times as much of it as they have sold.

The facts above best support which of the following predictions?

- (A) The imbalance between inside purchases and inside sales of MEGA stock will grow even further.
- (B) Inside purchases of MEGA stock are about to cease abruptly.
- (C) The price of MEGA stock will soon begin to go up.
- (D) The price of MEGA stock will continue to drop, but less rapidly.
- (E) The majority of MEGA stock will soon be owned by MEGA's own officers and directors.

15. The proposal to hire ten new police officers in Middletown is quite foolish. There is sufficient funding to pay the salaries of the new officers, but not the salaries of additional court and prison employees to process the increased caseload of arrests and convictions that new officers usually generate.

Which of the following, if true, will most seriously weaken the conclusion drawn above?

- (A) Studies have shown that an increase in a city's police force does not necessarily reduce crime.
  - (B) When one major city increased its police force by 19 percent last year, there were 40 percent more arrests and 13 percent more convictions.
  - (C) If funding for the new police officers' salaries is approved, support for other city services will have to be reduced during the next fiscal year.
  - (D) In most United States cities, not all arrests result in convictions, and not all convictions result in prison terms.
  - (E) Middletown's ratio of police officers to citizens has reached a level at which an increase in the number of officers will have a deterrent effect on crime.
16. A recent report determined that although only three percent of drivers on Maryland highways equipped their vehicles with radar detectors, thirty-three percent of all vehicles ticketed for exceeding the speed limit were equipped with them. Clearly, drivers who equip their vehicles with radar detectors are more likely to exceed the speed limit regularly than are drivers who do not.

The conclusion drawn above depends on which of the following assumptions?

- (A) Drivers who equip their vehicles with radar detectors are less likely to be ticketed for exceeding the speed limit than are drivers who do not.
- (B) Drivers who are ticketed for exceeding the speed limit are more likely to exceed the speed limit regularly than are drivers who are not ticketed.
- (C) The number of vehicles that were ticketed for exceeding the speed limit was greater than the number of vehicles that were equipped with radar detectors.
- (D) Many of the vehicles that were ticketed for exceeding the speed limit were ticketed more than once in the time period covered by the report.
- (E) Drivers on Maryland highways exceeded the speed limit more often than did drivers on other state highways not covered in the report.

17. There is a great deal of geographical variation in the frequency of many surgical procedures—up to tenfold variation per hundred thousand between different areas in the numbers of hysterectomies, prostatectomies, and tonsillectomies.

To support a conclusion that much of the variation is due to unnecessary surgical procedures, it would be most important to establish which of the following?

- (A) A local board of review at each hospital examines the records of every operation to determine whether the surgical procedure was necessary.
- (B) The variation is unrelated to factors (other than the surgical procedures themselves) that influence the incidence of diseases for which surgery might be considered.
- (C) There are several categories of surgical procedure (other than hysterectomies, prostatectomies, and tonsillectomies) that are often performed unnecessarily.
- (D) For certain surgical procedures, it is difficult to determine after the operation whether the procedures were necessary or whether alternative treatment would have succeeded.
- (E) With respect to how often they are performed unnecessarily, hysterectomies, prostatectomies, and tonsillectomies are representative of surgical procedures in general.

18. Researchers have found that when very overweight people, who tend to have relatively low metabolic rates, lose weight primarily through dieting, their metabolisms generally remain unchanged. They will thus burn significantly fewer calories at the new weight than do people whose weight is normally at that level. Such newly thin persons will, therefore, ultimately regain weight until their body size again matches their metabolic rate.

The conclusion of the argument above depends on which of the following assumptions?

- (A) Relatively few very overweight people who have dieted down to a new weight tend to continue to consume substantially fewer calories than do people whose normal weight is at that level.
- (B) The metabolisms of people who are usually not overweight are much more able to vary than the metabolisms of people who have been very overweight.
- (C) The amount of calories that a person usually burns in a day is determined more by the amount that is consumed that day than by the current weight of the individual.
- (D) Researchers have not yet determined whether the metabolic rates of formerly very overweight individuals can be accelerated by means of chemical agents.
- (E) Because of the constancy of their metabolic rates, people who are at their usual weight normally have as much difficulty gaining weight as they do losing it.

19. In 1987 sinusitis was the most common chronic medical condition in the United States, followed by arthritis and high blood pressure, in that order.

The incidence rates for both arthritis and high blood pressure increase with age, but the incidence rate for sinusitis is the same for people of all ages.

The average age of the United States population will increase between 1987 and 2000.

Which of the following conclusions can be most properly drawn about chronic medical conditions in the United States from the information given above?

- (A) Sinusitis will be more common than either arthritis or high blood pressure in 2000.
  - (B) Arthritis will be the most common chronic medical condition in 2000.
  - (C) The average age of people suffering from sinusitis will increase between 1987 and 2000.
  - (D) Fewer people will suffer from sinusitis in 2000 than suffered from it in 1987.
  - (E) A majority of the population will suffer from at least one of the medical conditions mentioned above by the year 2000.
20. Parasitic wasps lay their eggs directly into the eggs of various host insects in exactly the right numbers for any suitable size of host egg. If they laid too many eggs in a host egg, the developing wasp larvae would compete with each other to the death for nutrients and space. If too few eggs were laid, portions of the host egg would decay, killing the wasp larvae.

Which of the following conclusions can properly be drawn from the information above?

- (A) The size of the smallest host egg that a wasp could theoretically parasitize can be determined from the wasp's egg-laying behavior.
- (B) Host insects lack any effective defenses against the form of predation practiced by parasitic wasps.
- (C) Parasitic wasps learn from experience how many eggs to lay into the eggs of different host species.
- (D) Failure to lay enough eggs would lead to the death of the developing wasp larvae more quickly than would laying too many eggs.
- (E) Parasitic wasps use visual clues to calculate the size of a host egg.

**CRITICAL REASONING TEST SECTION 10****30 Minutes 20 Questions**

1. In 1985 in the country of Alissia, farmers brought to market a broccoli crop that was one-and-a-half times as large as the 1985 broccoli crop in its neighbor country, Barbera. Yet total quantities of broccoli available for sale to consumers in Alissia were smaller than were total quantities in Barbera in 1985.

Which of the following, if true in 1985, contributes most to an explanation of why there was less broccoli available for sale to consumers in Alissia than in Barbera?

- (A) Barbera's farmers produced much more cabbage than did Alissia's farmers.
  - (B) Barbera's farmers produced fewer heads of broccoli per acre than did Alissia's farmers.
  - (C) Alissia exported a much higher proportion of its broccoli crop than did Barbera.
  - (D) Broccoli was much more popular among consumers in Alissia than in Barbera.
  - (E) Alissia had more land suitable for growing broccoli than did Barbera.
2. A manufacturer of men's dress socks sought to increase profits by increasing sales. The size of its customer pool was remaining steady, with the average customer buying twelve pairs of dress socks per year. The company's plan was to increase the number of promotional discount-sale periods to one every six months.

Which of the following, if it is a realistic possibility, casts the most serious doubt on the viability of the company's plan?

- (A) New manufacturing capacity would not be required if the company were to increase the number of pairs of socks sold.
- (B) Inventory stocks of merchandise ready for sale would be high preceding the increase in the number of discount-sale periods.
- (C) The manufacturer's competitors would match its discounts during sale periods, and its customers would learn to wait for those times to make their purchases.
- (D) New styles and colors would increase customers' consciousness of fashion in dress socks, but the customers' requirements for older styles and colors would not be reduced.
- (E) The cost of the manufacturer's raw materials would remain steady, and its customers would have more disposable income.

3. Previous studies have indicated that eating chocolate increases the likelihood of getting heart disease. However, a new, more reliable study has indicated that eating chocolate does not increase the likelihood of getting heart disease. When the results of the new study become known, consumption of chocolate will undoubtedly increase.

Which of the following is an assumption on which the conclusion above is based?

- (A) Most people who eat a great deal of chocolate will not get heart disease.
  - (B) Although they believe that eating chocolate increases the likelihood of getting heart disease, some people still eat as much chocolate as they want.
  - (C) People who have heard that eating chocolate increases the likelihood of getting heart disease do not believe it.
  - (D) There are people who currently eat as much chocolate as they want because they have not heard that eating chocolate increases the likelihood of getting heart disease.
  - (E) There are people who currently limit their consumption of chocolate only because they believe that eating chocolate increases the likelihood of getting heart disease.
4. The fossil record shows that the climate of North America warmed and dried at the end of the Pleistocene period. Most of the species of large mammals then living on the continent became extinct, but the smaller mammalian species survived.

Which of the following, if true, provides the best basis for an explanation of the contrast described above between species of large mammals and species of small mammals?

- (A) Individual large mammals can, in general, travel further than small mammals and so are more able to migrate in search of a hospitable environment.
- (B) The same pattern of comparative success in smaller, as opposed to larger, species that is observed in mammals is also found in bird species of the same period.
- (C) The fossil record from the end of Pleistocene period is as clear for small mammals as it is for large mammals.



- (D) Larger mammals have greater food and space requirements than smaller mammals and are thus less able to withstand environmental change.
- (E) Many more of the species of larger mammals than of the species of smaller mammals living in North America in that period had originated in climates that were warmer than was that of North America before the end of the Pleistocene period.

5. Bonuses at DSR Industries cannot be awarded unless profits exceed a ten percent return on stockholders' investments in the company. Higher profits mean higher bonuses. Therefore, bonuses in a year of general economic recession will be considerably lower than bonuses in a year of peak profits at DSR.

The conclusion above depends on the assumption that

- (A) the firm will have relatively low profits in recession years
- (B) the amount represented by a ten percent return on stockholders' investments in the company will increase from year to year
- (C) profits rarely exceed a ten percent return on stockholders' investments in the company
- (D) profits in excess of a ten percent return on stockholders' investments in the company are all distributed in the form of bonuses
- (E) bonuses at DSR never drop to zero

Questions 6-7 are based on the following.

Suitable habitats for gray wolves have greatly diminished in area. In spite of this fact, the most sensible course would be to refrain from reestablishing gray wolves in places where previously they have been hunted out of existence. Striving to bring back these animals to places where they will only face lethal human hostility is immoral.

6. The argument above depends on
- (A) an appeal to an authority
  - (B) a belief that gray wolves are dangerous to human beings and livestock
  - (C) an assumption that two events that occur together must be causally connected
  - (D) an assumption that the future will be like the past
  - (E) a threat of violence against those persons presenting the opposing view

7. The argument above would be most significantly weakened if which of the following were true?
- (A) Effective laws against the hunting of gray wolves have been enacted.
  - (B) Ranchers, farmers, and hunters still have an ingrained bias against gray wolves.
  - (C) By the 1930's bounty hunters had exterminated most of the gray wolves in the United States.
  - (D) Programs for increasing the gray wolf population are not aided by federal laws that require the licensing of hunters of certain predators.
  - (E) Suggested programs for increasing the gray wolf population have been criticized by environmentalists and biologists.

8. For the safety-conscious Swedish market, a United States manufacturer of desktop computers developed a special display screen that produces a much weaker electromagnetic field surrounding the user than do ordinary screens. Despite an advantage in this respect over its competitors, the manufacturer is introducing the screen into the United States market without advertising it as a safety improvement.

Which of the following, if true, provides a rationale for the manufacturer's approach to advertising the screen in the United States?

- (A) Many more desktop computers are sold each year in the United States market than are sold in the Swedish market.
- (B) The manufacturer does not want its competitors to become aware of the means by which the company has achieved this advance in technology.
- (C) Most business and scientific purchasers of desktop computers expect to replace such equipment eventually as better technology becomes available on the market.
- (D) An emphasis on the comparative safety of the new screen would call into question the safety of the many screens the manufacturer has already sold in the United States.
- (E) Concern has been expressed in the United States over the health effects of the large electromagnetic fields surrounding electric power lines.

9. In the suburbs surrounding Middletown, there is an average of 2.4 automobiles per family, and thus very few suburban residents use public buses. The suburban communities, therefore, would derive little benefit from continuing to subsidize the portion of Middletown's public bus system that serves the suburbs.

Which of the following, if true, casts the most serious doubt on the conclusion drawn above?

- (A) The real-estate tax rate in Middletown is higher than it is in the suburbs.
  - (B) Last year voters in the suburban communities defeated by a narrow margin a bill designed to increase subsidies for public bus routes.
  - (C) Many suburban shops can attract enough employees to remain in business only because subsidized public transportation from Middletown is available.
  - (D) Public buses operated with less than a 35 percent occupancy rate produce more pollution per passenger mile than would the operation of private automobiles for each passenger.
  - (E) Most voters in Middletown's suburban communities are unwilling to continue subsidies for public buses next year if ridership on those buses drops below current levels.
10. Any tax relief received by the solar industry would not benefit the homeowner who installs a solar-energy system. Even though homeowners would pay a lower price for solar-energy system installations because of this tax relief, with the government paying the balance, government revenues come from the public.

The argument above is based on which of the following assumptions?

- (A) The tax relief would cause the homeowner to lose, through taxes or reduced government benefits or both, an amount at least equal to the reduction in the price of that homeowner's solar-energy system installation.
- (B) The tax relief that would be received by solar-energy industries would not be offered at the same time as any tax relief for other industries.
- (C) Advertisements of the solar-energy industry, by failing to identify the source of government revenues explicitly to the public, mask the advantage the industry receives from the public.

- (D) Homeowners generally believe that they benefit from any tax relief offered to the solar-energy industry.
- (E) Tax relief would encourage solar industries to sell solar-energy systems at higher prices.

11. Less than 50 percent of a certain tropical country's wildlands remains intact. Efforts are under way to restore biological diversity in that country by restoring some destroyed wild habitats and extending some relatively intact portions of forests. However, opponents argue that these efforts are not needed because there is still plenty of wildland left.

Which of the following, if true, most significantly weakens the argument of the opponents of conservation efforts?

- (A) As much, if not more, effort is required to restore a wild habitat as to preserve an intact habitat.
- (B) The opponents of restoration efforts are, for the most part, members of the wealthier classes in their own villages and cities.
- (C) Existing conservation laws have been very effective in preserving biological diversity within the wildlands that remain intact.
- (D) For many tropical species native to that country, the tropical wildlands that are still relatively intact do not provide appropriate habitats for reproduction.
- (E) If a suitable population of plants and animals is introduced and is permitted to disperse and grow, tropical habitats can most certainly be restored.

12. A study comparing a group of chronically depressed individuals with an otherwise matched group of individuals free from depression found significantly more disorders of the immune system among the depressed group. According to the researchers, these results strongly support the hypothesis that mental states influence the body's vulnerability to infection.

Which of the following, if true, casts the most serious doubt on the researchers' interpretation of their findings?

- (A) The researchers' view does little more than echo a familiar theme in folklore and literature.
  - (B) Chronically depressed individuals are no less careful than others to avoid exposure to infections.
  - (C) Disorders of the immune system cause many of those individuals who have them to become chronically depressed.
  - (D) Individuals who have previously been free from depression can become depressed quite suddenly.
  - (E) A high frequency of infections can stem from an unusually high level of exposure rather than from any disorder of the immune system.
13. Exports of United States wood pulp will rise considerably during this year. The reason for the rise is that the falling value of the dollar will make it cheaper for paper manufacturers in Japan and Western Europe to buy American wood pulp than to get it from any other source.

Which of the following is an assumption made in drawing the conclusion above?

- (A) Factory output of paper products in Japan and Western Europe will increase sharply during this year.
- (B) The quality of the wood pulp produced in the United States would be adequate for the purposes of Japanese and Western European paper manufacturers.
- (C) Paper manufacturers in Japan and Western Europe would prefer to use wood pulp produced in the United States if cost were not a factor.
- (D) Demand for paper products made in Japan and Western Europe will not increase sharply during this year.
- (E) Production of wood pulp by United States companies will not increase sharply during this year.

14. A company's personnel director surveyed employees about their satisfaction with the company's system for awarding employee performance ratings. The survey data indicated that employees who received high ratings were very satisfied with the system. The personnel director concluded from these data that the company's best-performing employees liked the system.

The personnel director's conclusion assumes which of the following?

- (A) No other performance rating system is as good as the current system.
- (B) The company's best-performing employees received high ratings.
- (C) Employees who received low ratings were dissatisfied with the system.
- (D) Employees who receive high ratings from a performance-rating system will like that system.
- (E) The company's best-performing employees were motivated to perform well by the knowledge that they would receive performance ratings.

15. In Argonia the average rate drivers pay for car accident insurance is regulated to allow insurance companies to make a reasonable profit. Under the regulations, the rate any individual driver pays never depends on the actual distance driven by that driver each year. Therefore, Argonians who drive less than average partially subsidize the insurance of those who drive more than average.

The conclusion above would be properly drawn if it were also true that in Argonia

- (A) the average accident insurance rate for all drivers rises whenever a substantial number of new drivers buy insurance
- (B) the average cost to insurance companies of insuring drivers who drive less than the annual average is less than the average cost of insuring drivers who drive more than the annual average
- (C) the lower the age of a driver, the higher the insurance rate paid by that driver
- (D) insurance company profits would rise substantially if drivers were classified in terms of the actual number of miles they drive each year
- (E) drivers who have caused insurance companies to pay costly claims generally pay insurance rates that are equal to or lower than those paid by other drivers

16. In the 1970's there was an oversupply of college graduates. The oversupply caused the average annual income of college graduates to fall to a level only 18 percent greater than that of workers with only high school diplomas. By the late 1980's the average annual income of college graduates was 43 percent higher than that of workers with only high school diplomas, even though between the 1970's and the late 1980's the supply of college graduates did not decrease.

Which of the following, if true in the late 1980's, best reconciles the apparent discrepancy described above?

- (A) The economy slowed, thus creating a decreased demand for college graduates.
- (B) The quality of high school education improved.
- (C) Compared to the 1970's, a greater number of high schools offered vocational guidance programs for their students.
- (D) The proportion of the population with at least a college-level education increased.
- (E) There was for the first time in 20 years an oversupply of job seekers with only high school diplomas.

17. Working shorter workweeks causes managers to feel less stress than does working longer workweeks. In addition, greater perceived control over one's work life reduces stress levels. It can be concluded, therefore, that shorter workweeks cause managers to feel they have more control over their work life.

The argument made above uses which of the following questionable techniques?

- (A) Associating two conditions as cause and effect on the basis of their being causally associated with the same phenomenon
- (B) Taking for granted that two factors that have a certain effect individually produce that effect more strongly when both act together.
- (C) Assuming what it sets out to prove
- (D) Using an irrelevant point in order to draw a conclusion
- (E) Basing a conclusion on preconceived views about the needs of managers

18. There are fundamentally two possible changes in an economy that will each cause inflation unless other compensating changes also occur. These changes are either reductions in the supply of goods and services or increases in demand. In a prebanking economy the quantity of money available, and hence the level of demand, is equivalent to the quantity of gold available.

If the statements above are true, then it is also true that in a prebanking economy

- (A) any inflation is the result of reductions in the supply of goods and services
- (B) if other factors in the economy are unchanged, increasing the quantity of gold available will lead to inflation
- (C) if there is a reduction in the quantity of gold available, then, other things being equal, inflation must result
- (D) the quantity of goods and services purchasable by a given amount of gold is constant
- (E) whatever changes in demand occur, there will be compensating changes in the supply of goods and services

19. Industrialists from the country Distopia were accused of promoting the Distopian intervention in the Arcadian civil war merely to insure that the industrialists' facilities in Arcadia made substantial profits during the war. Yet this cannot be the motive since, as the Distopians foresaw, Distopia's federal expenses for the intervention were eight billion dollars, whereas, during the war, profits from the Distopian industrialists' facilities in Arcadia totaled only four billion dollars.

Which of the following, if true, exposes a serious flaw in the argument made in the second sentence above?

- (A) During the Arcadian war, many Distopian industrialists with facilities located in Arcadia experienced a significant rise in productivity in their facilities located in Distopia
- (B) The largest proportion of Distopia's federal expenses is borne by those who receive no significant industrial profits.
- (C) Most Distopian industrialists' facilities located in Arcadia are expected to maintain the level of profits they achieved during the war.



- (D) Dystopian industrialists' facilities in Arcadia made substantial profits before the events that triggered the civil war.
- (E) Many Dystopians expressed concern over the suffering that Arcadians underwent during the civil war.

20. In the United States, injuries to passengers involved in automobile accidents are typically more severe than in Europe, where laws require a different kind of safety belt. It is clear from this that the United States needs to adopt more stringent standards for safety belt design to protect automobile passengers better.

Each of the following, if true, weakens the argument above EXCEPT:

- (A) Europeans are more likely to wear safety belts than are people in the United States.
- (B) Unlike United States drivers, European drivers receive training in how best to react in the event of an accident to minimize injuries to themselves and to their passengers.
- (C) Cars built for the European market tend to have more sturdy construction than do cars built for the United States market.
- (D) Automobile passengers in the United States have a greater statistical chance of being involved in an accident than do passengers in Europe.
- (E) States that have recently begun requiring the European safety belt have experienced no reduction in the average severity of injuries suffered by passengers in automobile accidents.

**CRITICAL REASONING TEST SECTION 11****30 Minutes 20 Questions**

1. The school board has determined that it is necessary to reduce the number of teachers on the staff. Rather than deciding which teachers will be laid off on the basis of seniority, the school board plans to lay off the least effective teachers first.

The school board's plan assumes that

- (A) there is a way of determining the effectiveness of teachers
  - (B) what one individual defines as effective teaching will not be defined as effective teaching by another individual
  - (C) those with the most experience teaching are the best teachers
  - (D) those teachers who are paid the most are generally the most qualified
  - (E) some teachers will be more effective working with some students than with other students
2. Since applied scientific research is required for technological advancement, many have rightly urged an increased emphasis in universities on applied research. But we must not give too little attention to basic research, even though it may have no foreseeable application, for tomorrow's applied research will depend on the basic research of today.

If the statements above are true, which of the following can be most reliably inferred?

- (A) If future technological advancement is desired, basic research should receive greater emphasis than applied research.
- (B) If basic research is valued in universities, applied research should be given less emphasis than it currently has.
- (C) If future technological advancement is desired, research should be limited to that with some foreseeable application.
- (D) If too little attention is given to basic research today, future technological advancement will be jeopardized.
- (E) If technological advancement is given insufficient emphasis, basic research will also receive too little attention.

3. The First Banking Group's decision to invest in an electronic network for transferring funds was based on a cost advantage over a nonelectronic system of about ten dollars per transaction in using an electronic system. Executives reasoned further that the system would give them an advantage over competitors.

Which of the following, if it is a realistic possibility, most seriously weakens the executives' projection of an advantage over competitors?

- (A) The cost advantage of using the electronic system will not increase sufficiently to match the pace of inflation.
  - (B) Competitors will for the same reasons install electronic systems, and the resulting overcapacity will lead to mutually damaging price wars.
  - (C) The electronic system will provide a means for faster transfer of funds, if the First Banking Group wishes to provide faster transfer to its customers.
  - (D) Large banks from outside the area served by the First Banking Group have recently established branches in that area as competitors to the First Banking Group.
  - (E) Equipment used in the electronic network for transferring funds will be compatible with equipment used in other such networks.
4. Which of the following best completes the argument below?

One effect of the introduction of the electric refrigerator was a collapse in the market for ice. Formerly householders had bought ice to keep their iceboxes cool and the food stored in the iceboxes fresh. Now the iceboxes cool themselves. Similarly, the introduction of crops genetically engineered to be resistant to pests will-----.

- (A) increase the size of crop harvests
- (B) increase the cost of seeds
- (C) reduce demand for chemical pesticides
- (D) reduce the value of farmland
- (E) reduce the number of farmers keeping livestock

5. In 1985 the city's Fine Arts Museum sold 30,000 single-entry tickets. In 1986 the city's Folk Arts and Interior Design museums opened, and these three museums together sold over 80,000 such tickets that year. These museums were worth the cost, since more than twice as many citizens are now enjoying the arts.

Which of the following, if true, most seriously weakens the author's assertion that more than twice as many citizens are now enjoying the arts?

- (A) Most visitors to one museum also visit the other two.
  - (B) The cost of building the museums will not be covered by revenues generated by the sale of museum tickets.
  - (C) As the two new museums become better known, even more citizens will visit them.
  - (D) The city's Fine Arts Museum did not experience a decrease in single-entry tickets sold in 1986.
  - (E) Fewer museum entry tickets were sold in 1986 than the museum planners had hoped to sell.
6. F: We ought not to test the safety of new drugs on sentient animals, such as dogs and rabbits. Our benefit means their pain, and they are equal to us in the capacity to feel pain.

G: We must carry out such tests; otherwise, we would irresponsibly sacrifice the human lives that could have been saved by the drugs.

Which of the following, if true, is the best objection that could be made from F's point of view to counter G's point?

- (A) Even though it is not necessary for people to use cosmetics, cosmetics are also being tested on sentient animals.
- (B) Medical science already has at its disposal a great number of drugs and other treatments for serious illnesses.
- (C) It is not possible to obtain scientifically adequate results by testing drugs in the test tube, without making tests on living tissue.
- (D) Some of the drugs to be tested would save human beings from great pain.
- (E) Many tests now performed on sentient animals can be performed equally well on fertilized chicken eggs that are at a very early stage of development.

7. Which of the following best completes the passage below?

The unemployment rate in the United States fell from 7.5 percent in 1981 to 6.9 percent in 1986. It cannot, however, be properly concluded from these statistics that the number of unemployed in 1986 was lower than it had been in 1981 because-----.

- (A) help-wanted advertisements increased between 1981 and 1986
  - (B) many of the high-paying industrial jobs available in 1981 were replaced by low-wage service jobs in 1986, resulting in displacements of hundreds of thousands of workers
  - (C) in some midwestern industrial states, the unemployment rate was much higher in 1986 than it had been in 1981
  - (D) the total available work force, including those with and without employment, increased between 1981 and 1986
  - (E) the average time that employees stay in any one job dropped during the period 1981 to 1986
8. To reduce costs, a company is considering a drastic reduction in the number of middle-level managers. This reduction would be accomplished by first offering early retirement to those 50 years of age or older with 15 years of service, and then by firing enough of the others to bring the overall reduction to 50 percent.

Each of the following, assuming that it is a realistic possibility, is a possible disadvantage to the company of the plan EXCEPT:

- (A) Loyalty to the company will be reduced among those surviving the reduction, because they will perceive the status of even good managers as uncertain.
- (B) The restructuring of managerial jobs will allow business units to be adapted to fit a changing business environment.
- (C) The company will have a smaller pool of managers from which to choose in selecting future senior managers.
- (D) Some of the best managers, unsure of their security against being fired, will choose early retirement.
- (E) The increased workload of managers remaining with the company will subject them to stress that will eventually affect their performance.

9. In order to relieve congestion in the airspace near the airports of a certain country, transportation officials propose sending passengers by new rapid trains between the country's major airport and several small cities within a 300-mile radius of it. This plan was proposed even though the officials realized that it is the major airport that is congested, not those in the small cities.

The plan to relieve congestion would work best if which of the following were true about the major airport?

- (A) Rail tickets between the airport and the small cities will most likely cost more than the current air tickets for those routes.
- (B) Most passengers who frequently use the airport prefer to reach their cities of destination exclusively by air, even if they must change planes twice.
- (C) There are feasible changes in the airport's traffic control system which would significantly relieve congestion.
- (D) Some of the congestion the airport experiences could be relieved if more flights were scheduled at night and at other off-peak hours.
- (E) A significant proportion of the airport's traffic consists of passengers transferring between international flights and flights to the small cities.

Questions 10-11 are based on the following.

An annually conducted, nationwide survey shows a continuing marked decline in the use of illegal drugs by high school seniors over the last three years.

10. Which of the following, if true, casts most doubt on the relevance of the survey results described above for drawing conclusions about illegal drug use in the teen-age population as a whole?
- (A) Because of cuts in funding, no survey of illegal drug use by high school seniors will be conducted next year.
  - (B) The decline uncovered in the survey has occurred despite the decreasing cost of illegal drugs.
  - (C) Illegal drug use by teen-agers is highest in those areas of the country where teen-agers are least likely to stay in high school for their senior year.
  - (D) Survey participants are more likely now than they were three years ago to describe as "heroic" people who were addicted to illegal drugs and have been able to quit.
  - (E) The proportion of high school seniors who say that they strongly disapprove of illegal drug use has declined over the last three years.

11. Which of the following, if true, would provide most support for concluding from the survey results described above that the use of illegal drugs by people below the age of 20 is declining?
- (A) Changes in the level of drug use by high school seniors are seldom matched by changes in the level of drug use by other people below the age of 20.
  - (B) In the past, high school seniors were consistently the population group most likely to use illegal drugs and most likely to use them heavily.
  - (C) The percentage of high school seniors who use illegal drugs is consistently very similar to the percentage of all people below the age of 20 who use illegal drugs.
  - (D) The decline revealed by the surveys is the result of drug education programs specifically targeted at those below the age of 20.
  - (E) The number of those surveyed who admit to having sold illegal drugs has declined even faster than has the number who have used drugs.
12. President of the United States: I have received over 2,000 letters on this issue, and the vast majority of them support my current position. These letters prove that most of the people in the country agree with me.

Which of the following, if true, most weakens the President's conclusion?

- (A) The issue is a very divisive one on which many people have strong opinions.
- (B) Some members of Congress disagree with the President's position.
- (C) People who disagree with the President feel more strongly about the issue than do people who agree with him.
- (D) People who agree with the President are more likely to write to him than are people who disagree with him.
- (E) During the presidential campaign, the President stated a position on this issue that was somewhat different from his current position.

13. Some governments have tried to make alcohol and tobacco less attractive to consumers by regulating what can be shown in advertisements for these products, rather than by banning advertising of them altogether. However, the need to obey the letter of these restrictions has actually stimulated advertisers to create advertisements that are more inventive and humorous than they were prior to the restrictions' introduction.

which of the following, if true, would, in conjunction with the statements above, best support the conclusion that the government policy described above fails to achieve its objective?

- (A) Because of the revenues gained from the sale of alcohol and tobacco, governments have no real interest in making these products less attractive to consumers.
  - (B) Advertisers tend to create inventive and humorous advertisements only if they have some particular reason to do so.
  - (C) Banning advertising of alcohol and tobacco is a particularly effective way of making these products less attractive to consumers.
  - (D) With the policy in place, advertisements for alcohol and tobacco have become far more inventive and humorous than advertisements for other kinds of products.
  - (E) The more inventive an advertisement is, the more attractive it makes the advertised product appear.
14. Which of the following, if true, best completes the argument below?

Comparisons of the average standards of living of the citizens of two countries should reflect the citizens' comparative access to goods and services. Reliable figures in a country's own currency for the average income of its citizens are easily obtained. But it is difficult to get an accurate comparison of average standards of living from these figures. because-----.

- (A) there are usually no figures comparing how much of two different currencies must be spent in order to purchase a given quantity of goods and services
- (B) wage levels for the same job vary greatly from country to country, depending on cultural as well as on purely economic factors
- (C) these figures must be calculated by dividing the gross national product of a country by the size of its population



- (D) comparative access to goods and services is only one of several factors relevant in determining quality of life
  - (E) the wealth, and hence the standard of living, of a country's citizens is very closely related to their income
15. The level of lead contamination in United States rivers declined between 1975 and 1985. Federal regulations requiring a drop in industrial discharges of lead went into effect in 1975, but the major cause of the decline was a 75 percent drop in the use of leaded gasoline between 1975 and 1985.

Which of the following, if true, best supports the claim that the major cause of the decline in the level of lead contamination in United States rivers was the decline in the use of leaded gasoline?

- (A) The level of lead contamination in United States rivers fell sharply in both 1975 and 1983.
  - (B) Most of the decline in industrial discharges of lead occurred before 1976, but the largest decline in the level of river contamination occurred between 1980 and 1985.
  - (C) Levels of lead contamination in rivers fell sharply in 1975-1976 and rose very slightly over the next nine years.
  - (D) Levels of lead contamination rose in those rivers where there was reduced river flow due to drought.
  - (E) Although the use of leaded gasoline declined 75 percent between 1975 and 1985, 80 percent of the decline took place in 1985.
16. George Bernard Shaw wrote: " That any sane nation, having observed that you could provide for the supply of bread by giving bakers a pecuniary interest in baking for you, should go on to give a surgeon a pecuniary interest in cutting off your leg is enough to make one despair of political humanity."
- Shaw's statement would best serve as an illustration in an argument criticizing which of the following?
- (A) Dentists who perform unnecessary dental work in order to earn a profit
  - (B) Doctors who increase their profits by specializing only in diseases that affect a large percentage of the population
  - (C) Grocers who raise the price of food in order to increase their profit margins
  - (D) Oil companies that decrease the price of their oil in order to increase their market share
  - (E) Bakers and surgeons who earn a profit by supplying other peoples' basic needs

17. Since 1975 there has been in the United States a dramatic decline in the incidence of traditional childhood diseases such as measles. This decline has been accompanied by an increased incidence of Peterson's disease, a hitherto rare viral infection, among children. Few adults, however, have been affected by the disease.

Which of the following, if true, would best help to explain the increased incidence of Peterson's disease among children?

- (A) Hereditary factors determine in part the degree to which a person is susceptible to the virus that causes Peterson's disease.
  - (B) The decrease in traditional childhood diseases and the accompanying increase in Peterson's disease have not been found in any other country.
  - (C) Children who contract measles develop an immunity to the virus that causes Peterson's disease.
  - (D) Persons who did not contract measles in childhood might contract measles in adulthood, in which case the consequences of the disease would generally be more severe.
  - (E) Those who have contracted Peterson's disease are at increased risk of contracting chicken pox.
18. Many plant varieties used in industrially developed nations to improve cultivated crops come from less-developed nations. No compensation is paid on the grounds that the plants used are "the common heritage of humanity." Such reasoning is, however, flawed. After all, no one suggests that coal, oil, and ores should be extracted without payment.

Which of the following best describes an aspect of the method used by the author in the argument above?

- (A) The author proceeds from a number of specific observations to a tentative generalization.
- (B) The author applies to the case under discussion facts about phenomena assumed to be similar in some relevant respect.
- (C) A position is strengthened by showing that the opposite of that position would have logically absurd consequences.
- (D) A line of reasoning is called into question on the grounds that it confuses cause and effect in a causal relation.
- (E) An argument is analyzed by separating statements of fact from individual value judgments.

19. It is widely assumed that a museum is helped financially when a generous patron donates a potential exhibit. In truth, however, donated objects require storage space, which is not free, and routine conservation, which is rather expensive. Therefore, such gifts exacerbate rather than lighten the demands made on a museum's financial resources.

Which of the following, if true, most seriously weakens the argument above?

- (A) To keep patrons well disposed, a museum will find it advisable to put at least some donated objects on exhibit rather than merely in storage.
  - (B) The people who are most likely to donate valuable objects to a museum are also the people who are most likely to make cash gifts to it.
  - (C) A museum cannot save money by resorting to cheap storage under less than adequate conditions, because so doing would drive up the cost of conservation.
  - (D) Patrons expect a museum to keep donated objects in its possession rather than to raise cash by selling them.
  - (E) Objects donated by a patron to a museum are often of such importance that the museum would be obliged to add them to its collection through purchase if necessary.
20. Despite the approach of winter, oil prices to industrial customers are exceptionally low this year and likely to remain so. Therefore, unless the winter is especially severe, the price of natural gas to industrial customers is also likely to remain low.

Which of the following, if true, provides the most support for the conclusion above?

- (A) Long-term weather forecasts predict a mild winter.
- (B) The industrial users who consume most natural gas can quickly and cheaply switch to using oil instead.
- (C) The largest sources of supply for both oil and natural gas are in subtropical regions unlikely to be affected by winter weather.
- (D) The fuel requirements of industrial users of natural gas are not seriously affected by the weather.
- (E) Oil distribution is more likely to be affected by severe winter weather than is the distribution of natural gas.

**CRITICAL REASONING TEST SECTION 12****30 Minutes 20 Questions**

1. The country of Maravia has severe air pollution, 80 percent of which is caused by the exhaust fumes of cars. In order to reduce the number of cars on the road, the government is raising taxes on the cost of buying and running a car by 20 percent. This tax increase, therefore, will significantly reduce air pollution in Maravia.

Which of the following, if true, most seriously weakens the argument above?

- (A) The government of Maravia is in the process of building a significant number of roadways.
  - (B) Maravia is an oil-producing country and is able to refine an amount of gasoline sufficient for the needs of its population.
  - (C) Maravia has had an excellent public transportation system for many years.
  - (D) Ninety percent of the population of Maravia is very prosperous and has a substantial amount of disposable income.
  - (E) In Maravia, cars that emit relatively low levels of pollutants cost 10 percent less to operate, on average, than do cars that emit high levels of pollutants.
2. Consumer income reports produced by the government distinguish between households and families by means of the following definition: "A family is a household containing a householder and at least one person related to the householder." Except for the homeless and people in group living quarters, most people live in households.

According to the definition above, which of the following must be true?

- (A) All householders are members of families.
- (B) All families include a householder.
- (C) All of the people related to a householder form a family.
- (D) Some people residing in group living quarters are members of families.
- (E) Some homeless people reside in group living quarters.

Questions 3-4 are based on the following.

The proportion of manufacturing companies in Alameda that use microelectronics in their manufacturing processes increased from 6 percent in 1979 to 66 percent in 1990. Many labor leaders say that the introduction of microelectronics is the principal cause of the great increase in unemployment during that period in Alameda. In actual fact, however, most of the job losses were due to organizational changes. Moreover, according to new figures released by the labor department, there were many more people employed in Alameda in the manufacturing industry in 1990 than in 1979.

3. Which of the following, if true, best reconciles the discrepancy between the increase in unemployment and the increase in jobs in the manufacturing industry of Alameda?
- (A) Many products that contain microelectronic components are now assembled completely by machine.
  - (B) Workers involved in the various aspects of the manufacturing processes that use microelectronic technology need extensive training.
  - (C) It is difficult to evaluate numerically what impact on job security the introduction of microelectronics in the workplace had before 1979.
  - (D) In 1990 over 90 percent of the jobs in Alameda's manufacturing companies were filled by workers who moved to Alameda because they had skills for which there was no demand in Alameda prior to the introduction of microelectronics there.
  - (E) Many workers who have retired from the manufacturing industry in Alameda since 1979 have not been replaced by younger workers.
4. Which of the following, if true, would most strengthen the labor leaders' claim concerning the manufacturing industry in Alameda?
- (A) From 1979 to 1990, fewer employees of manufacturing companies in Alameda lost their jobs because of the introduction of microelectronics than did employees of manufacturing companies in the nearby community of Rockside.
  - (B) The figures on the use of microelectronics that were made public are the result of inquiries made of managers in the manufacturing industry in Alameda.

- (C) The organizational changes that led to job losses in all sectors of the manufacturing industry in Alameda were primarily the result of the introduction of microelectronics.
  - (D) Figures on job losses in the manufacturing industry in Alameda for the late sixties and early seventies have not been made available.
  - (E) A few jobs in the manufacturing industry in Alameda could have been saved if workers had been willing to become knowledgeable in microelectronics.
5. The number of musicians employed to play accompaniment for radio and television commercials has sharply decreased over the past ten years. This has occurred even though the number of commercials produced each year has not significantly changed for the last ten years.

Which of the following, if it occurred during the past ten years, would contribute LEAST to an explanation of the facts above?

- (A) The type of music most popular for use in commercials has changed from a type that requires a large number of instruments to a type that requires very few instruments.
- (B) There has been an increase in the number of commercials that use only the spoken word and sound effects, rather than musical accompaniment.
- (C) There has been an increase in the number of commercials that use a synthesizer, an instrument on which one musician can reproduce the sound of many musicians playing together.
- (D) There has been an increase in the number of commercials that use prerecorded music as their only source of music.
- (E) There has been an increase in the number of commercials that use musicians just starting in the music industry rather than musicians experienced in accompanying commercials.

6. Recent audits revealed that BanqueCard, a credit service, has erred in calculating the interest it charges its clients. But BanqueCard's chief accountant reasoned that the profits that the company shows would remain unaffected by a revision of its clients' credit statements to correct its previous billing errors, since just as many clients had been overcharged as undercharged.

Which of the following is a reasoning error that the accountant makes in concluding that correcting its clients' statements would leave BanqueCard's profits unaffected?

- (A) Relying on the reputation of BanqueCard as a trustworthy credit service to maintain the company's clientele after the error becomes widely known
- (B) Failing to establish that BanqueCard charges the same rates of interest for all of its clients
- (C) Overlooking the possibility that the amount by which BanqueCard's clients had been overcharged might be greater than the amount by which they had been undercharged
- (D) Assuming that the clients who had been overcharged by BanqueCard had not noticed the error in their credit bills
- (E) Presupposing that each one of BanqueCard's clients had either been overcharged or else had been undercharged by the billing error

7. Not Scored

8. Residents of an apartment complex are considering two possible plans for collecting recyclable trash. Plan 1-Residents will deposit recyclable trash in municipal dumpsters located in the parking lot. The trash will be collected on the first and the fifteenth days of each month.

Plan 2-Residents will be given individual containers for recyclable trash. The containers will be placed at the curb twice a week for trash collection.

Which of the following points raised at a meeting of the residents, if valid, would most favor one of the recycling plans over the other?

- (A) Residents will be required to exercise care in separating recyclable trash from nonrecyclable trash.
- (B) For trash recycling to be successful, residents must separate recyclable bottles and cans from recyclable paper products.

- (C) Penalties will be levied against residents who fail to sort their trash correctly.
- (D) Individual recycling containers will need to be made of a strong and durable material.
- (E) Recyclable trash that is allowed to accumulate for two weeks will attract rodents.

9. In 1990 all of the people who applied for a job at Evco also applied for a job at Radeco, and Evco and Radeco each offered jobs to half of these applicants. Therefore, every one of these applicants must have been offered a job in 1990.

The argument above is based on which of the following assumptions about these job applicants?

- (A) All of the applicants were very well qualified for a job at either Evco or Radeco.
- (B) All of the applicants accepted a job at either Evco or Radeco.
- (C) None of the applicants was offered a job by both Evco and Radeco.
- (D) None of the applicants had applied for jobs at places other than Evco and Radeco.
- (E) None of the applicants had perviously worked for either Evco or Radeco.

10. The geese that gather at the pond of a large corporation create a hazard for executives who use the corporate helicopter, whose landing site is 40 feet away from the pond. To solve the problem, the corporation plans to import a large number of herding dogs to keep the geese away from the helicopter.

Which of the following, if a realistic possibility, would cast the most serious doubt on the prospects for success of the corporation's plan?

- (A) The dogs will form an uncontrollable pack.
- (B) The dogs will require training to learn to herd the geese.
- (C) The dogs will frighten away foxes that prey on old and sick geese.
- (D) It will be necessary to keep the dogs in quarantine for 30 days after importing them.
- (E) Some of the geese will move to the pond of another corporation in order to avoid being herded by the dogs.



11. When a person is under intense psychological stress, his or her cardiovascular response is the same as it is during vigorous physical exercise. Psychological stress, then, must be beneficial for the heart as is vigorous physical exercise.

The argument above relies on which of the following assumptions?

- (A) Exercise is an effective means of relieving psychological stress.
  - (B) The body's short-term cardiovascular response to any activity indicates that activity's long-term effect on the body.
  - (C) Cardiovascular response during an activity is an adequate measure of how beneficial the activity is for the heart.
  - (D) Psychological stress can have a positive effect on the body.
  - (E) Vigorous exercise is the most reliable method of maintaining a healthy heart.
12. After graduating from high school, people rarely multiply fractions or discuss ancient Rome, but they are confronted daily with decisions relating to home economics. Yet whereas mathematics and history are required courses in the high school curriculum, home economics is only an elective, and few students choose to take it.

Which of the following positions would be best supported by the considerations above?

- (A) If mathematics and history were not required courses, few students would choose to take them.
- (B) Whereas home economics would be the most useful subject for people facing the decisions they must make in daily life, often mathematics and history can also help them face these decisions.
- (C) If it is important to teach high school students subjects that relate to decisions that will confront them in their daily lives, then home economics should be made an important part of the high school curriculum.
- (D) Mathematics, history, and other courses that are not directly relevant to a person's daily life should not be a required part of the high school curriculum.
- (E) Unless high schools put more emphasis on nonacademic subjects like home economics, people graduating from high school will never feel comfortable about making the decisions that will confront them in their daily lives.

13. Houses built during the last ten years have been found to contain indoor air pollution at levels that are, on average, much higher than the levels found in older houses. The reason air-pollution levels are higher in the newer houses is that many such houses are built near the sites of old waste dumps or where automobile emissions are heavy.

Which of the following, if true, calls into question the explanation above?

- (A) Many new houses are built with air-filtration systems that remove from the house pollutants that are generated indoors.
- (B) The easing of standards for smokestack emissions has led to an increase in air-pollution levels in homes.
- (C) New houses built in secluded rural areas are relatively free of air pollutants.
- (D) Warm-weather conditions tend to slow down the movement of air, thus keeping pollution trapped near its source.
- (E) Pressboard, an inexpensive new plywood substitute now often used in the construction of houses, emits the pollutant formaldehyde into the house.

14. The most important aspect of moviemaking is conveying a scene's rhythm. Conveying rhythm depends less on the artistic quality of the individual photographic images than on how the shots go together and the order in which they highlight different aspects of the action taking place in front of the camera.

If the statements above are true, which of the following must be true on the basis of them?

- (A) The artistic quality of the individual photographic image is unimportant in movie photography.
  - (B) Photographers known for the superb artistic quality of their photographs are seldom effective as moviemakers.
  - (C) Having the ability to produce photographs of superb artistic quality does not in itself guarantee having the ability to be a good moviemaker.
  - (D) Movie photographers who are good at their jobs rarely give serious thought to the artistic quality of the photographs they take.
  - (E) To convey a scene's rhythm effectively, a moviemaker must highlight many different aspects of the action taking place.
15. Human beings can see the spatial relations among objects by processing information conveyed by light. Scientists trying to build computers that can detect spatial relations by the same kind of process have so far designed and built stationary machines. However, these scientists will not achieve their goal until they produce such a machine that can move around in its environment.
- Which of the following, if true, would best support the prediction above?
- (A) Human beings are dependent on visual cues from motion in order to detect spatial relations.
  - (B) Human beings can often easily detect the spatial relations among objects, even when those objects are in motion.
  - (C) Detecting spatial relations among objects requires drawing inferences from the information conveyed by light.
  - (D) Although human beings can discern spatial relations through their sense of hearing, vision is usually the most important means of detecting spatial relations.
  - (E) Information about the spatial relations among objects can be obtained by noticing such things as shadows and the relative sizes of objects.

16. In a study of the effect of color on productivity, 50 of 100 factory workers were moved from their drab workroom to a brightly colored workroom. Both these workers and the 50 who remained in the drab workroom increased their productivity, probably as a result of the interest taken by researchers in the work of both groups during the study.

Which of the following, if true, would cast most doubt upon the author's interpretation of the study results given above?

- (A) The 50 workers moved to the brightly colored room performed precisely the same manufacturing task as the workers who remained in the drab workroom.
  - (B) The drab workroom was designed to provide adequate space for at most 65 workers.
  - (C) The 50 workers who moved to the brightly colored workroom were matched as closely as possible in age and level of training to the 50 workers who remained in the drab workroom.
  - (D) Nearly all the workers in both groups had volunteered to move to the brightly colored workroom.
  - (E) Many of the workers who moved to the brightly colored workroom reported that they liked the drab workroom as well as or better than they liked the brightly colored workroom.
18. Manager: Accounting and Billing are located right next to each other and the two departments do similar kinds of work; yet expenditures for clerical supplies charged to Billing are much higher. Is Billing wasting supplies?
- Head of Billing: Not at all.

Which of the following, if true, best supports the position of the Head of Billing?

- (A) There are more staff members in Accounting than in Billing.
- (B) Two years ago, expenditures in Accounting for clerical supplies were the same as were expenditures that year in Billing for clerical supplies.
- (C) The work of Billing now requires a wider variety of clerical supplies than it did in the past.
- (D) Some of the paper-and-pencil work of both Accounting and Billing has been replaced by work done on computers.
- (E) Members of Accounting found the clerical-supplies cabinet of Billing more convenient to go to for supplies than their own department's cabinet.

19. Most geologists believe oil results from chemical transformations of hydrocarbons derived from organisms buried under ancient seas. Suppose, instead, that oil actually results from bacterial action on other complex hydrocarbons that are trapped within the Earth. As is well known, the volume of these hydrocarbons exceeds that of buried organisms. Therefore, our oil reserves would be greater than most geologists believe.

Which of the following, if true, gives the strongest support to the argument above about our oil reserves?

- (A) Most geologists think optimistically about the Earth's reserves of oil.
  - (B) Most geologists have performed accurate chemical analyses on previously discovered oil reserves.
  - (C) Ancient seas are buried within the Earth at many places where fossils are abundant.
  - (D) The only bacteria yet found in oil reserves could have leaked down drill holes from surface contaminants.
  - (E) Chemical transformations reduce the volume of buried hydrocarbons derived from organisms by roughly the same proportion as bacterial action reduces the volume of other complex hydrocarbons.
20. The wild mouflon sheep of the island of Corsica are direct descendants of sheep that escaped from domestication on the island 8,000 years ago. They therefore provide archaeologists with a picture of what some early domesticated sheep looked like, before the deliberate selective breeding that produced modern domesticated sheep began.

The argument above makes which of the following assumptions?

- (A) The domesticated sheep of 8,000 years ago were quite dissimilar from the wild sheep of the time.
- (B) There are no other existing breeds of sheep that escaped from domestication at about the same time as the forebears of the mouflon.
- (C) Modern domesticated sheep are direct descendants of sheep that were wild 8,000 years ago.
- (D) Mouflon sheep are more similar to their forebears of 8,000 years ago than modern domesticated sheep are to theirs.
- (E) The climate of Corsica has not changed at all in the last 8,000 years.

**CRITICAL REASONING TEST SECTION 13****25 Minutes 16 Questions**

1. Cable-television spokesperson: Subscriptions to cable television are a bargain in comparison to "free" television. Remember that "free" television is not really free. It is consumers, in the end, who pay for the costly advertising that supports "free" television.

Which of the following, if true, is most damaging to the position of the cable-television spokesperson?

- (A) Consumers who do not own television sets are less likely to be influenced in their purchasing decisions by television advertising than are consumers who own television sets.
  - (B) Subscriptions to cable television include access to some public-television channels, which do not accept advertising.
  - (C) For locations with poor television reception, cable television provides picture quality superior to that provided by free television.
  - (D) There is as much advertising on many cable-television channels as there is on "free" television channels.
  - (E) Cable-television subscribers can choose which channels they wish to receive, and the fees vary accordingly.
2. Woodsmoke contains dangerous toxins that cause changes in human cells. Because woodsmoke presents such a high health risk, legislation is needed to regulate the use of open-air fires and wood-burning stoves.

Which of the following, if true, provides the most support for the argument above?

- (A) The amount of dangerous toxins contained in woodsmoke is much less than the amount contained in an equal volume of automobile exhaust.
- (B) Within the jurisdiction covered by the proposed legislation, most heating and cooking is done with oil or natural gas.
- (C) Smoke produced by coal-burning stoves is significantly more toxic than smoke from wood-burning stoves.
- (D) No significant beneficial effect on air quality would result if open-air fires were banned within the jurisdiction covered by the proposed legislation.
- (E) In valleys where wood is used as the primary heating fuel, the concentration of smoke results in poor air quality.

3. Within 20 years it will probably be possible to identify the genetic susceptibility an individual may have toward any particular disease. Eventually, effective strategies will be discovered to counteract each such susceptibility. Once these effective strategies are found, therefore, the people who follow them will never get sick.

The argument above is based on which of the following assumptions?

- (A) For every disease there is only one strategy that can prevent its occurrence.
  - (B) In the future, genetics will be the only medical specialty of any importance.
  - (C) All human sicknesses are in part the result of individuals' genetic susceptibilities.
  - (D) All humans are genetically susceptible to some diseases.
  - (E) People will follow medical advice when they are convinced that it is effective.
4. Most employees in the computer industry move from company to company, changing jobs several times in their careers. However, Summit Computers is known throughout the industry for retaining its employees. Summit credits its success in retaining employees to its informal, nonhierarchical work environment.

Which of the following, if true, most strongly supports Summit's explanation of its success in retaining employees?

- (A) Some people employed in the computer industry change jobs if they become bored with their current projects
- (B) A hierarchical work environment hinders the cooperative exchange of ideas that computer industry employees consider necessary for their work.
- (C) Many of Summit's senior employees had previously worked at only one other computer company.
- (D) In a nonhierarchical work environment, people avoid behavior that might threaten group harmony and thus avoid discussing with their colleagues any dissatisfaction they might have with their jobs.
- (E) The cost of living near Summit is relatively low compared to areas in which some other computer companies are located.

5. Financing for a large construction project was provided by a group of banks. When the money was gone before the project was completed, the banks approved additional loans. Now, with funds used up again and completion still not at hand, the banks refuse to extend further loans, although without those loans, the project is doomed.

Which of the following, if true, best explains why the bank's current reaction is different from their reaction in the previous instance of depletion of funds?

- (A) The banks have reassessed the income potential of the completed project and have concluded that total income generable would be less than total interest due on the old plus the needed new loans.
- (B) The banks have identified several other projects that offer faster repayment of the principal if loans are approved now to get those projects started.
- (C) The banks had agreed with the borrowers that the construction loans would be secured by the completed project.
- (D) The cost overruns were largely due to unforeseeable problems that arose in the most difficult phase of the construction work.
- (E) The project stimulated the development and refinement of several new construction techniques, which will make it easier and cheaper to carry out similar projects in the future.

6. Low-income families are often unable to afford as much child care as they need. One government program would award low-income families a refund on the income taxes they pay of as much as \$1,000 for each child under age four. This program would make it possible for all low-income families with children under age four to obtain more child care than they otherwise would have been able to afford.

Which of the following, if true, most seriously calls into question the claim that the program would make it possible for all low-income families to obtain more child care?

- (A) The average family with children under age four spends more than \$1,000 a year on child care.
- (B) Some low-income families in which one of the parents is usually available to care for children under age four may not want to spend their income tax refund on child care.



- (C) The reduction in government revenues stemming from the income tax refund will necessitate cuts in other government programs, such as grants for higher education.
- (D) Many low-income families with children under age four do not pay any income taxes because their total income is too low to be subject to such taxes.
- (E) Income taxes have increased substantially over the past twenty years, reducing the money that low-income families have available to spend on child care.

7. Not scored

8. Although parapsychology is often considered a pseudoscience, it is in fact a genuine scientific enterprise, for it uses scientific methods such as controlled experiments and statistical tests of clearly stated hypotheses to examine the questions it raises

The conclusion above is properly drawn if which of the following is assumed?

- (A) If a field of study can conclusively answer the questions it raises, then it is a genuine science.
  - (B) Since parapsychology uses scientific methods, it will produce credible results.
  - (C) Any enterprise that does not use controlled experiments and statistical tests is not genuine science.
  - (D) Any field of study that employs scientific methods is a genuine scientific enterprise.
  - (E) Since parapsychology raises clearly storable questions, they can be tested in controlled experiments.
9. Hotco oil burners, designed to be used in asphalt plants, are so efficient that Hotco will sell one to the Clifton Asphalt plant for no payment other than the cost savings between the total amount the asphalt plant actually paid for oil using its former burner during the last two years and the total amount it will pay for oil using the Hotco burner during the next two years. On installation, the plant will make an estimated payment, which will be adjusted after two years to equal the actual cost savings.

Which of the following, if it occurred, would constitute a disadvantage for Hotco of the plan described above?

- (A) Another manufacturer's introduction to the market of a similarly efficient burner
- (B) The Clifton Asphalt plant's need for more than one new burner
- (C) Very poor efficiency in the Clifton Asphalt plant's old burner
- (D) A decrease in the demand for asphalt
- (E) A steady increase in the price of oil beginning soon after the new burner is installed

10. Today's low gasoline prices make consumers willing to indulge their preference for larger cars, which consume greater amounts of gasoline as fuel. So United States automakers are unwilling to pursue the development of new fuel-efficient technologies aggressively. The particular reluctance of the United States automobile industry to do so, however, could threaten the industry's future.

Which of the following, if true, would provide the most support for the claim above about the future of the United States automobile industry?

- (A) A prototype fuel-efficient vehicle, built five years ago, achieves a very high 81 miles per gallon on the highway and 63 in the city, but its materials are relatively costly.
- (B) Small cars sold by manufacturers in the United States are more fuel efficient now than before the sudden jump in oil prices in 1973.
- (C) Automakers elsewhere in the world have slowed the introduction of fuel-efficient technologies but have pressed ahead with research and development of them in preparation for a predicted rise in world oil prices.
- (D) There are many technological opportunities for reducing the waste of energy in cars and light trucks through weight, aerodynamic drag, and braking friction.
- (E) The promotion of mass transit over automobiles as an alternative mode of transportation has encountered consumer resistance that is due in part to the failure of mass transit to accommodate the wide dispersal of points of origin and destinations for trips.

11. An experiment was done in which human subjects recognize a pattern within a matrix of abstract designs and then select another design that completes that pattern. The results of the experiment were surprising. The lowest expenditure of energy in neurons in the brain was found in those subjects who performed most successfully in the experiments.

Which of the following hypotheses best accounts for the findings of the experiment?

- (A) The neurons of the brain react less when a subject is trying to recognize patterns than when the subject is doing other kinds of reasoning.
- (B) Those who performed best in the experiment experienced more satisfaction when working with abstract patterns than did those who performed less well.
- (C) People who are better at abstract pattern recognition have more energy-efficient neural connections.
- (D) The energy expenditure of the subjects brains increases when a design that completes the initially recognized pattern is determined.
- (E) The task of completing a given design is more capably performed by athletes, whose energy expenditure is lower when they are at rest than is that of the general population.

12. A researcher studying drug addicts found that, on average, they tend to manipulate other people a great deal more than nonaddicts do. The researcher concluded that people who frequently manipulate other people are likely to become addicts.

Which of the following, if true, most seriously weakens the researcher's conclusion?

- (A) After becoming addicted to drugs, drug addicts learn to manipulate other people as a way of obtaining drugs.
- (B) When they are imprisoned, drug addicts often use their ability to manipulate other people to obtain better living conditions.
- (C) Some nonaddicts manipulate other people more than some addicts do.
- (D) People who are likely to become addicts exhibit unusual behavior patterns other than frequent manipulation of other people
- (E) The addicts that the researcher studied were often unsuccessful in obtaining what they wanted when they manipulated other people.

13. One way to judge the performance of a company is to compare it with other companies. This technique, commonly called "benchmarking," permits the manager of a company to discover better industrial practices and can provide a justification for the adoption of good practices.

Any of the following, if true, is a valid reason for benchmarking the performance of a company against companies with which it is not in competition rather than against competitors EXCEPT:

- (A) Comparisons with competitors are most likely to focus on practices that the manager making the comparisons already employs.
- (B) Getting "inside" information about the unique practices of competitors is particularly difficult.
- (C) Since companies that compete with each other are likely to have comparable levels of efficiency, only benchmarking against noncompetitors is likely to reveal practices that would aid in beating competitors.
- (D) Managers are generally more receptive to new ideas that they find outside their own industry.
- (E) Much of the success of good companies is due to their adoption of practices that take advantage of the special circumstances of their products or markets.

14. Among the more effective kinds of publicity that publishers can get for a new book is to have excerpts of it published in a high-circulation magazine soon before the book is published. The benefits of such excerpting include not only a sure increase in sales but also a fee paid by the magazine to the book's publisher.

Which of the following conclusions is best supported by the information above?

- (A) The number of people for whom seeing an excerpt of a book in a magazine provides an adequate substitute for reading the whole book is smaller than the number for whom the excerpt stimulates a desire to read the book.
- (B) Because the financial advantage of excerpting a new book in a magazine usually accrues to the book's publisher, magazine editors are unwilling to publish excerpts from new books.
- (C) In calculating the total number of copies that a book has sold, publishers include sales of copies of magazines that featured an excerpt of the book.
- (D) The effectiveness of having excerpts of a book published in a magazine, measured in terms of increased sales of a book, is proportional to the circulation of the magazine in which the excerpts are published.
- (E) Books that are suitable for excerpting in high-circulation magazines sell more copies than books that are not suitable for excerpting.

15. In Swartkans territory, archaeologists discovered charred bone fragments dating back 1 million years. Analysis of the fragments, which came from a variety of animals, showed that they had been heated to temperatures no higher than those produced in experimental campfires made from branches of white stinkwood, the most common tree around Swartkans.

Which of the following, if true, would, together with the information above, provide the best basis for the claim that the charred bone fragments are evidence of the use of fire by early hominids?

- (A) The white stinkwood tree is used for building material by the present-day inhabitants of Swartkans.
  - (B) Forest fires can heat wood to a range of temperatures that occur in campfires.
  - (C) The bone fragments were fitted together by the archaeologists to form the complete skeletons of several animals.
  - (D) Apart from the Swartkans discovery, there is reliable evidence that early hominids used fire as many as 500 thousand years ago.
  - (E) The bone fragments were found in several distinct layers of limestone that contained primitive cutting tools known to have been used by early hominids.
16. For a trade embargo against a particular country to succeed, a high degree of both international accord and ability to prevent goods from entering or leaving that country must be sustained. A total blockade of Patria's ports is necessary to an embargo, but such an action would be likely to cause international discord over the embargo.

The claims above, if true, most strongly support which of the following conclusions?

- (A) The balance of opinion is likely to favor Patria in the event of a blockade.
- (B) As long as international opinion is unanimously against Patria, a trade embargo is likely to succeed.
- (C) A naval blockade of Patria's ports would ensure that no goods enter or leave Patria.
- (D) Any trade embargo against Patria would be likely to fail at some time.
- (E) For a blockade of Patria's ports to be successful, international opinion must be unanimous.

**CRITICAL REASONING TEST SECTION 14****25 Minutes 16 Questions**

1. The local board of education found that, because the current physics curriculum has little direct relevance to today's world, physics classes attracted few high school students. So to attract students to physics classes, the board proposed a curriculum that emphasizes principles of physics involved in producing and analyzing visual images.

Which of the following, if true, provides the strongest reason to expect that the proposed curriculum will be successful in attracting students?

- (A) Several of the fundamental principles of physics are involved in producing and analyzing visual images.
  - (B) Knowledge of physics is becoming increasingly important in understanding the technology used in today's world.
  - (C) Equipment that a large producer of photographic equipment has donated to the high school could be used in the proposed curriculum.
  - (D) The number of students interested in physics today is much lower than the number of students interested in physics 50 years ago.
  - (E) In today's world the production and analysis of visual images is of major importance in communications, business, and recreation.
2. Many companies now have employee assistance programs that enable employees, free of charge, to improve their physical fitness, reduce stress, and learn ways to stop smoking. These programs increase worker productivity, reduce absenteeism, and lessen insurance costs for employee health care. Therefore, these programs benefit the company as well as the employee.

Which of the following, if true, most significantly strengthens the conclusion above?

- (A) Physical fitness programs are often the most popular services offered to employees.
- (B) Studies have shown that training in stress management is not effective for many people.
- (C) Regular exercise reduces people's risk of heart disease and provides them with increased energy.
- (D) Physical injuries sometimes result from entering a strenuous physical fitness program too quickly.
- (E) Employee assistance programs require companies to hire people to supervise the various programs offered.

3. Unlike the wholesale price of raw wool, the wholesale price of raw cotton has fallen considerably in the last year. Thus, although the retail price of cotton clothing at retail clothing stores has not yet fallen, it will inevitably fall.

Which of the following, if true, most seriously weakens the argument above?

- (A) The cost of processing raw cotton for cloth has increased during the last year.
  - (B) The wholesale price of raw wool is typically higher than that of the same volume of raw cotton.
  - (C) The operating costs of the average retail clothing store have remained constant during the last year.
  - (D) Changes in retail prices always lag behind changes in wholesale prices.
  - (E) The cost of harvesting raw cotton has increased in the last year.
4. Small-business groups are lobbying to defeat proposed federal legislation that would substantially raise the federal minimum wage. This opposition is surprising since the legislation they oppose would, for the first time, exempt all small businesses from paying any minimum wage.

Which of the following, if true, would best explain the opposition of small-business groups to the proposed legislation?

- (A) Under the current federal minimum-wage law, most small businesses are required to pay no less than the minimum wage to their employees.
- (B) In order to attract workers, small companies must match the wages offered by their larger competitors, and these competitors would not be exempt under the proposed laws.
- (C) The exact number of companies that are currently required to pay no less than the minimum wage but that would be exempt under the proposed laws is unknown.
- (D) Some states have set their own minimum wages---in some cases, quite a bit above the level of the minimum wage mandated by current federal law---for certain key industries.
- (E) Service companies make up the majority of small businesses and they generally employ more employees per dollar of revenues than do retail or manufacturing businesses.

5. Reviewer: The book *Art's Decline* argues that European painters today lack skills that were common among European painters of preceding centuries. In this the book must be right, since its analysis of 100 paintings, 50 old and 50 contemporary, demonstrates convincingly that none of the contemporary paintings are executed as skillfully as the older paintings.

Which of the following points to the most serious logical flaw in the reviewer's argument?

- (A) The paintings chosen by the book's author for analysis could be those that most support the book's thesis.
  - (B) There could be criteria other than the technical skill of the artist by which to evaluate a painting.
  - (C) The title of the book could cause readers to accept the book's thesis even before they read the analysis of the paintings that supports it.
  - (D) The particular methods currently used by European painters could require less artistic skill than do methods used by painters in other parts of the world.
  - (E) A reader who was not familiar with the language of art criticism might not be convinced by the book's analysis of the 100 paintings.
6. The pharmaceutical industry argues that because new drugs will not be developed unless heavy development costs can be recouped in later sales, the current 20 years of protection provided by patents should be extended in the case of newly developed drugs. However, in other industries new-product development continues despite high development costs, a fact that indicates that the extension is unnecessary.

Which of the following, if true, most strongly supports the pharmaceutical industry's argument against the challenge made above?

- (A) No industries other than the pharmaceutical industry have asked for an extension of the 20-year limit on patent protection.
- (B) Clinical trials of new drugs, which occur after the patent is granted and before the new drug can be marketed, often now take as long as 10 years to complete.
- (C) There are several industries in which the ratio of research and development costs to revenues is higher than it is in the pharmaceutical industry.
- (D) An existing patent for a drug does not legally prevent pharmaceutical companies from bringing to market alternative drugs, provided they are sufficiently dissimilar to the patented drug.
- (E) Much recent industrial innovation has occurred in products---for example, in the computer and electronics industries---for which patent protection is often very ineffective.



Questions 7-8 are based on the following.

Bank depositors in the United States are all financially protected against bank failure because the government insures all individuals' bank deposits. An economist argues that this insurance is partly responsible for the high rate of bank failures, since it removes from depositors any financial incentive to find out whether the bank that holds their money is secure against failure. If depositors were more selective, then banks would need to be secure in order to compete for depositors' money.

7. The economist's argument makes which of the following assumptions?
- (A) Bank failures are caused when big borrowers default on loan repayments.
  - (B) A significant proportion of depositors maintain accounts at several different banks.
  - (C) The more a depositor has to deposit, the more careful he or she tends to be in selecting a bank.
  - (D) The difference in the interest rates paid to depositors by different banks is not a significant factor in bank failures.
  - (E) Potential depositors are able to determine which banks are secure against failure.
8. Which of the following, if true, most seriously weakens the economist's argument?
- (A) Before the government started to insure depositors against bank failure, there was a lower rate of bank failure than there is now.
  - (B) When the government did not insure deposits, frequent bank failures occurred as a result of depositors' fears of losing money in bank failures.
  - (C) Surveys show that a significant proportion of depositors are aware that their deposits are insured by the government.
  - (D) There is an upper limit on the amount of an individual's deposit that the government will insure, but very few individuals' deposits exceed this limit.
  - (E) The security of a bank against failure depends on the percentage of its assets that are loaned out and also on how much risk its loans involve.

9. Passengers must exit airplanes swiftly after accidents, since gases released following accidents are toxic to humans and often explode soon after being released. In order to prevent passenger deaths from gas inhalation, safety officials recommend that passengers be provided with smoke hoods that prevent inhalation of the gases.

Which of the following, if true, constitutes the strongest reason not to require implementation of the safety officials' recommendation?

- (A) Test evacuations showed that putting on the smoke hoods added considerably to the overall time it took passengers to leave the cabin.
  - (B) Some airlines are unwilling to buy the smoke hoods because they consider them to be prohibitively expensive.
  - (C) Although the smoke hoods protect passengers from the toxic gases, they can do nothing to prevent the gases from igniting.
  - (D) Some experienced flyers fail to pay attention to the safety instructions given on every commercial flight before takeoff.
  - (E) In many airplane accidents, passengers who were able to reach emergency exits were overcome by toxic gases before they could exit the airplane.
10. In 1960, 10 percent of every dollar paid in automobile insurance premiums went to pay costs arising from injuries incurred in car accidents. In 1990, 50 percent of every dollar paid in automobile insurance premiums went toward such costs, despite the fact that cars were much safer in 1990 than in 1960.

Which of the following, if true, best explains the discrepancy outlined above?

- (A) There were fewer accidents in 1990 than in 1960.
- (B) On average, people drove more slowly in 1990 than in 1960.
- (C) Cars grew increasingly more expensive to repair over the period in question.
- (D) The price of insurance increased more rapidly than the rate of inflation between 1960 and 1990.
- (E) Health-care costs rose sharply between 1960 and 1990.

11. Caterpillars of all species produce an identical hormone called "juvenile hormone" that maintains feeding behavior. Only when a caterpillar has grown to the right size for pupation to take place does a special enzyme halt the production of juvenile hormone. This enzyme can be synthesized and will, on being ingested by immature caterpillars, kill them by stopping them from feeding.

Which of the following, if true, most strongly supports the view that it would not be advisable to try to eradicate agricultural pests that go through a caterpillar stage by spraying croplands with the enzyme mentioned above?

- (A) Most species of caterpillar are subject to some natural predation.
  - (B) Many agricultural pests do not go through a caterpillar stage.
  - (C) Many agriculturally beneficial insects go through a caterpillar stage.
  - (D) Since caterpillars of different species emerge at different times, several sprayings would be necessary.
  - (E) Although the enzyme has been synthesized in the laboratory, no large-scale production facilities exist as yet.
12. Although aspirin has been proven to eliminate moderate fever associated with some illnesses, many doctors no longer routinely recommend its use for this purpose. A moderate fever stimulates the activity of the body's disease-fighting white blood cells and also inhibits the growth of many strains of disease-causing bacteria.

If the statements above are true, which of the following conclusions is most strongly supported by them?

- (A) Aspirin, an effective painkiller, alleviates the pain and discomfort of many illnesses.
- (B) Aspirin can prolong a patient's illness by eliminating moderate fever helpful in fighting some diseases.
- (C) Aspirin inhibits the growth of white blood cells, which are necessary for fighting some illnesses.
- (D) The more white blood cells a patient's body produces, the less severe the patient's illness will be.
- (E) The focus of modern medicine is on inhibiting the growth of disease-causing bacteria within the body.

13. Because postage rates are rising, Home Decorator magazine plans to maximize its profits by reducing by one half the number of issues it publishes each year. The quality of articles, the number of articles published per year, and the subscription price will not change. Market research shows that neither subscribers nor advertisers will be lost if the magazine's plan is instituted.

Which of the following, if true, provides the strongest evidence that the magazine's profits are likely to decline if the plan is instituted?

- (A) With the new postage rates, a typical issue under the proposed plan would cost about one-third more to mail than a typical current issue would.
  - (B) The majority of the magazine's subscribers are less concerned about a possible reduction in the quantity of the magazine's articles than about a possible loss of the current high quality of its articles.
  - (C) Many of the magazine's long-time subscribers would continue their subscriptions even if the subscription price were increased.
  - (D) Most of the advertisers that purchase advertising space in the magazine will continue to spend the same amount on advertising per issue as they have in the past.
  - (E) Production costs for the magazine are expected to remain stable.
14. A study of marital relationships in which one partner's sleeping and waking cycles differ from those of the other partner reveals that such couples share fewer activities with each other and have more violent arguments than do couples in a relationship in which both partners follow the same sleeping and waking patterns. Thus, mismatched sleeping and waking cycles can seriously jeopardize a marriage.

Which of the following, if true, most seriously weakens the argument above?

- (A) Married couples in which both spouses follow the same sleeping and waking patterns also occasionally have arguments that can jeopardize the couple's marriage.
- (B) The sleeping and waking cycles of individuals tend to vary from season to season.

- (C) The individuals who have sleeping and waking cycles that differ significantly from those of their spouses tend to argue little with colleagues at work.
- (D) People in unhappy marriages have been found to express hostility by adopting a different sleeping and waking cycle from that of their spouses.
- (E) According to a recent study, most people's sleeping and waking cycles can be controlled and modified easily.

Questions 15-16 are based on the following.

Roland: The alarming fact is that 90 percent of the people in this country now report that they know someone who is unemployed.

Sharon: But a normal, moderate level of unemployment is 5 percent, with 1 out of 20 workers unemployed. So at any given time if a person knows approximately 50 workers, 1 or more will very likely be unemployed.

15. Sharon's argument is structured to lead to which of the following as a conclusion?
- (A) The fact that 90% of the people know someone who is unemployed is not an indication that unemployment is abnormally high.
  - (B) The current level of unemployment is not moderate.
  - (C) If at least 5% of workers are unemployed, the result of questioning a representative group of people cannot be the percentage Roland cites.
  - (D) It is unlikely that the people whose statements Roland cites are giving accurate reports.
  - (E) If an unemployment figure is given as a certain percent, the actual percentage of those without jobs is even higher.
16. Sharon's argument relies on the assumption that
- (A) normal levels of unemployment are rarely exceeded
  - (B) unemployment is not normally concentrated in geographically isolated segments of the population
  - (C) the number of people who each know someone who is unemployed is always higher than 90% of the population
  - (D) Roland is not consciously distorting the statistics he presents
  - (E) knowledge that a personal acquaintance is unemployed generates more fear of losing one's job than does knowledge of unemployment statistics

**CRITICAL REASONING TEST SECTION 15****25 Minutes 16 Questions**

1. A company is considering changing its policy concerning daily working hours. Currently, this company requires all employees to arrive at work at 8 a.m. The proposed policy would permit each employee to decide when to arrive—from as early as 6 a.m. to as late as 11 a.m.

The adoption of this policy would be most likely to decrease employees' productivity if the employees' job functions required them to

- (A) work without interruption from other employees
  - (B) consult at least once a day with employees from other companies
  - (C) submit their work for a supervisor's eventual approval
  - (D) interact frequently with each other throughout the entire workday
  - (E) undertake projects that take several days to complete
2. The amount of time it takes for most of a worker's occupational knowledge and skills to become obsolete has been declining because of the introduction of advanced manufacturing technology (AMT). Given the rate at which AMT is currently being introduced in manufacturing, the average worker's old skills become obsolete and new skills are required within as little as five years.

Which of the following plans, if feasible, would allow a company to prepare most effectively for the rapid obsolescence of skills described above?

- (A) The company will develop a program to offer selected employees the opportunity to receive training six years after they were originally hired.
- (B) The company will increase its investment in AMT every year for a period of at least five years.
- (C) The company will periodically survey its employees to determine how the introduction of AMT has affected them.
- (D) Before the introduction of AMT, the company will institute an educational program to inform its employees of the probable consequences of the introduction of AMT.
- (E) The company will ensure that it can offer its employees any training necessary for meeting their job requirements.

3. Installing scrubbers in smokestacks and switching to cleaner-burning fuel are the two methods available to Northern Power for reducing harmful emissions from its plants. Scrubbers will reduce harmful emissions more than cleaner-burning fuels will. Therefore, by installing scrubbers, Northern Power will be doing the most that can be done to reduce harmful emissions from its plants.

Which of the following is an assumption on which the argument depends?

- (A) Switching to cleaner-burning fuel will not be more expensive than installing scrubbers.
- (B) Northern Power can choose from among various kinds of scrubbers, some of which are more effective than others.
- (C) Northern Power is not necessarily committed to reducing harmful emissions from its plants.
- (D) Harmful emissions from Northern Power's plants cannot be reduced more by using both methods together than by the installation of scrubbers alone.
- (E) Aside from harmful emissions from the smokestacks of its plants, the activities of Northern Power do not cause significant air pollution.

4. Some anthropologists study modern-day societies of foragers in an effort to learn about our ancient ancestors who were also foragers. A flaw in this strategy is that forager societies are extremely varied. Indeed, any forager society with which anthropologists are familiar has had considerable contact with modern nonforager societies.

Which of the following, if true, would most weaken the criticism made above of the anthropologists' strategy?

- (A) All forager societies throughout history have had a number of important features in common that are absent from other types of societies.
- (B) Most ancient forager societies either dissolved or made a transition to another way of life.
- (C) All anthropologists study one kind or another of modern-day society.
- (D) Many anthropologists who study modern-day forager societies do not draw inferences about ancient societies on the basis of their studies.
- (E) Even those modern-day forager societies that have not had significant contact with modern societies are importantly different from ancient forager societies.

5. Mayor: In each of the past five years, the city has cut school funding and each time school officials complained that the cuts would force them to reduce expenditures for essential services. But each time, only expenditures for nonessential services were actually reduced. So school officials can implement further cuts without reducing any expenditures for essential services.

Which of the following, if true, most strongly supports the mayor's conclusion?

- (A) The city's schools have always provided essential services as efficiently as they have provided nonessential services.
- (B) Sufficient funds are currently available to allow the city's schools to provide some nonessential services.
- (C) Price estimates quoted to the city's schools for the provision of nonessential services have not increased substantially since the most recent school funding cut.
- (D) Few influential city administrators support the funding of costly nonessential services in the city's schools.
- (E) The city's school officials rarely exaggerate the potential impact of threatened funding cuts.

6. Advertisement:

For sinus pain, three out of four hospitals give their patients Novex. So when you want the most effective painkiller for sinus pain, Novex is the one to choose.

Which of the following, if true, most seriously undermines the advertisement's argument?

- (A) Some competing brands of painkillers are intended to reduce other kinds of pain in addition to sinus pain.
- (B) Many hospitals that do not usually use Novex will do so for those patients who cannot tolerate the drug the hospitals usually use.
- (C) Many drug manufacturers increase sales of their products to hospitals by selling these products to the hospitals at the lowest price the manufacturers can afford.
- (D) Unlike some competing brands of painkillers, Novex is available from pharmacies without a doctor's prescription.
- (E) In clinical trials Novex has been found more effective than competing brands of painkillers that have been on the market longer than Novex.



7. A report that many apples contain a cancer-causing preservative called Alar apparently had little effect on consumers. Few consumers planned to change their apple-buying habits as a result of the report. Nonetheless, sales of apples in grocery stores fell sharply in March, a month after the report was issued.

Which of the following, if true, best explains the reason for the apparent discrepancy described above?

- (A) In March, many grocers removed apples from their shelves in order to demonstrate concern about their customers' health.
- (B) Because of a growing number of food-safety warnings, consumers in March were indifferent to such warnings.
- (C) The report was delivered on television and also appeared in newspapers.
- (D) The report did not mention that any other fruit contains Alar, although the preservative is used on other fruit.
- (E) Public health officials did not believe that apples posed a health threat because only minute traces of Alar were present in affected apples.

8. A new law gives ownership of patents—documents providing exclusive right to make and sell an invention—to universities, not the government, when those patents result from government-sponsored university research. Administrators at Logos University plan to sell any patents they acquire to corporations in order to fund programs to improve undergraduate teaching.

Which of the following, if true, would cast most doubt on the viability of the college administrators' plan described above?

- (A) Profit-making corporations interested in developing products based on patents held by universities are likely to try to serve as exclusive sponsors of ongoing university research projects.
- (B) Corporate sponsors of research in university facilities are entitled to tax credits under new federal tax-code guidelines.
- (C) Research scientists at Logos University have few or no teaching responsibilities and participate little if at all in the undergraduate programs in their field.
- (D) Government-sponsored research conducted at Logos University for the most part duplicates research already completed by several profit-making corporations.
- (E) Logos University is unlikely to attract corporate sponsorship of its scientific research.

9. Contrary to earlier predictions, demand for sugarcane has not increased in recent years. Yet, even though prices and production amounts have also been stable during the last three years, sugarcane growers last year increased their profits by more than ten percent over the previous year's level.

Any of the following statements, if true about last year, helps to explain the rise in profits EXCEPT:

- (A) Many countries that are large consumers of sugarcane increased their production of sugarcane-based ethanol, yet their overall consumption of sugarcane decreased.
  - (B) Sugarcane growers have saved money on wages by switching from paying laborers an hourly wage to paying them by the amount harvested.
  - (C) The price of oil, the major energy source used by sugarcane growers in harvesting their crops, dropped by over twenty percent.
  - (D) Many small sugarcane growers joined together to form an association of sugarcane producers and began to buy supplies at low group rates.
  - (E) Rainfall in sugarcane-growing regions was higher than it had been during the previous year, allowing the growers to save money on expensive artificial irrigation.
10. If the county continues to collect residential trash at current levels, landfills will soon be overflowing and parkland will need to be used in order to create more space. Charging each household a fee for each pound of trash it puts out for collection will induce residents to reduce the amount of trash they create; this charge will therefore protect the remaining county parkland.

Which of the following is an assumption made in drawing the conclusion above?

- (A) Residents will reduce the amount of trash they put out for collection by reducing the number of products they buy.
- (B) The collection fee will not significantly affect the purchasing power of most residents, even if their households do not reduce the amount of trash they put out.
- (C) The collection fee will not induce residents to dump their trash in the parklands illegally.
- (D) The beauty of county parkland is an important issue for most of the county's residents.
- (E) Landfills outside the county's borders could be used as dumping sites for the county's trash.

Questions 11-12 are based on the following.

Environmentalist: The commissioner of the Fish and Game Authority would have the public believe that increases in the number of marine fish caught demonstrate that this resource is no longer endangered. This is a specious argument, as unsound as it would be to assert that the ever-increasing rate at which rain forests are being cut down demonstrates a lack of danger to that resource. The real cause of the increased fish-catch is a greater efficiency in using technologies that deplete resources.

11. Which of the following strategies is used in the presentation of the environmentalist's position?
- (A) Questioning the motives of an opponent
  - (B) Showing that an opposing position is self-contradictory
  - (C) Attacking an argument through the use of an analogy
  - (D) Demonstrating the inaccuracy of certain data
  - (E) Pointing out adverse consequences of a proposal
12. The environmentalist's statements, if true, best support which of the following as a conclusion?
- (A) The use of technology is the reason for the increasing encroachment of people on nature.
  - (B) It is possible to determine how many fish are in the sea in some way other than by catching fish.
  - (C) The proportion of marine fish that are caught is as high as the proportion of rain-forest trees that are cut down each year.
  - (D) Modern technologies waste resources by catching inedible fish.
  - (E) Marine fish continue to be an endangered resource.

13. Biometric access-control systems—those using fingerprints, voiceprints, etc., to regulate admittance to restricted areas—work by degrees of similarity, not by identity. After all, even the same finger will rarely leave exactly identical prints. Such systems can be adjusted to minimize refusals of access to legitimate access-seekers. Such adjustments, however, increase the likelihood of admitting impostors.

Which of the following conclusions is most strongly supported by the information above?

- (A) If a biometric access-control system were made to work by identity, it would not produce any correct admittance decisions.
  - (B) If a biometric access-control system reliable prevents impostors from being admitted, it will sometimes turn away legitimate access-seekers.
  - (C) Biometric access-control systems are appropriate only in situations in which admittance of impostors is less of a problem than is mistaken refusal of access.
  - (D) Nonbiometric access-control systems—based, for example, on numerical codes—are less likely than biometric ones to admit impostors.
  - (E) Anyone choosing an access-control system should base the choice solely on the ratio of false refusals to false admittances.
14. Although computers can enhance people's ability to communicate, computer games are a cause of underdeveloped communication skills in children. After-school hours spent playing computer games are hours not spent talking with people. Therefore, children who spend all their spare time playing these games have less experience in interpersonal communication than other children have.

The argument depends on which of the following assumptions?

- (A) Passive activities such as watching television and listening to music do not hinder the development of communication skills in children.
- (B) Most children have other opportunities, in addition to after-school hours, in which they can choose whether to play computer games or to interact with other people.
- (C) Children who do not spend all of their after-school hours playing computer games spend at least some of that time talking with other people.
- (D) Formal instruction contributes little or nothing to children's acquisition of communication skills.
- (E) The mental skills developed through playing computer games do not contribute significantly to children's intellectual development.

15. One variety of partially biodegradable plastic beverage container is manufactured from small bits of plastic bound together by a degradable bonding agent such as cornstarch. Since only the bonding agent degrades, leaving the small bits of plastic, no less plastic refuse per container is produced when such containers are discarded than when comparable nonbiodegradable containers are discarded.

Which of the following, if true, most strengthens the argument above?

- (A) Both partially biodegradable and nonbiodegradable plastic beverage containers can be crushed completely flat by refuse compactors.
  - (B) The partially biodegradable plastic beverage containers are made with more plastic than comparable nonbiodegradable ones in order to compensate for the weakening effect of the bonding agents.
  - (C) Many consumers are ecology-minded and prefer to buy a product sold in the partially biodegradable plastic beverage containers rather than in nonbiodegradable containers, even if the price is higher.
  - (D) The manufacturing process for the partially biodegradable plastic beverage containers results in less plastic waste than the manufacturing process for nonbiodegradable plastic beverage containers.
  - (E) Technological problems with recycling currently prevent the reuse as food or beverage containers of the plastic from either type of plastic beverage container.
16. Commentator: The theory of trade retaliation states that countries closed out of any of another country's markets should close some of their own markets to the other country in order to pressure the other country to reopen its markets. If every country acted according to this theory, no country would trade with any other.

The commentator's argument relies on which of the following assumptions?

- (A) No country actually acts according to the theory of trade retaliation.
- (B) No country should block any of its markets to foreign trade.
- (C) Trade disputes should be settled by international tribunal.
- (D) For any two countries, at least one has some market closed to the other.
- (E) Countries close their markets to foreigners to protect domestic producers.

**CRITICAL REASONING TEST SECTION 16****25 Minutes 16 Questions**

1. The chanterelle, a type of wild mushroom, grows beneath host trees such as the Douglas fir, which provide it with necessary sugars. The underground filaments of chanterelles, which extract the sugars, in turn provide nutrients and water for their hosts. Because of this mutually beneficial relationship, harvesting the chanterelles growing beneath a Douglas fir seriously endangers the tree.

Which of the following, if true, casts the most doubt on the conclusion drawn above?

- (A) The number of wild mushrooms harvested has increased in recent years.
  - (B) Chanterelles grow not only beneath Douglas firs but also beneath other host trees.
  - (C) Many types of wild mushrooms are found only in forests and cannot easily be grown elsewhere.
  - (D) The harvesting of wild mushrooms stimulates future growth of those mushrooms.
  - (E) Young Douglas fir seedlings die without the nutrients and water provided by chanterelle filaments.
2. The reason much refrigerated food spoils is that it ends up out of sight at the back of the shelf. So why not have round shelves that rotate? Because such rotating shelves would have just the same sort of drawback, since things would fall off the shelves' edges into the rear corners.

Which of the following is presupposed in the argument against introducing rotating shelves?

- (A) Refrigerators would not be made so that their interior space is cylindrical.
- (B) Refrigerators would not be made to have a window in front for easy viewing of their contents without opening the door.
- (C) The problem of spoilage of refrigerated food is not amenable to any solution based on design changes.
- (D) Refrigerators are so well designed that there are bound to be drawbacks to any design change.
- (E) Rotating shelves would be designed to rotate only while the refrigerator door was open.

3. It would cost Rosetown one million dollars to repair all of its roads. In the year after completion of those repairs, however, Rosetown would thereby avoid incurring three million dollars worth of damages, since currently Rosetown pays that amount annually in compensation for damage done to cars each year by its unrepaired roads.

Which of the following, if true, gives the strongest support to the argument above?

- (A) Communities bordering on Rosetown also pay compensation for damage done to cars by their unrepaired roads.
  - (B) After any Rosetown road has been repaired, several years will elapse before that road begins to damage cars.
  - (C) Rosetown would need to raise additional taxes if it were to spend one million dollars in one year on road repairs.
  - (D) The degree of damage caused to Rosetown's roads by harsh weather can vary widely from year to year.
  - (E) Trucks cause much of the wear on Rosetown's roads, but owners of cars file almost all of the claims for compensation for damage caused by unrepaired roads.
4. Two experimental garden plots were each planted with the same number of tomato plants. Magnesium salts were added to the first plot but not to the second. The first plot produced 20 pounds of tomatoes and the second plot produced 10 pounds. Since nothing else but water was added to either plot, the higher yields in the first plot must have been due to the magnesium salts.

Which of the following, if true, most seriously weakens the argument above?

- (A) A small amount of the magnesium salts from the first plot leached into the second plot.
- (B) Tomato plants in a third experimental plot, to which a high-nitrogen fertilizer was added, but no magnesium salts, produced 15 pounds of tomatoes.
- (C) Four different types of tomatoes were grown in equal proportions in each of the plots.
- (D) Some weeds that compete with tomatoes cannot tolerate high amounts of magnesium salts in the soil.
- (E) The two experimental plots differed from each other with respect to soil texture and exposure to sunlight.

5. Archaeologists have found wheeled ceramic toys made by the Toltec, twelfth-century inhabitants of what is now Veracruz. Although there is no archaeological evidence that the Toltec used wheels for anything but toys, some anthropologists hypothesize that wheeled utility vehicles were used to carry materials needed for the monumental structures the Toltec produced.

Which of the following, if true, would most help the anthropologists explain the lack of evidence noted above?

- (A) The Toltec sometimes incorporated into their toys representations of utensils or other devices that served some practical purpose.
  - (B) Any wheeled utility vehicles used by the Toltec could have been made entirely of wood, and unlike ceramic, wood decays rapidly in the humid climate of Veracruz.
  - (C) Carvings in monument walls suggest that the Toltec's wheeled ceramic toys sometimes had ritual uses in addition to being used by both children and adults as decorations and playthings.
  - (D) Wheeled utility vehicles were used during the twelfth century in many areas of the world, but during this time wheeled toys were not very common in areas outside Veracruz.
  - (E) Some of the wheeled ceramic toys were found near the remains of monumental structures.
6. Demographers doing research for an international economics newsletter claim that the average per capita income in the country of Kuptala is substantially lower than that in the country of Bahlton. They also claim, however, that whereas poverty is relatively rare in Kuptala, over half the population of Bahlton lives in extreme poverty. At least one of the demographers' claims must, therefore, be wrong.

The argument above is most vulnerable to which of the following criticisms?

- (A) It rejects an empirical claim about the average per capita incomes in the two countries without making any attempt to discredit that claim by offering additional economic evidence.
- (B) It treats the vague term "poverty" as though it had a precise and universally accepted meaning.
- (C) It overlooks the possibility that the number of people in the two countries who live in poverty could be the same even though the percentages of the two populations that live in poverty differ markedly.
- (D) It fails to show that wealth and poverty have the same social significance in Kuptala as in Bahlton.
- (E) It does not consider the possibility that incomes in Kuptala, unlike those in Bahlton, might all be very close to the country's average per capita income.



7. Normally, increases in the price of a product decrease its sales except when the price increase accompanies an improvement in the product. Wine is unusual, however. Often increases in the price of a particular producer's wine will result in increased sales, even when the wine itself is unchanged.

Which of the following, if true, does most to explain the anomaly described above?

- (A) The retail wine market is characterized by an extremely wide range of competing products.
- (B) Many consumers make decisions about which wines to purchase on the basis of reviews of wine published in books and periodicals.
- (C) Consumers selecting wine in a store often use the price charged as their main guide to the wine's quality.
- (D) Wine retailers and producers can generally increase the sales of a particular wine temporarily by introducing a price discount.
- (E) Consumers who purchase wine regularly generally have strong opinions about which wines they prefer.

8. The recent decline in land prices has hurt many institutions that had invested heavily in real estate. Last year, before the decline began, a local college added 2,000 acres to its holdings. The college, however, did not purchase the land but received it as a gift. Therefore the price decline will probably not affect the college.

Which of the following, if true, casts most doubt on the conclusion above?

- (A) The 2,000 acres that the college was given last year are located within the same community as the college itself.
- (B) The college usually receives more contributions of money than of real estate.
- (C) Land prices in the region in which the college is located are currently higher than the national average.
- (D) Last year, the amount that the college allocated to pay for renovations included money it expected to receive by selling some of its land this year.
- (E) Last year, the college paid no property taxes on land occupied by college buildings but instead paid fees to compensate the local government for services provided.

9. Civil trials often involve great complexities that are beyond the capacities of jurors to understand. As a result, jurors' decisions in such trials are frequently incorrect. Justice would therefore be better served if the more complex trials were decided by judges rather than juries.

The argument above depends on which of the following assumptions?

- (A) A majority of civil trials involve complexities that jurors are not capable of understanding.
  - (B) The judges who would decide complex civil trials would be better able to understand the complexities of those trials than jurors are.
  - (C) The judges who would preside over civil trials would disallow the most complex sorts of evidence from being introduced into those trials.
  - (D) Jurors' decisions are frequently incorrect even in those civil trials that do not involve great complexities.
  - (E) The sole reason in favor of having juries decide civil trials is the supposition that their decisions will almost always be correct.
10. Some species of dolphins find their prey by echolocation; they emit clicking sounds and listen for echoes returning from distant objects in the water. Marine biologists have speculated that those same clicking sounds might have a second function: particularly loud clicks might be used by the dolphins to stun their prey at close range through sensory overload.

Which of the following, if discovered to be true, would cast the most serious doubt on the correctness of the speculation described above?

- (A) Dolphins that use echolocation to locate distant prey also emit frequent clicks at intermediate distances as they close in on their prey.
- (B) The usefulness of echolocation as a means of locating prey depends on the clicking sounds being of a type that the prey is incapable of perceiving, regardless of volume.
- (C) If dolphins stun their prey, the effect is bound to be so temporary that stunning from far away, even if possible, would be ineffective.
- (D) Echolocation appears to give dolphins that use it information about the richness of a source of food as well as about its direction.
- (E) The more distant a dolphin's prey, the louder the echolocation clicks must be if they are to reveal the prey's presence to the hunting dolphin.

## 11. Advertisement:

The world's best coffee beans come from Colombia. The more Colombian beans in a blend of coffee, the better the blend, and no company purchases more Colombian beans than Kreemo Coffee, Inc. So it only stands to reason that if you buy a can of Kreemo's coffee, you're buying the best blended coffee available today.

The reasoning of the argument in the advertisement is flawed because it overlooks the possibility that

- (A) the equipment used by Kreemo to blend and package its coffee is no different from that used by most other coffee producers
- (B) not all of Kreemo's competitors use Colombian coffee beans in the blends of coffee they sell
- (C) Kreemo sells more coffee than does any other company
- (D) Kreemo's coffee is the most expensive blended coffee available today
- (E) the best unblended coffee is better than the best blended coffee

12. The only purpose for which a particular type of tape is needed is to hold certain surgical wounds closed for ten days—the maximum time such wounds need tape. Newtape is a new brand of this type of tape. Newtape's salespeople claim that Newtape will improve healing because Newtape adheres twice as long as the currently used tape does.

Which of the following statements, if true, would most seriously call into question the claim made by Newtape's salespeople?

- (A) Most surgical wounds take about ten days to heal.
- (B) Most surgical tape is purchased by hospitals and clinics rather than by individual surgeons.
- (C) The currently used tape's adhesiveness is more than sufficient to hold wounds closed for ten days.
- (D) Neither Newtape nor the currently used tape adheres well to skin that has not been cleaned.
- (E) Newtape's adhesion to skin that has been coated with a special chemical preparation is only half as good as the currently used tape's adhesion to such coated skin.

13. A severe drought can actually lessen the total amount of government aid that United States farmers receive as a group. The government pays farmers the amount, if any, by which the market price at which crops are actually sold falls short of a preset target price per bushel for the crops. The drought of 1983, for example, caused farm-program payments to drop by \$10 billion.

Given the information above, which of the following, if true, best explains why the drought of 1983 resulted in a reduction in farm-program payments?

- (A) Prior to the drought of 1983, the government raised the target price for crops in order to aid farmers in reducing their debt loads.
- (B) Due to the drought of 1983, United States farmers exported less food in 1983 than in the preceding year.
- (C) Due to the drought of 1983, United States farmers had smaller harvests and thus received a higher market price for the 1983 crop than for the larger crop of the preceding year.
- (D) Due to the drought of 1983, United States farmers planned to plant smaller crops in 1984 than they had in 1983.
- (E) Despite the drought of 1983, retail prices for food did not increase significantly between 1982 and 1983.

14. In order to increase revenues, an airport plans to change the parking fees it charges at its hourly parking lots. Rather than charging \$2.00 for the first two-hour period, or part thereof, and \$1.00 for each hour thereafter, the airport will charge \$4.00 for the first four-hour period, or part thereof, and \$1.00 for each hour thereafter.

Which of the following is a consideration that, if true, suggests that the plan will be successful in increasing revenues?

- (A) Very few people who park their cars at the hourly parking lot at the airport leave their cars for more than two hours at a time.
- (B) Over the past several years, the cost to the airport of operating its hourly parking facilities has been greater than the revenues it has received from them.
- (C) People who leave their cars at the airport while on a trip generally park their cars in lots that charge by the day rather than by the hour.
- (D) A significant portion of the money spent to operate the airport parking lot is spent to maintain the facilities rather than to pay the salaries of the personnel who collect the parking fees.
- (E) The hourly parking lots at the airport have recently been expanded and are therefore rarely filled to capacity.

15. In the course of her researches, a historian recently found two documents mentioning the same person, Erich Schnitzler. One, dated May 3, 1739, is a record of Schnitzler's arrest for peddling without a license. The second, undated, is a statement by Schnitzler asserting that he has been peddling off and on for 20 years.

The facts above best support which of the following conclusions?

- (A) Schnitzler started peddling around 1719.
  - (B) Schnitzler was arrested repeatedly for peddling.
  - (C) The undated document was written before 1765.
  - (D) The arrest record was written after the undated document.
  - (E) The arrest record provides better evidence that Schnitzler peddled than does the undated document.
16. The recent upheaval in the office-equipment retail business, in which many small firms have gone out of business, has been attributed to the advent of office equipment "superstores" whose high sales volume keeps their prices low. This analysis is flawed, however, since even today the superstores control a very small share of the retail market.

Which of the following, if true, would most weaken the argument that the analysis is flawed?

- (A) Most of the larger customers for office equipment purchase under contract directly from manufacturers and thus do not participate in the retail market.
- (B) The superstores' heavy advertising of their low prices has forced prices down throughout the retail market for office supplies.
- (C) Some of the superstores that only recently opened have themselves gone out of business.
- (D) Most of the office equipment superstores are owned by large retailing chains that also own stores selling other types of goods.
- (E) The growing importance of computers in most offices has changed the kind of office equipment retailers must stock.

**CRITICAL REASONING TEST SECTION 17**  
**25 Minutes 16 Questions**

1. A report on acid rain concluded, “Most forests in Canada are not being damaged by acid rain.” Critics of the report insist the conclusion be changed to, “Most forests in Canada do not show visible symptoms of damage by acid rain, such as abnormal loss of leaves, slower rates of growth, or higher mortality.”

Which of the following, if true, provides the best logical justification for the critics’ insistence that the report’s conclusion be changed?

- (A) Some forests in Canada are being damaged by acid rain.
  - (B) Acid rain could be causing damage for which symptoms have not yet become visible.
  - (C) The report does not compare acid rain damage to Canadian forests with acid rain damage to forests in other countries.
  - (D) All forests in Canada have received acid rain during the past fifteen years.
  - (E) The severity of damage by acid rain differs from forest to forest.
2. In the past most airline companies minimized aircraft weight to minimize fuel costs. The safest airline seats were heavy, and airlines equipped their planes with few of these seats. This year the seat that has sold best to airlines has been the safest one—a clear indication that airlines are assigning a higher priority to safe seating than to minimizing fuel costs.

Which of the following, if true, most seriously weakens the argument above?

- (A) Last year’s best-selling airline seat was not the safest airline seat on the market.
- (B) No airline company has announced that it would be making safe seating a higher priority this year.
- (C) The price of fuel was higher this year than it had been in most of the years when the safest airline seats sold poorly.
- (D) Because of increases in the cost of materials, all airline seats were more expensive to manufacture this year than in any previous year.
- (E) Because of technological innovations, the safest airline seat on the market this year weighed less than most other airline seats on the market.

3. A computer equipped with signature-recognition software, which restricts access to a computer to those people whose signatures are on file, identifies a person's signature by analyzing not only the form of the signature but also such characteristics as pen pressure and signing speed. Even the most adept forgers cannot duplicate all of the characteristics the program analyzes.

Which of the following can be logically concluded from the passage above?

- (A) The time it takes to record and analyze a signature makes the software impractical for everyday use.
- (B) Computers equipped with the software will soon be installed in most banks.
- (C) Nobody can gain access to a computer equipped with the software solely by virtue of skill at forging signatures.
- (D) Signature-recognition software has taken many years to develop and perfect.
- (E) In many cases even authorized users are denied legitimate access to computers equipped with the software.

4. Division manager: I want to replace the Microton computers in my division with Vitech computers.

General manager: Why?

Division manager: It costs 28 percent less to train new staff on the Vitech.

General manager: But that is not a good enough reason. We can simply hire only people who already know how to use the Microton computer.

Which of the following, if true, most seriously undermines the general manager's objection to the replacement of Microton computers with Vitech's?

- (A) Currently all employees in the company are required to attend workshops on how to use Microton computers in new applications.
- (B) Once employees learn how to use a computer, they tend to change employers more readily than before.
- (C) Experienced users of Microton computers command much higher salaries than do prospective employees who have no experience in the use of computers.
- (D) The average productivity of employees in the general manager's company is below the average productivity of the employees of its competitors.
- (E) The high costs of replacement parts make Vitech computers more expensive to maintain than Microton computers.

5. An airplane engine manufacturer developed a new engine model with safety features lacking in the earlier model, which was still being manufactured. During the first year that both were sold, the earlier model far outsold the new model; the manufacturer thus concluded that safety was not the customers' primary consideration.

Which of the following, if true, would most seriously weaken the manufacturer's conclusion?

- (A) Both private plane owners and commercial airlines buy engines from this airplane engine manufacturer.
  - (B) Many customers consider earlier engine models better safety risks than new engine models, since more is usually known about the safety of the earlier models.
  - (C) Many customers of this airplane engine manufacturer also bought airplane engines from manufacturers who did not provide additional safety features in their newer models.
  - (D) The newer engine model can be used in all planes in which the earlier engine model can be used.
  - (E) There was no significant difference in price between the newer engine model and the earlier engine model.
6. Between 1975 and 1985, nursing-home occupancy rates averaged 87 percent of capacity, while admission rates remained constant, at an average of 95 admissions per 1,000 beds per year. Between 1985 and 1988, however, occupancy rates rose to an average of 92 percent of capacity, while admission rates declined to 81 per 1,000 beds per year.

If the statements above are true, which of the following conclusions can be most properly drawn?

- (A) The average length of time nursing-home residents stayed in nursing homes increased between 1985 and 1988.
- (B) The proportion of older people living in nursing homes was greater in 1988 than in 1975.
- (C) Nursing home admission rates tend to decline whenever occupancy rates rise.
- (D) Nursing homes built prior to 1985 generally had fewer beds than did nursing homes built between 1985 and 1988.
- (E) The more beds a nursing home has, the higher its occupancy rate is likely to be.



7. Firms adopting “profit-related-pay” (PRP) contracts pay wages at levels that vary with the firm’s profits. In the metalworking industry last year, firms with PRP contracts in place showed productivity per worker on average 13 percent higher than that of their competitors who used more traditional contracts.

If, on the basis of the evidence above, it is argued that PRP contracts increase worker productivity, which of the following, if true, would most seriously weaken that argument?

- (A) Results similar to those cited for the metalworking industry have been found in other industries where PRP contracts are used.
  - (B) Under PRP contracts costs other than labor costs, such as plant, machinery, and energy, make up an increased proportion of the total cost of each unit of output.
  - (C) Because introducing PRP contracts greatly changes individual workers’ relationships to the firm, negotiating the introduction of PRP contracts is complex and time consuming.
  - (D) Many firms in the metalworking industry have modernized production equipment in the last five years, and most of these introduced PRP contracts at the same time.
  - (E) In firms in the metalworking industry where PRP contracts are in place, the average take-home pay is 15 percent higher than it is in those firms where workers have more traditional contracts.
8. Crops can be traded on the futures market before they are harvested. If a poor corn harvest is predicted, prices of corn futures rise; if a bountiful corn harvest is predicted, prices of corn futures fall. This morning meteorologists are predicting much-needed rain for the corn-growing region starting tomorrow. Therefore, since adequate moisture is essential for the current crop’s survival, prices of corn futures will fall sharply today.

Which of the following, if true, most weakens the argument above?

- (A) Corn that does not receive adequate moisture during its critical pollination stage will not produce a bountiful harvest.
- (B) Futures prices for corn have been fluctuating more dramatically this season than last season.
- (C) The rain that meteorologists predicted for tomorrow is expected to extend well beyond the corn-growing region.
- (D) Agriculture experts announced today that a disease that has devastated some of the corn crop will spread widely before the end of the growing season.
- (E) Most people who trade in corn futures rarely take physical possession of the corn they trade.

9. A discount retailer of basic household necessities employs thousands of people and pays most of them at the minimum wage rate. Yet following a federally mandated increase of the minimum wage rate that increased the retailer's operating costs considerably, the retailer's profits increased markedly.

Which of the following, if true, most helps to resolve the apparent paradox?

- (A) Over half of the retailer's operating costs consist of payroll expenditures; yet only a small percentage of those expenditures go to pay management salaries.
  - (B) The retailer's customer base is made up primarily of people who earn, or who depend on the earnings of others who earn, the minimum wage.
  - (C) The retailer's operating costs, other than wages, increased substantially after the increase in the minimum wage rate went into effect.
  - (D) When the increase in the minimum wage rate went into effect, the retailer also raised the wage rate for employees who had been earning just above minimum wage.
  - (E) The majority of the retailer's employees work as cashiers, and most cashiers are paid the minimum wage.
10. The cotton farms of Country Q became so productive that the market could not absorb all that they produced. Consequently, cotton prices fell. The government tried to boost cotton prices by offering farmers who took 25 percent of their cotton acreage out of production direct support payments up to a specified maximum per farm.

The government's program, if successful, will not be a net burden on the budget. Which of the following, if true, is the best basis for an explanation of how this could be so?

- (A) Depressed cotton prices meant operating losses for cotton farms, and the government lost revenue from taxes on farm profits.
- (B) Cotton production in several counties other than Q declined slightly the year that the support-payment program went into effect in Q.
- (C) The first year that the support-payment program was in effect, cotton acreage in Q was 5% below its level in the base year for the program.
- (D) The specified maximum per farm meant that for very large cotton farms the support payments were less per acre for those acres that were withdrawn from production than they were for smaller farms.
- (E) Farmers who wished to qualify for support payments could not use the cotton acreage that was withdrawn from production to grow any other crop.

11. United States hospitals have traditionally relied primarily on revenues from paying patients to offset losses from unreimbursed care. Almost all paying patients now rely on governmental or private health insurance to pay hospital bills. Recently, insurers have been strictly limiting what they pay hospitals for the care of insured patients to amounts at or below actual costs.

Which of the following conclusions is best supported by the information above?

- (A) Although the advance of technology has made expensive medical procedures available to the wealthy, such procedures are out of the reach of low-income patients.
  - (B) If hospitals do not find ways to raising additional income for unreimbursed care, they must either deny some of that care or suffer losses if they give it.
  - (C) Some patients have incomes too high for eligibility for governmental health insurance but are unable to afford private insurance for hospital care.
  - (D) If the hospitals reduce their costs in providing care, insurance companies will maintain the current level of reimbursement, thereby providing more funds for unreimbursed care.
  - (E) Even though philanthropic donations have traditionally provided some support for the hospitals, such donations are at present declining.
12. Generally scientists enter their field with the goal of doing important new research and accept as their colleagues those with similar motivation. Therefore, when any scientist wins renown as an expounder of science to general audiences, most other scientists conclude that this popularizer should no longer be regarded as a true colleague.

The explanation offered above for the low esteem in which scientific popularizers are held by research scientists assumes that

- (A) serious scientific research is not a solitary activity, but relies on active cooperation among a group of colleagues
- (B) research scientists tend not to regard as colleagues those scientists whose renown they envy
- (C) a scientist can become a famous popularizer without having completed any important research
- (D) research scientists believe that those who are well known as popularizers of science are not motivated to do important new research
- (E) no important new research can be accessible to or accurately assessed by those who are not themselves scientists

13. Mouth cancer is a danger for people who rarely brush their teeth. In order to achieve early detection of mouth cancer in these individuals, a town's public health officials sent a pamphlet to all town residents, describing how to perform weekly self-examinations of the mouth for lumps.

Which of the following, if true, is the best criticism of the pamphlet as a method of achieving the public health officials' goal?

- (A) Many dental diseases produce symptoms that cannot be detected in a weekly self-examination.
- (B) Once mouth cancer has been detected, the effectiveness of treatment can vary from person to person.
- (C) The pamphlet was sent to all town residents, including those individuals who brush their teeth regularly.
- (D) Mouth cancer is much more common in adults than in children.
- (E) People who rarely brush their teeth are unlikely to perform a weekly examination of their mouth.

14. Technological improvements and reduced equipment costs have made converting solar energy directly into electricity far more cost-efficient in the last decade. However, the threshold of economic viability for solar power (that is, the price per barrel to which oil would have to rise in order for new solar power plants to be more economical than new oil-fired power plants) is unchanged at thirty-five dollars.

Which of the following, if true, does most to help explain why the increased cost-efficiency of solar power has not decreased its threshold of economic viability?

- (A) The cost of oil has fallen dramatically.
- (B) The reduction in the cost of solar-power equipment has occurred despite increased raw material costs for that equipment.
- (C) Technological changes have increased the efficiency of oil-fired power plants.
- (D) Most electricity is generated by coal-fired or nuclear, rather than oil-fired, power plants.
- (E) When the price of oil increases, reserves of oil not previously worth exploiting become economically viable.

15. Start-up companies financed by venture capitalist have a much lower failure rate than companies financed by other means. Source of financing, therefore, must be a more important causative factor in the success of a start-up company than are such factors as the personal characteristics of the entrepreneur, the quality of strategic planning, or the management structure of the company.

Which of the following, if true, most seriously weakens the argument above?

- (A) Venture capitalists tend to be more responsive than other sources of financing to changes in a start-up company's financial needs.
- (B) The strategic planning of a start-up company is a less important factor in the long-term success of the company than are the personal characteristics of the entrepreneur.
- (C) More than half of all new companies fall within five years.
- (D) The management structures of start-up companies are generally less formal than the management structures of ongoing businesses.
- (E) Venture capitalists base their decisions to fund start-up companies on such factors as the characteristics of the entrepreneur and quality of strategic planning of the company.

16. The proportion of women among students enrolled in higher education programs has increased over the past decades. This is partly shown by the fact that in 1959, only 11 percent of the women between twenty and twenty-one were enrolled in college, while in 1981, 30 percent of the women between twenty and twenty-one were enrolled in college.

To evaluate the argument above, it would be most useful to compare 1959 and 1981 with regard to which of the following characteristics?

- (A) The percentage of women between twenty and twenty-one who were not enrolled in college
- (B) The percentage of women between twenty and twenty-five who graduated from college
- (C) The percentage of women who, after attending college, entered highly paid professions
- (D) The percentage of men between twenty and twenty-one who were enrolled in college
- (E) The percentage of men who graduated from high school

**CRITICAL REASONING TEST SECTION 18****25 Minutes 16 Questions**

1. Since a rhinoceros that has no horn is worthless to poachers, the Wildlife Protection Committee plans to protect selected rhinoceroses from being killed by poachers by cutting off the rhinos' horns.

The Wildlife Protection Committee's plan assumes that

- (A) poachers do not kill rhinos that are worthless to them
  - (B) hornless rhinos pose less of a threat to humans, including poachers, than do rhinos that have horns
  - (C) rhinos are the only animals poachers kill for their horns
  - (D) hornless rhinos can successfully defend their young against nonhuman predators
  - (E) imposing more stringent penalties on poachers will not decrease the number of rhinos killed by poachers
2. Crimes are mainly committed by the young, and for this reason merely increasing the number of police officers or expenditures on police services has little effect on reducing the crime rate. In fact, the only factor associated with a crime-rate drop is a decrease in the number of people in the community aged fourteen to thirty.
- The findings above can best serve as part of an argument against
- (A) the likelihood that any law enforcement program will be effective in reducing the crime rate within a short time
  - (B) increasing prison terms for young people found guilty of crimes
  - (C) introducing compulsory military conscription for people aged seventeen to nineteen
  - (D) raising the age at which students are permitted to leave school
  - (E) a community's plan to increase the number of recreational and educational activities in which young adults can participate

3. A 20 percent decline in lobster catches in Maine waters since 1980 can be justifiably blamed on legislation passed in 1972 to protect harbor seals. Maine's population of harbor seals is now double the level existing before protection was initiated, and these seals are known to eat both fish and lobsters.

Which of the following, if true, would most seriously weaken the argument above?

- (A) Harbor seals usually eat more fish than lobsters, but the seals are natural predators of both.
  - (B) Although harbor seals are skillful predators of lobsters, they rarely finish eating their catch.
  - (C) Harbor seals attract tourists to Maine's coastal areas, thus revitalizing the local economy.
  - (D) Authors of the 1972 legislation protecting harbor seals were convinced that an increase in that animal's numbers would not have a measurably negative impact on the lobster catch.
  - (E) The record lobster harvests of the late 1970's removed large numbers of mature lobsters from the reproductive stock.
4. Politician: Fewer people are entering the labor market now than previously. If the economy grows, the demand for motivated and educated people will far outstrip the supply. Some companies have already started to respond to this labor-market situation by finding better ways to keep their current employees. Their concern is a sure indicator that the economy is growing.

Which of the following is the best criticism of the politician's reasoning?

- (A) The fact that companies are making prudent preparations for a possible future development does not mean that this development is already taking place.
- (B) The fact that some companies now try harder to keep their employees does not mean that they used to be indifferent to employee morale.
- (C) The fact that demand will outstrip supply does not mean that there will be no supply at all.
- (D) The fact that the number of new entrants into the labor market is declining does not mean that the number of new entrants is lower than it has ever been.
- (E) The fact that current employees have become more valuable to some companies does not mean that those employees will do their jobs better than they used to.

5. Under current federal law, employers are allowed to offer their employees free parking spaces as a tax-free benefit, but they can offer employees only up to \$180 per year as a tax-free benefit for using mass transit. The government could significantly increase mass transit ridership by raising the limit of this benefit to meet commuters' transportation costs.

The proposal above to increase mass transit ridership assumes that

- (A) current mass transit systems are subject to unexpected route closings and delays
  - (B) using mass transit creates less air pollution per person than using a private automobile
  - (C) the parking spaces offered by employers as tax-free benefits can be worth as much as \$2,500 per year
  - (D) many employees are deterred by financial considerations from using mass transit to commute to their places of employment
  - (E) because of traffic congestion on major commuter routes, it is often faster to travel to one's place of employment by means of mass transit than by private automobile
6. Which of the following best completes the passage below?

"Government" does not exist as an independent entity defining policy. Instead there exists a group of democratically elected pragmatists sensitive to the electorate, who establish policies that will result in their own reelection. Therefore, if public policy is hostile to, say, environmental concerns, it is not because of governmental perversity but because elected officials believe that—

- (A) environmentalists would be extremely difficult to satisfy with any policy, however environmentally sound
- (B) environmental concerns are being accommodated as well as public funds permit
- (C) the public is overly anxious about environmental deterioration
- (D) the majority of voters vote for certain politicians because of those politicians' idiosyncratic positions on policy issues
- (E) the majority of voters do not strongly wish for a different policy



7. Fresh potatoes generally cost about \$2 for a 10-pound bag, whereas dehydrated instant potatoes cost, on average, about \$3 per pound. It can be concluded that some consumers will pay 15 times as much for convenience, since sales of this convenience food continue to rise.

Which of the following, if true, indicates that there is a major flaw in the argument above?

- (A) Fresh potatoes bought in convenient 2-pound bags are about \$1 a bag, or 2 1/2 times more expensive than fresh potatoes bought in 10-pound bags.
  - (B) Since fresh potatoes are 80 percent water, one pound of dehydrated potatoes is the equivalent of 5 pounds of fresh potatoes.
  - (C) Peeled potatoes in cans are also more expensive than the less convenient fresh potatoes.
  - (D) Retail prices of dehydrated potatoes have declined by 20 percent since 1960 to the current level of about \$3 a pound.
  - (E) As a consequence of labor and processing costs, all convenience foods cost more than the basic foods from which they are derived.
8. Consumers in California seeking personal loans have fewer banks to turn to than do consumers elsewhere in the United States. This shortage of competition among banks explains why interest rates on personal loans in California are higher than in any other region of the United States.

Which of the following, if true, most substantially weakens the conclusion above?

- (A) Because of the comparatively high wages they must pay to attract qualified workers, California banks charge depositors more than banks elsewhere do for many of the services they offer.
- (B) Personal loans are riskier than other types of loans, such as home mortgage loans, that banks make.
- (C) Since bank deposits in California are covered by the same type of insurance that guarantees bank deposits in other parts of the United States, they are no less secure than deposits elsewhere.
- (D) The proportion of consumers who default on their personal loans is lower in California than in any other region of the United States.
- (E) Interest rates paid by California banks to depositors are lower than those paid by banks in other parts of the United States because in California there is less competition to attract depositors.

9. Technically a given category of insurance policy is underpriced if, over time, claims against it plus expenses associated with it exceed total income from premiums. But premium income can be invested and will then yield returns of its own. Therefore, an underpriced policy does not represent a net loss in every case.

The argument above is based on which of the following assumptions?

- (A) No insurance policies are deliberately underpriced in order to attract customers to the insurance company offering such policies.
- (B) A policy that represents a net loss to the insurance company is not an underpriced policy in every case.
- (C) There are policies for which the level of claims per year can be predicted with great accuracy before premiums are set.
- (D) The income earned by investing premium income is the most important determinant of an insurance company's profits.
- (E) The claims against at least some underpriced policies do not require paying out all of the premium income from those policies as soon as it is earned.

10. Purebred cows native to Mongolia produce, on average, 400 liters of milk per year; if Mongolian cattle are crossbred with European breeds, the crossbred cows can produce, on average, 2,700 liters per year. An international agency plans to increase the profitability of Mongolia's dairy sector by encouraging widespread crossbreeding of native Mongolian cattle with European breeds.

Which of the following, if true, casts the most serious doubt on the viability of the agency's plan?

- (A) Not all European breeds of cattle can be successfully bred with native Mongolian cattle.
- (B) Many young Mongolians now regard cattle raising as a low-status occupation because it is less lucrative than other endeavors open to them.
- (C) Mongolia's terrain is suitable for grazing native herds but not for growing the fodder needed to keep crossbred animals healthy.
- (D) Cowhide and leather products, not milk, make up the bulk of Mongolia's animal product exports to Europe.
- (E) Many European breeds of cattle attain average milk production levels exceeding 2,700 liters.

11. Any combination of overwork and stress inevitably leads to insomnia. Managers at HiCorp, Inc., all suffer from stress. A majority of the managers—despite their doctors' warnings—work well over 60 hours per week, whereas the other managers work no more than the normal 40 hours per week. HiCorp gives regular bonuses only to employees who work more than 40 hours per week.

Which of the following conclusions is most strongly supported by the statements above?

- (A) Managers at HiCorp work under conditions that are more stressful than the conditions under which managers at most other companies work.
- (B) Most of the employee bonuses given by HiCorp are given to managers.
- (C) At HiCorp, insomnia is more widespread among managers than among any other group of employees.
- (D) No manager at HiCorp who works only 40 hours per week suffers from overwork.
- (E) Most of the managers at HiCorp who receive regular bonuses have insomnia.

12. Holiday receipts—the total sales recorded in the fourth quarter of the year—determine the economic success or failure of many retail businesses. Camco, a retailer selling just one camera model, is an excellent example. Camco's holiday receipts, on average, account for a third of its yearly total receipts and about half of its yearly profits.

If the statements above are true, which of the following must also be true about Camco on the basis of them?

- (A) Its fixed expenses per camera sold are higher during the fourth quarter than for any of the other three quarters.
- (B) It makes more profit during the first and third quarters combined than during the fourth quarter.
- (C) Its per-camera retail price is lower, on average, during the fourth quarter than during any one of the first three quarters.
- (D) It makes less profit, on average, for a given dollar amount of sales during the first three quarters combined than during the fourth quarter.
- (E) The per-camera price it pays to wholesalers is higher, on average, during the fourth quarter than during any of the other three quarters.

13. Canadians now increasingly engage in “out-shopping,” which is shopping across the national border, where prices are lower. Prices are lower outside of Canada in large part because the goods-and-services tax that pays for Canadian social services is not applied.

Which one of the following is best supported on the basis of the information above?

- (A) If the upward trend in out-shopping continues at a significant level and the amounts paid by the government for Canadian social services are maintained, the Canadian goods-and-services tax will be assessed at a higher rate.
- (B) If Canada imposes a substantial tariff on the goods bought across the border, a reciprocal tariff on cross-border shopping in the other direction will be imposed, thereby harming Canadian businesses.
- (C) The amounts the Canadian government pays out to those who provide social services to Canadians are increasing.
- (D) The same brands of goods are available to Canadian shoppers across the border as are available in Canada.
- (E) Out-shopping purchases are subject to Canadian taxes when the purchaser crosses the border to bring them into Canada.

14. Surveys indicate that 52 percent of all women aged eighteen to sixty-five are in the labor force (employed outside the home) in any given month. On the basis of these surveys, a market researcher concluded that 48 percent of all women aged eighteen to sixty-five are full-time homemakers year-round.

Which of the following, if true, would most seriously weaken the researcher’s conclusion?

- (A) More women are in the labor force today than during any other period since the Second World War.
- (B) Many workers, both men and women, enter and exit the labor force frequently.
- (C) Although only a small sample of the total population is surveyed each month, these samples have been found to be a reliable indicator of total monthly employment.
- (D) Surveys show that more women than ever before consider having a rewarding job an important priority.
- (E) Women who are in the labor force have more discretionary income available to them than do women who are not.

15. Left-handed persons suffer more frequently than do right-handed persons from certain immune disorders, such as allergies. Left-handers tend to have an advantage over the right-handed majority, however, on tasks controlled by the right hemisphere of the brain, and mathematical reasoning is strongly under the influence of the right hemisphere in most people.

If the information above is true, it best supports which of the following hypotheses?

- (A) Most people who suffer from allergies or other such immune disorders are left-handed rather than right-handed.
  - (B) Most left-handed mathematicians suffer from some kind of allergy.
  - (C) There are proportionally more left-handers among people whose ability to reason mathematically is above average than there are among people with poor mathematical reasoning ability.
  - (D) If a left-handed person suffers from an allergy, that person will probably be good at mathematics.
  - (E) There are proportionally more people who suffer from immune disorders such as allergies than there are people who are left-handed or people whose mathematical reasoning ability is unusually good.
16. After observing the Earth's weather patterns and the 11-year sunspot cycle of the Sun for 36 years, scientists have found that high levels of sunspot activity precede shifts in wind patterns that affect the Earth's weather. One can conclude that meteorologists will be able to improve their weather forecasts based on this information.

Which of the following, if true, most seriously weakens the argument above?

- (A) Weather forecasts are more detailed today than they were 36 years ago.
- (B) Scientists can establish that sunspot activity directly affects the Earth's weather.
- (C) Evidence other than sunspot activity has previously enabled meteorologists to forecast the weather conditions that are predictable on the basis of sunspot activity.
- (D) Scientists have not determined why the sunspot activity on the Sun follows an 11-year cycle.
- (E) It has been established that predictable wind patterns yield predictable weather patterns.

**CRITICAL REASONING TEST SECTION 19****25 Minutes 16 Questions**

1. A publisher is now providing university professors with the option of ordering custom textbooks for their courses. The professors can edit out those chapters of a book they are not interested in and add material of their own choosing.

The widespread use of the option mentioned above is LEAST likely to contribute to fulfilling which of the following educational objectives?

- (A) Coverage of material relevant to a particular student body's specific needs
  - (B) Offering advanced elective courses that pursue in-depth investigation of selected topics in a field
  - (C) Ensuring that students nationwide engaged in a specific course of study are uniformly exposed to a basic set of readings
  - (D) Making the textbooks used in university courses more satisfactory from the individual teacher's point of view
  - (E) Keeping students' interest in a course by offering lively, well-written reading assignments
2. Mechanicorp's newest product costs so little to make that it appears doubtful the company will be able to sell it without increasing the markup the company usually allows for profit: potential clients would simply not believe that something so inexpensive would really work. Yet Mechanicorp's reputation is built on fair prices incorporating only modest profit margins.

The statements above, if true, most strongly support which of the following?

- (A) Mechanicorp will encounter difficulties in trying to set a price for its newest product that will promote sales without threatening to compromise the company's reputation.
- (B) Mechanicorp achieves large annual profits, despite small profits per unit sold, by means of a high volume of sales.
- (C) Mechanicorp made a significant computational error in calculating the production costs for its newest product.
- (D) Mechanicorp's newest product is intended to perform tasks that can be performed by other devices costing less to manufacture.
- (E) Mechanicorp's production processes are designed with the same ingenuity as are the products that the company makes.

3. Companies in the country of Kollontay can sell semiconductors in the country of Valdivia at a price that is below the cost to Valdivian companies of producing them. To help those Valdivian companies, the Valdivian legislature plans to set a minimum selling price in Valdivia for semiconductors manufactured in Kollontay that is ten percent greater than the average production costs for companies in Valdivia.

Which of the following, if true, most seriously threatens the success of the plan?

- (A) The annual rate of inflation in Kollontay is expected to exceed ten percent within the next year.
  - (B) Valdivia is not the only country where companies in Kollontay currently sell semiconductors.
  - (C) Some Valdivian companies that sell semiconductors have announced that they plan to decrease their price for semiconductors.
  - (D) The government of Kollontay will also set a minimum price for selling semiconductors in that country.
  - (E) Emerging companies in countries other than Kollontay will still be able to sell semiconductors in Valdivia at a price below the cost to Valdivian companies to manufacture them.
4. An experimental microwave clothes dryer heats neither air nor cloth. Rather, it heats water on clothes, thereby saving electricity and protecting delicate fibers by operating at a lower temperature. Microwaves are waves that usually heat metal objects, but developers of a microwave dryer are perfecting a process that will prevent thin metal objects such as hairpins from heating up and burning clothes.

Which of the following, if true, most strongly indicates that the process, when perfected, will be insufficient to make the dryer readily marketable?

- (A) Metal snap fasteners on clothes that are commonly put into drying machines are about the same thickness as most hairpins.
- (B) Many clothes that are currently placed into mechanical dryers are not placed there along with hairpins or other thin metal objects.
- (C) The experimental microwave dryer uses more electricity than future, improved models would be expected to use.
- (D) Drying clothes with the process would not cause more shrinkage than the currently used mechanical drying process causes.
- (E) Many clothes that are frequently machine-dried by prospective customers incorporate thick metal parts such as decorative brass studs or buttons.

5. Airplane manufacturer: I object to your characterization of our X-387 jets as dangerous. No X-387 in commercial use has ever crashed or even had a serious malfunction.

Airline regulator: The problem with the X-387 is not that it, itself, malfunctions, but that it creates a turbulence in its wake that can create hazardous conditions for aircraft in its vicinity.

The airline regulator responds to the manufacturer by doing which of the following?

- (A) Characterizing the manufacturer's assertion as stemming from subjective interest rather than from objective evaluation of the facts
- (B) Drawing attention to the fact that the manufacturer's interpretation of the word "dangerous" is too narrow
- (C) Invoking evidence that the manufacturer has explicitly dismissed as irrelevant to the point at issue
- (D) Citing statistical evidence that refutes the manufacturer's claim
- (E) Casting doubt on the extent of the manufacturer's knowledge of the number of recent airline disasters

6. Damaged nerves in the spinal cord do not regenerate themselves naturally, nor even under the spur of nerve-growth stimulants. The reason, recently discovered, is the presence of nerve-growth inhibitors in the spinal cord. Antibodies that deactivate those inhibitors have now been developed. Clearly, then, nerve repair will be a standard medical procedure in the foreseeable future.

Which of the following, if true, casts the most serious doubt on the accuracy of the prediction above?

- (A) Prevention of the regeneration of damaged nerves is merely a by-product of the main function in the human body of the substances inhibiting nerve growth.
- (B) Certain nerve-growth stimulants have similar chemical structures to those of the antibodies against nerve-growth inhibitors.
- (C) Nerves in the brain are similar to nerves in the spinal cord in their inability to regenerate themselves naturally.
- (D) Researchers have been able to stimulate the growth of nerves not located in the spinal cord by using only nerve-growth stimulants.
- (E) Deactivating the substances inhibiting nerve growth for an extended period would require a steady supply of antibodies.



7. The human body secretes more pain-blocking hormones late at night than during the day. Consequently, surgical patients operated on at night need less anesthesia. Since larger amounts of anesthesia pose greater risks for patients, the risks of surgery could be reduced if operations routinely took place at night.

Which of the following, if true, argues most strongly against the view that surgical risks could be reduced by scheduling operations at night?

- (A) Energy costs in hospitals are generally lower at night than they are during the day.
- (B) More babies are born between midnight and seven o'clock in the morning than at any other time.
- (C) Over the course of a year, people's biological rhythms shift slightly in response to changes in the amounts of daylight to which the people are exposed.
- (D) Nurses and medical technicians are generally paid more per hour when they work during the night than when they work during the day.
- (E) Manual dexterity and mental alertness are lower in the late night than they are during the day, even in people accustomed to working at night.

## Questions 8-9

Walter: A copy of an artwork should be worth exactly what the original is worth if the two works are visually indistinguishable. After all, if the two works are visually indistinguishable, they have all the same qualities, and if they have all the same qualities, their prices should be equal.

Marissa: How little you understand art! Even if someone could make a perfect copy that is visually indistinguishable from the original, the copy would have a different history and hence not have all the same qualities as the original.

8. Which of the following is a point at issue between Walter and Marissa?
- (A) Whether a copy of an artwork could ever be visually indistinguishable from the original
  - (B) Whether the reproduction of a work of art is ever worth more than the original is worth
  - (C) Whether a copy of a work of art is ever mistaken for the original
  - (D) Whether a copy of a work of art could have all the same qualities as the original
  - (E) Whether originality is the only valuable attribute that a work of art can possess
9. Marissa uses which of the following techniques in attempting to refute Walter's argument?
- (A) Attacking his assumption that the price of an artwork indicates its worth
  - (B) Raising a point that would undermine one of the claims on which his conclusion is based
  - (C) Questioning his claim that a perfect copy of a work of art would be visually indistinguishable from the original
  - (D) Giving reason to believe that Walter is unable to judge the quality of a work of art because of his inadequate understanding of the history of art
  - (E) Proposing alternative criteria for determining whether two works of art are visually indistinguishable

10. Magnetic resonance imaging (MRI)—a noninvasive diagnostic procedure—can be used to identify blockages in the coronary arteries. In contrast to angiograms—the invasive procedure customarily used—MRI's pose no risk to patients. Thus, to guarantee patient safety in the attempt to diagnose arterial blockages, MRI's should replace angiograms in all attempts at diagnosing coronary blockages.

Which of the following, if true, would most support the recommendation above?

- (A) Angiograms can be used to diagnose conditions other than blockages in arteries.
  - (B) MRI's were designed primarily in order to diagnose blockages in the coronary arteries.
  - (C) Angiograms reveal more information about the nature of a blockage than an MRI can.
  - (D) An MRI is just as likely as an angiogram to identify an arterial blockage.
  - (E) Some patients for whom an angiogram presents no risk are unwilling to undergo an MRI.
11. Naturally occurring chemicals cannot be newly patented once their structures have been published. Before a naturally occurring chemical compound can be used as a drug, however, it must be put through the same rigorous testing program as any synthetic compound, culminating in a published report detailing the chemical's structure and observed effects.

If the statements above are true, which of the following must also be true on the basis of them?

- (A) Any naturally occurring chemical can be reproduced synthetically once its structure is known.
- (B) Synthetically produced chemical compounds cannot be patented unless their chemical structures are made public.
- (C) If proven no less effective, naturally occurring chemicals are to be preferred to synthetic compounds for use in drugs.
- (D) Once a naturally occurring compound has been approved for use as a drug, it can no longer be newly patented.
- (E) A naturally occurring chemical cannot be patented unless its effectiveness as a drug has been rigorously established.

12. A public-service advertisement advises that people who have consumed alcohol should not drive until they can do so safely. In a hospital study, however, subjects questioned immediately after they consumed alcohol underestimated the time necessary to regain their driving ability. This result indicates that many people who drink before driving will have difficulty following the advertisement's advice.

Which of the following, if true, most strongly supports the argument above?

- (A) Many people, if they plan to drink alcohol, make arrangements beforehand for a nondrinker to drive them home.
  - (B) The subjects in the hospital study generally rated their abilities more conservatively than would people drinking alcohol outside a hospital setting.
  - (C) Some people refrain from drinking if they will have to drive to get home afterward.
  - (D) The subjects in the hospital study were also questioned about the time necessary to regain abilities that do not play an important role in driving safely.
  - (E) Awareness of the public-service advertisement is higher among the general population than it was among the subjects in the hospital study.
13. Investigator: XYZ Coins has misled its clients by promoting some coins as "extremely rare" when in fact those coins are relatively common and readily available.

XYZ agent: That is ridiculous. XYZ Coins is one of the largest coin dealers in the world. We authenticate the coins we sell through a nationally recognized firm and operate a licensed coin dealership.

The XYZ agent's reply is most vulnerable to the criticism that it

- (A) exaggerates the investigator's claims in order to make them appear absurd
- (B) accuses the investigator of bias but presents no evidence to support that accusation
- (C) fails to establish that other coin dealers do not also authenticate the coins those dealers sell
- (D) lists strengths of XYZ Coins while failing to address the investigator's charge
- (E) provides no definition for the inherently vague phrase "extremely rare"

14. Both Writewell and Express provide round-the-clock telephone assistance to any customer who uses their word-processing software. Since customers only call the hot lines when they find the software difficult to use, and the Writewell hot line receives four times as many calls as the Express hot line, Writewell's word-processing software must be more difficult to use than Express's.

Which of the following, if true, most strengthens the argument above?

- (A) Calls to the Express hot line are almost twice as long, on average, as are calls to the Writewell hot line.
  - (B) Express has three times the number of word-processing software customers that Writewell has.
  - (C) Express receives twice as many letters of complaint about its word-processing software as Writewell receives about its word-processing software.
  - (D) The number of calls received by each of the two hot lines has been gradually increasing.
  - (E) The Writewell hot-line number is more widely publicized than the Express hot-line number.
15. Over the last century, paleontologists have used small differences between fossil specimens to classify triceratops into sixteen species. This classification is unjustified, however, since the specimens used to distinguish eleven of the species come from animals that lived in the same area at the same time.

Which of the following, if true, would enable the conclusion of the argument to be properly drawn?

- (A) Not every species that lived in a given area is preserved as a fossil.
- (B) At least one individual of every true species of triceratops has been discovered as a fossil specimen.
- (C) No geographical area ever supports more than three similar species at the same time.
- (D) In many species, individuals display quite marked variation.
- (E) Differences between fossil specimens of triceratops that came from the same area are no less distinctive than differences between specimens that came from different areas.

16. Many consumers are concerned about the ecological effects of wasteful packaging. This concern probably explains why stores have been quick to stock new cleaning products that have been produced in a concentrated form. The concentrated form is packaged in smaller containers that use less plastic and require less transportation space.

Which of the following, if true, most seriously undermines the explanation offered above?

- (A) Few consumers believe that containers of concentrated cleaning products are merely small packages of regular cleaning products.
- (B) The containers in which concentrated cleaning products are packaged are no harder to recycle than those in which regular cleaning products are packaged.
- (C) Those concentrated cleaning products that are intended to be used diluted have clear instructions for dilution printed on their labels.
- (D) The smaller containers of concentrated cleaning products enable supermarkets and drugstores to increase their revenues from a given shelf space.
- (E) Consumer pressure has led to the elimination of wasteful cardboard packaging that was used for compact discs.

**CRITICAL REASONING TEST SECTION 20****25 Minutes 16 Questions**

1. In the first half of this year, from January to June, about three million videocassette recorders were sold. This number is only 35 percent of the total number of videocassette recorders sold last year. Therefore, total sales of videocassette recorders will almost certainly be lower for this year than they were for last year.

Which of the following, if true, most seriously weakens the conclusion above?

- (A) The total number of videocassette recorders sold last year was lower than the total number sold in the year before that.
  - (B) Most people who are interested in owning a videocassette recorder have already purchased one.
  - (C) Videocassette recorders are less expensive this year than they were last year.
  - (D) Of the videocassette recorders sold last year, almost 60 percent were sold in January.
  - (E) Typically, over 70 percent of the sales of videocassette recorders made in a year occur in the months of November and December.
2. Mud from a lake on an uninhabited wooded island in northern Lake Superior contains toxic chemicals, including toxaphene, a banned pesticide for cotton that previously was manufactured and used, not in nearby regions of Canada or the northern United States, but in the southern United States. No dumping has occurred on the island. The island lake is sufficiently elevated that water from Lake Superior does not reach it.

The statements above, if true, most strongly support which of the following hypotheses?

- (A) The waters of the island lake are more severely polluted than those of Lake Superior.
- (B) The toxaphene was carried to the island in the atmosphere by winds.
- (C) Banning chemicals such as toxaphene does not aid the natural environment.
- (D) Toxaphene has adverse effects on human beings but not on other organisms.
- (E) Concentrations of toxaphene in the soil of cotton-growing regions are not sufficient to be measurable.

3. Last year in the United States, women who ran for state and national offices were about as likely to win as men. However, only about fifteen percent of the candidates for these offices were women. Therefore, the reason there are so few women who win elections for these offices is not that women have difficulty winning elections but that so few women want to run.

Which of the following, if true, most seriously undermines the conclusion given?

- (A) Last year the proportion of women incumbents who won reelection was smaller than the proportion of men incumbents who won reelection.
  - (B) Few women who run for state and national offices run against other women.
  - (C) Most women who have no strong desire to be politicians never run for state and national offices.
  - (D) The proportion of people holding local offices who are women is smaller than the proportion of people holding state and national offices who are women.
  - (E) Many more women than men who want to run for state and national offices do not because they cannot get adequate funding for their campaigns.
4. Samples from a ceramic vase found at a tomb in Sicily prove that the vase was manufactured in Greece. Since the occupant of the tomb died during the reign of a Sicilian ruler who lived 2,700 years ago, the location of the vase indicates that there was trade between Sicily and Greece 2,700 years ago.

Which of the following is an assumption on which the argument depends?

- (A) Sicilian potters who lived during the reign of the ruler did not produce work of the same level of quality as did Greek potters.
- (B) Sicilian clay that was used in the manufacture of pottery during the ruler's reign bore little resemblance to Greek clay used to manufacture pottery at that time.
- (C) At the time that the occupant of the tomb was alive, there were ships capable of transporting large quantities of manufactured goods between Sicily and Greece.
- (D) The vase that was found at the Sicilian tomb was not placed there many generations later by descendants of the occupant of the tomb.
- (E) The occupant of the tomb was not a member of the royal family to which the Sicilian ruler belonged.



5. In several cities, the government is going ahead with ambitious construction projects despite the high office-vacancy rates in those cities. The vacant offices, though available for leasing, unfortunately do not meet the requirements for the facilities needed, such as court houses and laboratories. The government, therefore, is not guilty of any fiscal wastefulness.

Which of the following is an assumption on which the argument above depends?

- (A) Adaptation of vacant office space to meet the government's requirements, if possible, would not make leasing such office space a more cost-effective alternative to new construction.
  - (B) The government prefers leasing facilities to owning them in cases where the two alternatives are equally cost-effective.
  - (C) If facilities available for leasing come very close to meeting the government's requirements for facilities the government needs, the government can relax its own requirements slightly and consider those facilities in compliance.
  - (D) The government's construction projects would not on being completed, add to the stock of facilities available for leasing in the cities concerned.
  - (E) Before embarking on any major construction project, the government is required by law to establish beyond any reasonable doubt that there are no alternatives that are most cost-effective.
6. Potato cyst nematodes are a pest of potato crops. The nematodes can lie dormant for several years in their cysts, which are protective capsules, and do not emerge except in the presence of chemicals emitted by potato roots. A company that has identified the relevant chemicals in planning to market them to potato farmers to spread on their fields when no potatoes are planted; any nematodes that emerge will soon starve to death.

Which of the following, if true, best supports the claim that the company's plan will be successful?

- (A) Nematodes that have emerged from their cysts can be killed by ordinary pesticides.
- (B) The only part of a potato plant that a nematode eats is the roots.
- (C) Some bacteria commonly present in the roots of potatoes digest the chemicals that cause the nematodes to emerge from their cysts.
- (D) Trials have shown that spreading even minute quantities of the chemicals on potato fields caused nine-tenths of the nematodes present to emerge from their cysts.
- (E) the chemicals that cause the nematodes to emerge from their cysts are not emitted all the time the potato plant is growing.

7. It is better for the environment if as much of all packaging as possible is made from materials that are biodegradable in landfills. Therefore, it is always a change for the worse to replace packaging made from paper or cardboard with packaging made from plastics that are not biodegradable in landfills.

Which of the following, if true, constitutes the strongest objection to the argument above?

- (A) The paper and cardboard used in packaging are usually not biodegradable in landfills.
- (B) Some plastic used in packaging is biodegradable in landfills.
- (C) In many landfills, a significant proportion of space is taken up by materials other than discarded packaging materials.
- (D) It is impossible to avoid entirely the use of packaging materials that are not biodegradable in landfills.
- (E) Sometimes, in packaging an item, plastics that are not biodegradable in landfills are combined with cardboard.

8. Any serious policy discussion about acceptable levels of risk in connection with explosions is not well served if the participants fail to use the word “explosion” and use the phrase “energetic disassembly” instead. In fact, the word “explosion” elicits desirable reactions, such as a heightened level of attention, whereas the substitute phrase does not. Therefore, of the two terms, “explosion” is the one that should be used throughout discussions of this sort.

Which of the following is an assumption on which the argument above depends?

- (A) In the kind of discussion at issue, the advantages of desirable reactions to the term “explosion” outweigh the drawbacks, if any, arising from undesirable reactions to that term.
- (B) The phrase “energetic disassembly” has not so far been used as a substitute for the word “explosion” in the kind of discussion at issue.
- (C) In any serious policy discussion, what is said by the participants is more important than how it is put into words.
- (D) The only reason that people would have for using “energetic disassembly” in place of “explosion” is to render impossible any serious policy discussion concerning explosions.
- (E) The phrase “energetic disassembly” is not necessarily out of place in describing a controlled rather than an accidental explosion.

9. Mannis Corporation's archival records are stored in an obsolete format that is accessible only by its current computer system; thus they are inaccessible when that system is not functioning properly. In order to avoid the possibility of losing access to their archival records in the case of computer malfunction, Mannis plans to replace its current computer system with a new system that stores records in a format that is accessible to several different systems.

The answer to which of the following questions would be most helpful in evaluating the effectiveness of the plan as a means of retaining access to the archival records?

- (A) Will the new computer system require fewer operators than the current system requires?
  - (B) Has Mannis Corporation always stored its archival records in a computerized format?
  - (C) Will the new computer system that Mannis plans ensure greater security for the records stored than does Mannis' current system?
  - (D) Will Mannis' current collection of archival records be readily transferable to the new computer system?
  - (E) Will the new computer system be able to perform many more tasks than the current system is able to perform?
10. Last year the worldwide paper industry used over twice as much fresh pulp (pulp made directly from raw plant fibers) as recycled pulp (pulp made from wastepaper). A paper-industry analyst has projected that by 2010 the industry will use at least as much recycled pulp annually as it does fresh pulp, while using a greater quantity of fresh pulp than it did last year.

If the information above is correct and the analyst's projections prove to be accurate, which of the following projections must also be accurate?

- (A) In 2010 the paper industry will use at least twice as much recycled pulp as it did last years.
- (B) In 2010 the paper industry will use at least twice as much total pulp as it did last year.
- (C) In 2010 the paper industry will produce more paper from a given amount of pulp than it did last year.
- (D) As compared with last year, in 2010 the paper industry will make more paper that contains only recycled pulp.
- (E) As compared with last year, in 2010 the paper industry will make less paper that contains only fresh pulp.

11. In malaria-infested areas, many children tend to suffer several bouts of malaria before becoming immune to the disease. Clearly, what must be happening is that those children's immune systems are only weakly stimulated by any single exposure to the malaria parasite and need to be challenged several times to produce an effective immune response.

Which of the following, if true, most seriously undermines the explanatory hypothesis?

- (A) Immediately after a child has suffered a bout of malaria, the child's caregivers tend to go to great lengths in taking precautions to prevent another infection, but this level of attention is not sustained.
- (B) Malaria is spread from person to person by mosquitoes, and mosquitoes have become increasingly resistant to the pesticides used to control them.
- (C) A certain gene, if inherited by children from only one of their parents, can render those children largely immune to infection with malaria.
- (D) Antimalaria vaccines, of which several are in development, are all designed to work by stimulating the body's immune system.
- (E) There are several distinct strains of malaria, and the body's immune response to any one of them does not protect it against the others.

12. An advertisement designed to convince readers of the great durability of automobiles manufactured by the Deluxe Motor Car Company cites as evidence the fact that over half of all automobiles built by the company since 1970 are still on the road today, compared to no more than a third for any other manufacturer.

Which of the following, if true, most strongly supports the advertisement's argument?

- (A) After taking inflation into account, a new Deluxe automobile costs only slightly more than a new model did in 1970.
- (B) The number of automobiles built by Deluxe each year has not increased sharply since 1970.
- (C) Owners of Deluxe automobiles typically keep their cars well maintained.
- (D) Since 1970, Deluxe has made fewer changes in the automobiles it manufactures than other car companies have made in their automobiles.
- (E) Deluxe automobiles have been selling at relatively stable prices in recent years.

13. Many state legislatures are considering proposals to the effect that certain policies should be determined not by the legislature itself but by public referenda in which every voter can take part. Critics of the proposals argue that the outcomes of public referenda would be biased, since wealthy special-interest groups are able to influence voters' views by means of television advertisements.

Which of the following, if true, most strengthens the critics' argument?

- (A) Many state legislators regard public referenda as a way of avoiding voting on issues on which their constituents are divided.
- (B) During elections for members of the legislature, the number of people who vote is unaffected by whether the candidates run television advertisements or not.
- (C) Proponents of policies that are opposed by wealthy special-interest groups are often unable to afford advertising time on local television stations.
- (D) Different special-interest groups often take opposing positions on questions of which policies the state should adopt.
- (E) Television stations are reluctant to become associated with any one political opinion, for fear of losing viewers who do not share that opinion.

14. Advertisement:

Of the many over-the-counter medications marketed for the relief of sinus headache. SineEase costs the least per dose. And SineEase is as effective per dose as the most effective of those other medications. So for relief from sinus headaches, SineEase is the best buy.

Which of the following, if true, most seriously weakens the argument above?

- (A) Most of the over-the-counter medications marketed for the relief of sinus headache are equally effective per dose in providing such relief.
- (B) Many of the over-the-counter medications marketed for the relief of sinus headache contain the same active ingredient as SineEase.
- (C) People who suffer from frequent sinus headaches are strongly advised to consult a doctor before taking any over-the-counter medication.
- (D) An over-the-counter medication that is marketed for the relief of symptoms of head cold is identical in composition to SineEase but costs less per dose.
- (E) The pre dose price for any given over-the-counter medication marketed for the relief of sinus headache is higher for smaller packages than it is for larger packages.

15. In the United States, vacationers account for more than half of all visitors to what are technically called “pure aquariums” but for fewer than one quarter of all visitors to zoos, which usually include a “zoo aquarium” of relatively modest scope.

Which of the following, if true, most helps to account for the difference described above between visitors to zoos and visitors to pure aquariums?

- (A) In cities that have both a zoo and a pure aquarium, local residents are twice as likely to visit the aquarium as they are to visit the zoo.
  - (B) Virtually all large metropolitan areas have zoos, whereas only a few large metropolitan areas have pure aquariums.
  - (C) Over the last ten years, newly constructed pure aquariums have outnumbered newly established zoos by a factor of two to one.
  - (D) People who visit a zoo in a given year are two times more likely to visit a pure aquarium that year than are people who do not visit a zoo.
  - (E) The zoo aquariums of zoos that are in the same city as a pure aquarium tend to be smaller than the aquariums of zoos that have no pure aquarium nearby.
16. Which of the following, if true, is the most logical completion of the argument below?

The tax system of the Republic of Grootland encourages borrowing by granting its taxpayers tax relief for interest paid on loans. The system also discourages saving by taxing any interest earned on savings. Nevertheless, it is clear that Grootland’s tax system does not consistently favor borrowing over saving, for if it did, there would be no——.

- (A) tax relief in Grootland for those portions of a taxpayer’s income, if any, that are set aside to increase that taxpayer’s total savings
- (B) tax relief in Grootland for the processing fees that taxpayers pay to lending institutions when obtaining certain kinds of loans
- (C) tax relief in Grootland for interest that taxpayers are charged on the unpaid balance in credit card accounts
- (D) taxes due in Grootland on the cash value of gifts received by taxpayers from banks trying to encourage people to open savings accounts
- (E) taxes due in Grootland on the amount that a taxpayer has invested in interest-bearing savings accounts

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SENTENCE CORRECTION TEST SECTION 1

30 Minutes 25 Questions

1. Researchers at Cornell University have demonstrated that homing pigeons can ~~sense~~ changes in the earth's magnetic field, see light waves that people cannot see, detect low-frequency sounds from miles away, sense changes in air pressure, and can identify familiar odors.
- (A) sense changes in air pressure, and can identify familiar odors  
(B) can sense changes in air pressure, and can identify familiar odors  
(C) sense changes in air pressure, and identify familiar odors  
(D) air pressure changes can be sensed, and familiar odors identified  
(E) air pressure changes are sensed, and familiar odors identified
2. In ancient times, Nubia was the principal corridor where there were cultural influences transmitted between Black Africa and the Mediterranean basin.
- (A) where there were cultural influences transmitted  
(B) through which cultural influences were transmitted  
(C) where there was a transmission of cultural influences  
(D) for the transmitting of cultural influences  
(E) which was transmitting cultural influences
3. It is a special feature of cell aggregation in the developing nervous system that in ~~most~~ regions of the brain the cells not only adhere to one another and also adopt some preferential orientation.
- (A) to one another and also adopt  
(B) one to the other, and also they adopt  
(C) one to the other, but also adopting  
(D) to one another but also adopt  
(E) to each other, also adopting
4. Among the reasons for the decline of New England agriculture in the last three ~~decades~~ were the high cost of land, the pressure of housing and commercial development, and basing a marketing and distribution system on importing produce from Florida and California.
- (A) basing a marketing and distribution system on importing produce from Florida ~~and~~ California  
(B) basing a marketing and distribution system on the imported produce of Florida ~~and~~ California  
(C) basing a system of marketing and distribution on the import of produce from Florida and California  
(D) a marketing and distribution system based on importing produce from Florida ~~and~~ California  
(E) a marketing and distribution system importing produce from Florida and California ~~a~~ its base
5. Like Byron at Missolonghi, Jack London was slowly killed by the mistakes of ~~the~~ medical men who treated him.
- (A) Like Byron

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- (B) Like Byron's death  
(C) Just as Byron died  
(D) Similar to Byron  
(E) As did Byron
6. One of every two new businesses fail within two years.
- (A) fail  
(B) fails  
(C) should fail  
(D) may have failed  
(E) has failed
7. Even today, a century after Pasteur developed the first vaccine, rabies almost always kills its victims unless inoculated in the earliest stages of the disease.
- (A) its victims unless inoculated  
(B) its victims unless they are inoculated  
(C) its victims unless inoculation is done  
(D) the victims unless there is an inoculation  
(E) the victims unless inoculated
8. In a period of time when women typically have had a narrow range of choices, ~~May~~ Baker Eddy became a distinguished writer and the founder, architect, and builder of a growing church.
- (A) In a period of time when women typically have  
(B) During a time in which typically women have  
(C) Typically, during a time when women  
(D) At a time when women typically  
(E) Typically in a time in which women
9. As the price of gasoline rises, which makes substituting alcohol distilled from cereal grain attractive, the prices of bread and livestock feed are sure to increase.
- (A) which makes substituting alcohol distilled from cereal grain attractive  
(B) which makes substituting the distillation of alcohol from cereal grain attractive  
(C) which makes distilling alcohol from cereal grain an attractive substitute  
(D) making an attractive substitution of alcohol distilled from cereal grain  
(E) making alcohol distilled from cereal grain an attractive substitute
10. Climatic shifts are so gradual as to be indistinguishable at first from ordinary fluctuations in the weather.
- (A) so gradual as to be indistinguishable  
(B) so gradual they can be indistinguishable  
(C) so gradual that they are unable to be distinguished  
(D) gradual enough not to be distinguishable  
(E) gradual enough so that one cannot distinguish them
11. Although the lesser cornstalk borer is widely distributed, control of them is necessary only in the South.
- (A) the lesser cornstalk borer is widely distributed, control of them is



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- (B) widely distributed, measures to control the lesser cornstalk borer are  
(C) widely distributed, lesser cornstalk borer control is  
(D) the lesser cornstalk borer is widely distributed, measures to control it are  
(E) it is widely distributed, control of the lesser cornstalk borer is
12. Traveling the back roads of Hungary, in 1905 Béla Bartók and Zoltán Kodály began their pioneering work in ethnomusicology, and they were armed only with an Edison phonograph and insatiable curiosity.
- (A) Traveling the back roads of Hungary, in 1905 Bela Bartok and Zoltan Kodaly ~~their~~ pioneering work in ethnomusicology, and they were armed only  
(B) In 1905, Bela Bartok and Zoltan Kodaly, traveling the back roads of Hungary, ~~their~~ pioneering work in ethnomusicology, and they were only armed  
(C) In 1905 Bela Bartok and Zoltan Kodaly began their pioneering work in ethnomusicology, traveling the back roads of Hungary armed only  
(D) Having traveled the back roads of Hungary, in 1905 Bela Bartok and Zoltan Kodaly began their pioneering work in ethnomusicology; they were only armed  
(E) Bela Bartok and Zoltan Kodaly, in 1905 began their pioneering work in ethnomusicology, traveling the back roads of Hungary, arming themselves only
13. It is as difficult to prevent crimes against property as those that are against a person.
- (A) those that are against a  
(B) those against a  
(C) it is against a  
(D) preventing those against a  
(E) it is to prevent those against a
14. Unlike the acid smoke of cigarettes, pipe tobacco, cured by age-old methods, yields an alkaline smoke too irritating to be drawn into the lungs.
- (A) Unlike the acid smoke of cigarettes, pipe tobacco, cured by age-old methods, yields an alkaline smoke  
(B) Unlike the acid smoke of cigarettes, pipe tobacco is cured by age-old methods, yielding an alkaline smoke  
(C) Unlike cigarette tobacco, which yields an acid smoke, pipe tobacco, cured by age-old methods, yields an alkaline smoke  
(D) Differing from cigarettes' acid smoke, pipe tobacco's alkaline smoke, cured by age-old methods, is  
(E) The alkaline smoke of pipe tobacco differs from cigarettes' acid smoke in that it is cured by age-old methods and is
15. Joplin's faith in his opera "Tremonisha" was unshakable; in 1911 he published the ~~at~~ his own expense and decided on staging it himself.
- (A) on staging it himself  
(B) that he himself would do the staging  
(C) to do the staging of the work by himself  
(D) that he himself would stage it  
(E) to stage the work himself
16. Los Angeles has a higher number of family dwellings per capita than any large city.

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- (A) a higher number of family dwellings per capita than any large city  
(B) higher numbers of family dwellings per capita than any other large city  
(C) a higher number of family dwellings per capita than does any other large city  
(D) higher numbers of family dwellings per capita than do other large cities  
(E) a high per capita number of family dwellings, more than does any other large city
17. During the nineteenth century Emily Eden and Fanny Parks journeyed throughout India, sketching and keeping journals forming the basis of news reports about the princely states where they had visited.
- (A) forming the basis of news reports about the princely states where they had  
(B) that were forming the basis of news reports about the princely states  
(C) to form the basis of news reports about the princely states which they have  
(D) which had formed the basis of news reports about the princely states where they had  
(E) that formed the basis of news reports about the princely states they
18. School integration plans that involve busing between suburban and central-city areas have contributed, according to a recent study, to significant increases in housing integration, which, in turn, reduces any future need for busing.
- (A) significant increases in housing integration, which, in turn, reduces  
(B) significant integration increases in housing, which, in turn, reduces  
(C) increase housing integration significantly, which, in turn, reduces  
(D) increase housing integration significantly, in turn reducing  
(E) significantly increase housing integration, which, in turn, reduce
19. The commission acknowledged that no amount of money or staff members can ensure the safety of people who live in the vicinity of a nuclear plant, but it approved the installation because it believed that all reasonable precautions had been taken.
- (A) no amount of money or staff members  
(B) neither vast amounts of money nor staff members  
(C) neither vast amounts of money nor numbers of staff members  
(D) neither vast amounts of money nor a large staff  
(E) no matter how large the staff or how vast the amount of money
20. Sartre believed each individual is responsible to choose one course of action over another one, that it is the choice that gives value to the act, and that nothing that is acted upon has value.
- (A) each individual is responsible to choose one course of action over another one  
(B) that each individual is responsible for choosing one course of action over  
(C) that each individual is responsible, choosing one course of action over another  
(D) that each individual is responsible to choose one course of action over the other  
(E) each individual is responsible for choosing one course of action over other ones
21. While the owner of a condominium apartment has free and clear title to the dwelling, owners of cooperative apartments have shares in a corporation that owns a building and leases apartments to them.
- (A) While the owner of a condominium apartment has free and clear title to the dwelling,  
(B) The owner of a condominium apartment has free and clear title to the dwelling, but

- 
- (C) Whereas owners of condominium apartments have free and clear title to their dwellings,
- (D) An owner of a condominium apartment has free and clear title to the dwelling, whereas
- (E) Condominium apartment owners have a title to their dwelling that is free and clear, while
22. Although films about the American West depict coyotes as solitary animals howling mournfully on the tops of distant hills, in reality these gregarious creatures live in ~~the~~ groups that occupy the same territory for long periods.
- (A) films about the American West depict coyotes as solitary animals howling mournfully on the tops of distant hills
- (B) in films about the American West coyotes are depicted to be solitary animals ~~howl~~ howl mournfully on the tops of distant hills
- (C) coyotes are depicted as solitary animals howling mournfully on the tops of distant hills in films about the American West
- (D) films about the American West depict coyotes as if they were solitary, mournfully howling animals on the tops of distant hills.
- (E) films about the American West depict coyotes to be solitary and mournfully howling animals on the tops of distant hills
23. In 1980 the United States exported twice as much of its national output of goods as they had in 1970.
- (A) twice as much of its national output of goods as they had
- (B) double the amount of their national output of goods as they did
- (C) twice as much of its national output of goods as it did
- (D) double the amount of its national output of goods as it has
- (E) twice as much of their national output of goods as they had
24. Even though its per capita food supply hardly increased during two decades, stringent rationing and planned distribution have allowed the People's Republic of China to ensure nutritional levels of 2,000 calories per person per day for its population.
- (A) Even though its per capita food supply hardly increased during
- (B) Even though its per capita food supply has hardly increased in
- (C) Despite its per capita food supply hardly increasing over
- (D) Despite there being hardly any increase in its per capita food supply during
- (E) Although there is hardly any increase in per capita food supply for
25. Few people realize that the chance of accidental injury or death may be as great or greater in the "safety" of their own homes than in a plane or on the road.
- (A) may be as great or greater in the "safety" of their own homes than
- (B) is at least as great or greater in the "safety" of their own homes than
- (C) might be so great or greater in the "safety" of their own home as
- (D) may be at least as great in the "safety" of their own homes as
- (E) can be at least so great in the "safety" of their own home as

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SENTENCE CORRECTION TEST SECTION 2

30 Minutes 25 Questions

1. A fire in an enclosed space burns with the aid of reflected radiation that preheats the fit making ignition much easier and flames spreading more quickly.
  - (A) flames spreading
  - (B) flame spreads
  - (C) flames are caused to spread
  - (D) causing flames to spread
  - (E) causing spreading of the flames
2. Roy Wilkins was among the last of a generation of civil rights activists who led the motion through decades of change so profound many young Americans are not able to imagine, even less to remember, what segregation was like.
  - (A) so profound many young Americans are not able to imagine, even less to remember
  - (B) so profound that many young Americans cannot imagine, much less remember
  - (C) so profound many young Americans cannot imagine nor even less remember
  - (D) of such profundity many young Americans cannot imagine, even less can ~~they~~ remember
  - (E) of such profundity that many young Americans are not able to imagine, much less to remember
3. The residents' opposition to the spraying program has rekindled an old debate among those who oppose the use of pesticides and those who feel that the pesticides are necessary to save the trees.
  - (A) among those who oppose the use of pesticides and
  - (B) between those who oppose the use of pesticides and
  - (C) among those opposing the use of pesticides with
  - (D) between those who oppose the use of pesticides with
  - (E) among those opposing the use of pesticides and
4. In cold-water habitats, certain invertebrates and fish convert starches into complex carbohydrates called glycerols, in effect manufacturing its own antifreeze.
  - (A) in effect manufacturing its own antifreeze
  - (B) effectively manufacturing antifreeze of its own
  - (C) in effect manufacturing their own antifreeze.
  - (D) so that they manufacture their own antifreeze
  - (E) thus the manufacture of its own antifreeze
5. Slips of the tongue do not necessarily reveal concealed beliefs or intentions but rather are the result from the competition between various processing mechanisms in the brain.
  - (A) but rather are the result from
  - (B) and instead are the result from
  - (C) being rather the result of
  - (D) and rather result from
  - (E) but rather result from
6. The new contract forbids a strike by the transportation union.

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- (A) forbids a strike by the transportation union  
(B) forbids the transportation union from striking  
(C) forbids that there be a strike by the transportation union  
(D) will forbid the transportation union from striking  
(E) will forbid that the transportation union strikes
7. Monitoring heart patients' exercise, as well as athletes exercising, is now done by small transmitters broadcasting physiological measurements to nearby recording machines.
- (A) Monitoring heart patients' exercise, as well as athletes exercising, is now done by small transmitters broadcasting physiological measurements to nearby recording machines.  
(B) Monitoring the exercise of heart patients, as well as athletes exercising, is now done by small transmitters broadcasting physiological measurements to nearby recording machines  
(C) Small transmitters broadcasting physiological measurements to nearby recording machines are now used to monitor the exercise of both heart patients and athletes.  
(D) Broadcasting physiological measurements to nearby recording machines, small transmitters are now used to monitor heart patients' exercise, as well as athletes exercising.  
(E) Both athletes exercising and heart patients' exercise are now monitored by small transmitters broadcasting physiological measurements to nearby recording machines.
8. The commission has directed advertisers to restrict the use of the word "natural" to ~~that~~ do not contain color or flavor additives, chemical preservatives, or nothing that has been synthesized.
- (A) or nothing that has been  
(B) nor anything that was  
(C) and nothing that is  
(D) or anything that has been  
(E) and anything
9. Bringing the Ford Motor Company back from the verge of bankruptcy shortly after the Second World War was a special governmentally sanctioned price increase during a period of wage and price controls.
- (A) Bringing the Ford Motor Company back from the verge of bankruptcy shortly after the Second World War was a special governmentally sanctioned price increase during a period of wage and price controls.  
(B) What brought the Ford Motor Company back from the verge of bankruptcy shortly after the Second World War was a special price increase that the government sanctioned during a period of wage and price controls.  
(C) That which brought the Ford Motor Company back from the verge of bankruptcy shortly after the Second World War was a special governmentally sanctioned price increase during a period of wage and price controls.  
(D) What has brought the Ford Motor Company back from the verge of bankruptcy shortly after the Second World War was a special price increase that the government sanctioned during a period of wages and price controls.  
(E) To bring the Ford Motor Company back from the verge of bankruptcy shortly after the Second World War, there was a special price increase during a period of wages and price controls that government sanctioned.

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10. Like Haydn, Schubert wrote a great deal for the stage, but he is remembered principally for his chamber and concert-hall music.
- (A) Like Haydn, Schubert
  - (B) Like Haydn, Schubert also
  - (C) As has Haydn, Schubert
  - (D) As did Haydn, Schubert also
  - (E) As Haydn did, Schubert also
11. Charlotte Parkins Gilman, a late nineteenth-century feminist, called for urban apartment houses including child-care facilities and clustered suburban houses including communal eating and social facilities.
- (A) including child-care facilities and clustered suburban houses including communal eating and social facilities
  - (B) that included child-care facilities, and for clustered suburban houses to ~~in~~ communal eating and social facilities
  - (C) with child-care facilities included and for clustered suburban houses to include communal eating and social facilities
  - (D) that included child-care facilities and for clustered suburban houses with communal eating and social facilities
  - (E) to include child-care facilities and for clustered suburban houses with communal eating and social facilities included
12. The odds are about 4 to 1 against surviving a takeover offer, and many business consultants therefore advise that a company's first line of defense in eluding offers ~~be~~ these be to even refuse to take calls from likely corporate raiders.
- (A) that a company's first line of defense in eluding offers like these be to even refuse
  - (B) that a company's first line of defense in eluding such offers be to refuse even
  - (C) a company defending itself against offers of this kind that, as a first line of ~~of~~ they should even refuse
  - (D) companies which are defending themselves against such an offer that, as a first ~~of~~ defense, they should even refuse
  - (E) that the first line of defense for a company who is eluding offers like these is ~~to~~ refusal even.
13. Japan received huge sums of capital from the United States after the Second World War using it to help build a modern industrial system.
- (A) Japan received huge sums of capital from the United States after the Second World War, using it to help build
  - (B) Japan received huge sums of capital from the United States after the Second World War and used it to help in building
  - (C) Japan used the huge sums of capital it received from the United States after ~~it~~ Second World War to help build
  - (D) Japan's huge sums of capital received from the United States after the Second World War were used to help it in building
  - (E) Receiving huge sums of capital from the United States after the Second World War Japan used it to help build
14. Although one link in the chain was demonstrated to be weak, but not sufficiently so require the recall of the automobile.

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- (A) demonstrated to be weak, but not sufficiently so to require  
(B) demonstrated as weak, but it was not sufficiently so that it required  
(C) demonstrably weak, but not sufficiently so to require  
(D) demonstrably weak, it was not so weak as to require  
(E) demonstrably weak, it was not weak enough that it required
15. Although the Supreme Court ruled as long ago as 1880 that Blacks could not be excluded outright from jury service, nearly a century of case-by-case adjudication has been necessary to develop and enforce the principle that all juries must be drawn from “a fair cross section of the community.”
- (A) has been necessary to develop and enforce the principle that all juries must be  
(B) was necessary for developing and enforcing the principle of all juries being  
(C) was to be necessary in developing and enforcing the principle of all juries to be  
(D) is necessary to develop and enforce the principle that all juries must be  
(E) will be necessary for developing and enforcing the principle of all juries being
16. The modernization program for the steel mill will cost approximately 51 million dollars, which it is hoped can be completed in the late 1980’s.
- (A) The modernization program for the steel mill will cost approximately 51 million dollars, which it is hoped can be completed in the late 1980’s.  
(B) The modernization program for the steel mill, hopefully completed in the late 1980’s, will cost approximately 51 million dollars.  
(C) Modernizing the steel mill, hopefully to be completed in the late 1980’s, will cost approximately 51 million dollars.  
(D) The program for modernizing the steel mill, which can, it is hoped, be completed in the late 1980’s and cost approximately 51 million dollars.  
(E) Modernizing the steel mill, a program that can, it is hoped, be completed in the late 1980’s, will cost approximately 51 million dollars.
17. Camus broke with Sartre in a bitter dispute over the nature of Stalinism.
- (A) in a bitter dispute over  
(B) over bitterly disputing  
(C) after there was a bitter dispute over  
(D) after having bitterly disputed about  
(E) over a bitter dispute about
18. Nowhere in Prakta is the influence of modern European architecture more apparent than their government buildings.
- (A) more apparent than their  
(B) so apparent as their  
(C) more apparent than in its  
(D) so apparent than in their  
(E) as apparent as it is in its
19. Federal legislation establishing a fund for the cleanup of sites damaged by toxic chemicals permits compensating state governments for damage to their natural ~~but~~ does not allow claims for injury to people.

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- (A) compensating state governments for damage to  
(B) compensating state governments for the damaging of  
(C) giving state governments compensation for damaging  
(D) giving compensation to state governments for the damage of  
(E) the giving of compensation to state governments for damaging
20. The lawyer for the defense charged that she suspected the police of having illegally taped her confidential conversations with her client and then used the information obtained to find evidence supporting their murder charges.
- (A) used the information obtained to find evidence supporting  
(B) used such information as they obtained to find evidence supporting  
(C) used the information they had obtained to find evidence that would support  
(D) of using the information they had obtained to find evidence that would support  
(E) of using such information as they obtained to find evidence that would be supportive of
21. According to surveys by the National Institute on Drug Abuse, about 20 percent of young adults used cocaine in 1979, doubling those reported in the 1977 survey.
- (A) doubling those reported in the 1977 survey  
(B) to double the number the 1977 survey reported  
(C) twice those the 1977 survey reported  
(D) twice as much as those reported in the 1977 survey  
(E) twice the number reported in the 1977 survey
22. Inflation has made many Americans reevaluate their assumptions about the future; they still expect to live better than their parents have, but not so well as they once thought they could.
- (A) they still expect to live better than their parents have  
(B) they still expect to live better than their parents did  
(C) they still expect to live better than their parents had  
(D) still expecting to live better than their parents had  
(E) still expecting to live better than did their parents
23. Europeans have long known that eating quail sometimes makes the eater ill, but only recently has it been established that the illness is caused by a toxin present in the quail's body only under certain conditions.
- (A) Europeans have long known that eating quail sometimes makes  
(B) Europeans have long known quail eating is sometimes able to make  
(C) Eating quail has long been known to Europeans to sometimes make  
(D) It has long been known to Europeans that quail eating will sometimes make  
(E) It has long been known to Europeans that quail, when it is eaten, has sometimes made
24. The caterpillar of the geometrid moth strikes when special tactile hairs on its body are disturbed, after capturing its prey, holds the victim so that it cannot escape.
- (A) strikes when special tactile hairs on its body are disturbed,  
(B) striking when special tactile hairs on its body are disturbed, but  
(C) which strikes when special tactile hairs on its body are disturbed,  
(D) which, striking when special tactile hairs on its body are disturbed,



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(E) strikes when special tactile hairs on its body are disturbed and,

25. In assessing the problems faced by rural migrant workers, the question of whether they are better off materially than the urban working poor is irrelevant.

- (A) In assessing the problems faced by rural migrant workers, the question of whether they are better off materially than the urban working poor is irrelevant.
- (B) The question of whether the rural migrant worker is better off materially than the urban working poor is irrelevant in assessing the problems that they face.
- (C) A question that is irrelevant in assessing the problems that rural migrant workers face is whether they are better off materially than the urban working poor.
- (D) In an assessment of the problems faced by rural migrant workers, the question of whether they are better off materially than the urban working poor is irrelevant.
- (E) The question of whether the rural migrant worker is better off materially than the urban working poor is irrelevant in an assessment of the problems that they face.

### SENTENCE CORRECTION TEST SECTION 3

30 Minutes 25 Questions

1. The sale of government surplus machinery will begin at 9 a.m. and continue until the supply lasts.

- (A) will begin at 9 a.m. and continue until the supply lasts
- (B) begins at 9 a.m., continuing until the supply lasts
- (C) will begin at 9 a.m. and, until the supply lasts, will continue
- (D) begins at 9 a.m. and, as long as the supply may last, it continues
- (E) will begin at 9 a.m. and continue as long as the supply lasts

2. In England the well-dressed gentleman of the eighteenth century protected their clothing while having their wig powdered by poking their head through a device that resembled the stocks.

- (A) gentleman of the eighteenth century protected their clothing while having their wig powdered by poking their head
- (B) gentleman of the eighteenth century protected his clothing while having his wig powdered by poking his head
- (C) gentleman of the eighteenth century protected their clothing while having their wigs powdered by poking their heads
- (D) gentlemen of the eighteenth century protected his clothing while having his wig powdered by poking his head
- (E) gentlemen of the eighteenth century protected their clothing while having his wig powdered by poking his head

3. Reared apart from each other, a recent United States study showed striking similarities in identical twins, including many idiosyncrasies of behavior.

- (A) Reared apart from each other, a recent United States study showed striking similarities in identical twins, including many idiosyncrasies of behavior.
- (B) Reared apart from each other, striking similarities between identical twins that include many idiosyncrasies of behavior were shown in a recent United States study.
- (C) A recent United States study showed striking similarities in identical twins reared apart from each other that include many idiosyncrasies of behavior.

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- (D) According to a recent United States study, identical twins reared apart from **h** other showed striking similarities, including many idiosyncrasies of behavior.
- (E) According to a recent United States study, identical twins showed striking similarities reared apart from each other, including many idiosyncrasies of behavior.
4. Developing nations in various parts of the world have amassed \$700 billion in debts; **a** stake, should a significant number of these debts be repudiated, is the solvency of some of the world's largest multinational banks.
- (A) should a significant number of these debts be repudiated, is
- (B) should a significant number of these debts be repudiated, are
- (C) should they repudiate a significant number of these debts, are
- (D) if there is a repudiation of a significant number of these debts, would be
- (E) if a significant number of these debts will be repudiated, is
5. South Korea has witnessed the world's most dramatic growth of Christian congregations; church membership is expanding by 6.6 percent a year, fully two-thirds of the growth, coming from conversions rather than the population increasing.
- (A) coming from conversions rather than the population increasing
- (B) coming from conversions rather than increases in the population
- (C) coming from conversions instead of the population's increasing
- (D) is from conversions instead of population increases
- (E) is from conversions rather than increasing the population
6. There is ample evidence, derived from the lore of traditional folk medicine, that naturally occurring antibiotics are usually able to be modified to make them a more effective drug.
- (A) are usually able to be modified to make them a more effective drug.
- (B) are usually able to be modified to make them more effective drugs
- (C) are usually able to be modified, which makes them more effective drugs
- (D) can usually be modified to make them a more effective drug
- (E) can usually be modified to make them more effective drugs
7. Many investors base their choice between bonds and stocks on comparing bond yields to the dividends available on common stocks.
- (A) between bonds and stocks on comparing bond yields to
- (B) among bonds and stocks on comparisons of bond yields to
- (C) between bonds and stocks on comparisons of bond yields with
- (D) among bonds and stocks on comparing bond yields and
- (E) between bonds and stocks on comparing bond yields with
8. Some of the tenth-century stave churches of Norway are still standing, demonstrating **h** with sound design and maintenance, wooden buildings can last indefinitely.
- (A) standing, demonstrating that with sound design and maintenance, wooden buildings can last indefinitely
- (B) standing, demonstrating how wooden buildings, when they have sound design and maintenance, can last indefinitely
- (C) standing; they demonstrate if a wooden building has sound design and maintenance it can last indefinitely
- (D) standing, and they demonstrate wooden buildings can last indefinitely when there is sound design and maintenance

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- (E) standing, and they demonstrate how a wooden building can last indefinitely when it has sound design and maintenance
9. In the United States, trade unions encountered far more intense opposition against their struggle for social legitimacy than the organized labor movements of most other democratic nations.
- (A) against their struggle for social legitimacy than  
(B) in their struggle for social legitimacy than did  
(C) against their struggle for social legitimacy as  
(D) in their struggle for social legitimacy as did  
(E) when they struggled for social legitimacy than has
10. For many people, household labor remains demanding even if able to afford household appliances their grandparents would find a miracle.
- (A) even if able to afford household appliances their grandparents would find a miracle  
(B) despite being able to afford household appliances their grandparents would find a miracle  
(C) even if they can afford household appliances their grandparents would have a miraculous  
(D) although they could afford household appliances their grandparents would find a miraculous  
(E) even if they are able to afford household appliances which would have been a miracle to their grandparents
11. In the most common procedure for harvesting forage crops such as alfalfa, as much 20 percent of the leaf and small-stem material, which is the most nutritious of all the parts of the plant, shattered and fell to the ground.
- (A) which is the most nutritious of all the parts of the plant, shattered and fell  
(B) the most nutritious of all parts of the plant, shatter and fall  
(C) the parts of the plant which were most nutritious, will shatter and fall  
(D) the most nutritious parts of the plant, shatters and falls.  
(E) parts of the plant which are the most nutritious, have shattered and fallen
12. To ensure consistently high quality in its merchandise, the chain of retail stores became involved in every aspect of their suppliers' operations, dictating not only the number of stitches and the width of the hem in every garment as well as the profit margins of those suppliers.
- (A) their suppliers' operations, dictating not only the number of stitches and the width of the hem in every garment as well as  
(B) its suppliers' operations, dictating not only the number of stitches and the width of the hem in every garment as well as  
(C) their suppliers' operations, dictating not only the number of stitches and the width of the hem in every garment but also  
(D) its suppliers' operations, dictating not only the number of stitches and the width of the hem in every garment but also  
(E) their suppliers' operations, dictating the number of stitches, the width of the hem in every garment, and
13. The medieval scholar made almost no attempt to investigate the anatomy of plants, their

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mechanisms of growth, nor the ways where each was related to the other.

- (A) nor the ways where each was related to the other
  - (B) nor how each was related to some other
  - (C) or the way where one is related to the next
  - (D) or the ways in which they are related to one another
  - (E) or the ways that each related to some other
14. Originally published in 1950, *Some Tame Gazelle* was Barbara Pym's first novel, but it does not read like an apprentice work.
- (A) does not read like an apprentice work
  - (B) seems not to read as an apprentice work
  - (C) does not seem to read as an apprentice work would
  - (D) does not read like an apprentice work does
  - (E) reads unlike an apprentice work
15. By installing special electric pumps, farmers' houses could be heated by the warmth from cows' milk, according to one agricultural engineer.
- (A) farmers' houses could be heated by the warmth from cows' milk, according to an agricultural engineer.
  - (B) the warmth from cows' milk could be used by farmers to heat their houses according to one agricultural engineer
  - (C) one agricultural engineer reports that farmers could use the warmth from cows' milk to heat their houses
  - (D) farmers, according to one agricultural engineer, could use the warmth from cows' milk to heat their houses
  - (E) one agricultural engineer reports that farmers' houses could be heated by the warmth from cows' milk
16. In the traditional Japanese household, most clothing could be packed flatly, and so it was not necessary to have elaborate closet facilities.
- (A) flatly, and so it was not necessary to have elaborate closet facilities
  - (B) flat, and so elaborate closet facilities were unnecessary
  - (C) flatly, and so there was no necessity for elaborate closet facilities
  - (D) flat, there being no necessity for elaborate closet facilities
  - (E) flatly, as no elaborate closet facilities were necessary
17. The unskilled workers at the Allenby plant realized that their hourly rate of \$4.11 to \$4.75 was better than many nearby factory wages.
- (A) many nearby factory wages
  - (B) many wages in nearby factories
  - (C) what are offered by many nearby factories
  - (D) it is in many nearby factories
  - (E) that offered by many nearby factories
18. Since 1970 the number of Blacks elected to state and federal offices in the United States has multiplied nearly four times.
- (A) has multiplied nearly four times
  - (B) has almost quadrupled

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- (C) has almost multiplied by four  
(D) is almost four times as great  
(E) is nearly fourfold what it was
19. India is country with at least fifty major regional languages, of whom fourteen have official recognition.
- (A) of whom fourteen have official recognition  
(B) fourteen that have official recognition  
(C) fourteen of which are officially recognized  
(D) fourteen that are officially recognized  
(E) among whom fourteen have official recognition
20. Wind resistance created by opening windows while driving results in a fuel penalty as great or greater than is incurred by using airconditioning.
- (A) as great or greater than is incurred by using airconditioning  
(B) that is as great or greater than is incurred using airconditioning  
(C) as great as or greater than that of using airconditioning  
(D) at least as great as air conditioning's  
(E) at least as great as that incurred by using airconditioning
21. At the time of the Mexican agrarian revolution, the most radical faction, that of Zapata and his followers, proposed a return to communal ownership of land, to what had been a pre-Columbian form of ownership respected by the Spaniards.
- (A) land, to what had been a pre-Columbian form of ownership respected by the Spaniards  
(B) land, a form of ownership of the pre-Columbians and respected by the Spaniards  
(C) land, respected by the Spaniards and a pre-Columbian form of ownership  
(D) land in which a pre-Columbian form of ownership was respected by the Spaniards  
(E) land that had been a pre-Columbian form of ownership respected by the Spaniards
22. Even though Bela Bartok's music has proved less popular than Igor Stravinsky's and less influential than Arnold Schonberg's, it is no less important.
- (A) Stravinsky's and less influential than Arnold Schonberg's, it  
(B) Stravinsky's and less influential than Arnold Schonberg's, he  
(C) Stravinsky's is and less influential than Arnold Schonberg's is, it  
(D) Stravinsky and not as influential as Arnold Schonberg, he  
(E) Stravinsky and not as influential as Arnold Schonberg, it
23. According to United States Air Force officials, a cannon shooting dead chickens at airplanes has proved helpful to demonstrate what kind of damage can result when jets fly into a flock of large birds.
- (A) shooting dead chickens at airplanes has proved helpful to demonstrate  
(B) shooting dead chickens at airplanes has proved itself helpful as a demonstration of  
(C) shooting dead chickens at airplanes proves itself helpful as demonstrating  
(D) that shoots dead chickens at airplanes proves itself helpful to demonstrate  
(E) that shoots dead chickens at airplanes has proved helpful in demonstrating
24. In his eagerness to find a city worthy of Priam, the German archaeologist Schliemann

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cut through Troy and uncovered a civilization a thousand years older as was the city Homer's heroes knew.

- (A) older as was the city Homer's heroes knew
- (B) more ancient than the city known to Homer's heroes
- (C) older than was the city known to Homer's heroes
- (D) more ancient of a city than Homer's heroes knew
- (E) older of a city than was the one known to Homer's heroes

25. To speak habitually of the "truly needy" is gradually instilling the notion that many of those who are just called "needy" actually have adequate resources; such a conclusion is unwarranted.

- (A) To speak habitually of the "truly needy" is gradually instilling the notion
- (B) To speak habitually of the "truly needy" is instilling the notion gradually
- (C) To speak habitually of the "truly needy" is gradually to instill the notion
- (D) Speaking habitually of the "truly needy" is to instill the gradual notion
- (E) Speaking habitually of the "truly needy" is instilling the gradual notion

#### SENTENCE CORRECTION TEST SECTION 4

30 Minutes 25 Questions

1. During the first one hundred fifty years of the existence of this republic, no one ~~expected~~ the press was fair; newspapers were mostly shrill, scurrilous, and partisan.

- (A) was
- (B) to be
- (C) of being
- (D) should be
- (E) had to be

2. Most victims of infectious mononucleosis recover after a few weeks of listlessness, but an unlucky few may suffer for years.

- (A) but an unlucky few may suffer
- (B) and an unlucky few have suffered
- (C) that an unlucky few might suffer
- (D) that a few being unlucky may suffer
- (E) but a few who, being unlucky, suffered

3. It was the loss of revenue from declines in tourism that in 1935 led the Saudi authorities' granting a concession for oil exploration to the company that would later be known by the name of Aramco.

- (A) authorities' granting a concession for oil exploration to the company that would ~~later~~ be known by the name of
- (B) authorities' granting a concession for oil exploration to the company later to be ~~known~~ as named
- (C) authorities granting a concession for oil exploration to the company that would ~~later~~ be known by the name of
- (D) authorities to grant a concession for oil exploration to the company that later will ~~be~~ known as being

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- (E) authorities to grant a concession for oil exploration to the company later to be known as
4. Framed by traitorous colleagues, Alfred Dreyfus was imprisoned for twelve years before there was exoneration and his freedom.
- (A) there was exoneration and his freedom
  - (B) he was to be exonerated with freedom
  - (C) being exonerated and freed
  - (D) exoneration and his freedom
  - (E) being freed, having been exonerated
5. By studying the primitive visual systems of single-cell aquatic organisms, biophysicists have discovered a striking similarity between algae and cows, a similarity that indicates the common evolutionary origin of plants and animals: both algae and cows produce a light-sensitive protein called rhodopsin.
- (A) biophysicists have discovered a striking similarity between algae and cows
  - (B) a striking similarity between algae and cows has been discovered by biophysicists
  - (C) there is a striking similarity that biophysicists have discovered between algae and cows
  - (D) the discovery of a striking similarity between algae and cows was made by biophysicists
  - (E) algae and cows have a striking similarity that was discovered by biophysicists.
6. Because young children do not organize their attention or perceptions systematically, like adults, they may notice and remember details that their elders ignore.
- (A) like adults
  - (B) unlike an adult
  - (C) as adults
  - (D) as adults do
  - (E) as an adult
7. As many as 300 of the 720 paintings attributed to Rembrandt may actually be the works of his students or other admirers.
- (A) the 720 paintings attributed to Rembrandt may
  - (B) the 720 paintings attributed to be Rembrandt's might
  - (C) the 720 paintings that were attributed to be by Rembrandt may
  - (D) the 720 Rembrandt paintings that were once attributed to him might
  - (E) Rembrandt's paintings, although 720 were once attributed to him, may
8. Studies of the human "sleep-wake cycle" have practical relevance for matters ranging from duty assignments in nuclear submarines and air-traffic control towers to the staff of shifts in 24-hour factories.
- (A) to the staff of
  - (B) to those who staff
  - (C) to the staffing of
  - (D) and staffing
  - (E) and the staff of

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9. Many psychologists and sociologists now contend that the deliberate and even brutal aggression integral to some forms of competitive athletics increase the likelihood of imitative violence that erupts among crowds of spectators dominated by young adult males.
- (A) increase the likelihood of imitative violence that erupts
  - (B) increase the likelihood that there will be an eruption of imitative violence
  - (C) increase the likelihood of imitative violence erupting
  - (D) increases the likelihood for imitative violence to erupt
  - (E) increases the likelihood that imitative violence will erupt
10. More than five thousand years ago, Chinese scholars accurately described the flow of blood as a continuous circle controlled by the heart, but it went unnoticed in the West
- (A) but it went
  - (B) but it was
  - (C) although it was
  - (D) but the discovery went
  - (E) although the discovery was
11. Several studies have found that the coronary patients who exercise most actively have half or less than half the chance of dying of a heart attack as those who are sedentary.
- (A) have half or less than half the chance of dying of a heart attack as those who are sedentary
  - (B) have half the chance, or less, of dying of a heart attack than those who are sedentary do
  - (C) have half the chance that they will die of a heart attack, or less, than those who are sedentary do
  - (D) are at least fifty percent less likely to die of a heart attack as those who are sedentary
  - (E) are at least fifty percent less likely than those who are sedentary to die of a heart attack
12. Most nations regard their airspace as extending upward as high as an aircraft can fly, no specific altitude, however, has been officially recognized as a boundary.
- (A) as extending
  - (B) as the extent
  - (C) to be an extent
  - (D) to be an extension
  - (E) to extend
13. According to scientists at the University of California, the pattern of changes that have occurred in human DNA over the millennia indicate the possibility that everyone alive today might be descended from a single female ancestor who lived in Africa sometime between 140,000 and 280,000 years ago.
- (A) indicate the possibility that everyone alive today might be descended from a single female ancestor who
  - (B) indicate that everyone alive today might possibly be a descendant of a single female ancestor who had
  - (C) may indicate that everyone alive today has descended from a single female ancestor who had



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- (D) indicates that everyone alive today may be a descendant of a single female ancestor who
- (E) indicates that everyone alive today might be a descendant from a single female ancestor who
14. Several senior officials spoke to the press on condition that they not be named in the story.
- (A) that they not be named
- (B) that their names will not be used
- (C) that their names are not used
- (D) of not being named
- (E) they will not be named
15. According to his own account, Frederic-Auguste Bartholdi, the sculptor of the Statue of Liberty, modeled the face of the statue like his mother's and the body like his wife's
- (A) modeled the face of the statue like his mother's and the body like his wife's
- (B) modeled the face of the statue after that of his mother and the body after that of his wife
- (C) modeled the face of the statue like his mother and the body like his wife
- (D) made the face of the statue after his mother and the body after his wife
- (E) made the face of the statue look like his mother and the body look like his wife
16. One of Ronald Reagan's first acts as President was to rescind President Carter's directive that any chemical banned on medical grounds in the United States be prohibited from sale to other countries.
- (A) that any chemical banned on medical grounds in the United States be prohibited from sale to other countries
- (B) that any chemical be prohibited from sale to other countries that was banned on medical grounds in the United States
- (C) prohibiting the sale to other countries of any chemical banned on medical grounds in the United States
- (D) prohibiting that any chemical banned on medical grounds in the United States is sold to other countries
- (E) that any chemical banned in the United States on medical grounds is prohibited from being sold to other countries.
17. Although just inside the orbit of Jupiter, amateur astronomers with good telescopes should be able to see the comet within the next few weeks.
- (A) Although just inside the orbit of
- (B) Although it is just inside the orbit of
- (C) Just inside the orbit of
- (D) Orbiting just inside
- (E) Having orbited just inside
18. Under Napoleon the French were not able to organize an adequate supply system, and it was a major cause of the failure of their invasion of Russia.
- (A) Under Napoleon the French were not able to organize an adequate supply system, it

- 
- (B) The French being unable to organize an adequate supply system under Napoleon  
(C) For the French under Napoleon, to be unable to organize an adequate supply system  
(D) The inability of the French under Napoleon to organize an adequate supply system  
(E) The French inability under Napoleon of organizing an adequate supply system.
19. To help preserve ancient Egyptian monuments threatened by high water tables, a Swedish engineering firm has proposed installing pumps, perhaps solar powered, to lower the underground water level and dig trenches around the bases of the stone walls.
- (A) to lower the underground water level and dig trenches  
(B) to lower the underground water level and to dig trenches  
(C) to lower the underground water level and digging trenches  
(D) that lower the underground water level and that trenches be dug  
(E) that lower the underground water level and trench digging
20. When rates were raised in 1985, postal service officials predicted they would make further rate increases unnecessary for at least three years.
- (A) they would make further rate increases unnecessary  
(B) they would mean that further rate increases would not be needed  
(C) that it would not be necessary for further rate increases  
(D) that the increase would make further rate increases unnecessary  
(E) further rate increases will not be needed
21. With its plan to develop seven and a half acres of shore land, Cleveland is but one of a large number of communities on the Great Lakes that is looking to its waterfront as a way to improve the quality of urban life and attract new businesses.
- (A) is looking to its waterfront as a way to improve the quality of urban life and attract  
(B) is looking at its waterfront to improve the quality of urban life and attract  
(C) are looking to their waterfronts to improve the quality of urban life and attract  
(D) are looking to its waterfront as a way of improving the quality of urban life and attracting  
(E) are looking at their waterfronts as a way they can improve the quality of urban life and attract
22. A collection of 38 poems by Phillis Wheatley, a slave, was published in the 1770's, the first book by a Black woman and it was only the second published by an American woman.
- (A) it was only the second published by an American woman  
(B) it was only the second that an American woman published  
(C) the second one only published by an American woman  
(D) the second one only that an American woman published  
(E) only the second published by an American woman
23. a huge flying reptile that died out with the dinosaurs some 65 million years ago, the Quetzalcoatlus had a wingspan of 36 feet, believed to be the largest flying creature the world has ever seen.
- (A) believed to be  
(B) and that is believed to be  
(C) and it is believed to have been

- 
- (D) which was, it is believed,  
(E) which is believed to be
24. A “calendar stick” carved centuries ago by the Winnebago tribe may provide the first evidence that the North American Indians have developed advanced full-year calendars basing them on systematic astronomical observation.
- (A) that the North American Indians have developed advanced full-year calendars basing them  
(B) of the North American Indians who have developed advanced full-year calendars and based them  
(C) of the development of advanced full-year calendars by North American Indians, basing them  
(D) of the North American Indians and their development of advanced full-year calendars based  
(E) that the North American Indians developed advanced full-year calendars based
25. Federal incentives now encourage investing capital in commercial office buildings despite vacancy rates in existing structures that are exceptionally high and no demand for new construction.
- (A) investing capital in commercial office buildings despite vacancy rates in existing structures that are exceptionally high and  
(B) capital investment in commercial office buildings, even though vacancy rates in existing structures are exceptionally high and there is  
(C) capital to be invested in commercial office buildings even though there are exceptionally high vacancy rates in existing structures with  
(D) investing capital in commercial office buildings even though the vacancy rates are exceptionally high in existing structures with  
(E) capital investment in commercial office buildings despite vacancy rates in existing structures that are exceptionally high, and although there is

### SENTENCE CORRECTION TEST SECTION 5

30 Minutes 25 Questions

1. The Wallerstein study indicates that even after a decade young men and women ~~do~~ experience some of the effects of a divorce occurring when a child.
- (A) occurring when a child  
(B) occurring when children  
(C) that occurred when a child  
(D) that occurred when they were children  
(E) that has occurred as each was a child
2. Since 1981, when the farm depression began, the number of acres overseen by professional farm-management companies have grown from 48 million to nearly 59 million, an area that is about Colorado’s size.
- (A) have grown from 48 million to nearly 59 million, an area that is about Colorado’s size  
(B) have grown from 48 million to nearly 59 million, about the size of Colorado  
(C) has grown from 48 million to nearly 59 million, an area about the size of Colorado  
(D) has grown from 48 million up to nearly 59 million, an area about the size of Colorado’s  
(E) has grown from 48 million up to nearly 59 million, an area about the size of Colorado’s

- 
- (E) has grown from 48 million up to nearly 59 million, about Colorado's size.
3. Some bat caves, like honeybee hives, have residents that take on different duties such as defending the entrance, acting as sentinels and to sound a warning at the approach of danger, and scouting outside the cave for new food and roosting sites.
- (A) acting as sentinels and to sound  
(B) acting as sentinels and sounding  
(C) to act as sentinels and sound  
(D) to act as sentinels and to sound  
(E) to act as a sentinel sounding
4. The only way for growers to salvage frozen citrus is to process them quickly into juice concentrate before they rot when warmer weather returns.
- (A) to process them quickly into juice concentrate before they rot when warmer weather returns  
(B) if they are quickly processed into juice concentrate before warmer weather returns to rot them  
(C) for them to be processed quickly into juice concentrate before the fruit rots when warmer weather returns  
(D) if the fruit is quickly processed into juice concentrate before they rot when warmer weather returns  
(E) to have it quickly processed into juice concentrate before warmer weather returns and rots the fruit.
5. Carbon-14 dating reveals that the megalithic monuments in Brittany are nearly as old as any of their supposed Mediterranean predecessors.
- (A) as old as any of their supposed  
(B) older than any of their supposed  
(C) as old as their supposed  
(D) older than any of their supposedly  
(E) as old as their supposedly
6. In virtually all types of tissue in every animal species, dioxin induces the production of enzymes that are the organism's trying to metabolize, or render harmless, the chemical that is irritating it.
- (A) trying to metabolize, or render harmless, the chemical that is irritating it  
(B) trying that it metabolize, or render harmless, the chemical irritant  
(C) attempt to try to metabolize, or render harmless, such a chemical irritant  
(D) attempt to try and metabolize, or render harmless, the chemical irritating it  
(E) attempt to metabolize, or render harmless, the chemical irritant.
7. Dr. Hakuta's research among Hispanic children in the United States indicates that the more the children use both Spanish and English, their intellectual advantage is greater in skills underlying reading ability and nonverbal logic.
- (A) their intellectual advantage is greater in skills underlying reading ability and nonverbal logic  
(B) their intellectual advantage is the greater in skills underlying reading ability and nonverbal logic  
(C) the greater their intellectual advantage in skills underlying reading ability and

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nonverbal logic

(D) in skills that underlay reading ability and nonverbal logic, their intellectual advantage is the greater

(E) in skills underlying reading ability and nonverbal logic, the greater ~~intel~~ advantage is theirs

8. Lacking information about energy use, people tend to overestimate the amount of ~~energy~~ used by equipment, such as lights, that are visible and must be turned on and off and underestimate that used by unobtrusive equipment, such as waterheaters.

(A) equipment, such as lights, that are visible and must be turned on and off ~~and~~ underestimate that

(B) equipment, such as lights, that are visible and must be turned on and off ~~d~~ underestimate it when

(C) equipment, such as lights, that is visible and must be turned on and off ~~d~~ underestimate it when

(D) visible equipment, such as lights, that must be turned on and off and underestimate that

(E) visible equipment, such as lights, that must be turned on and off and underestimate ~~when~~

9. Astronomers at the Palomar Observatory have discovered a distant supernova explosion, one that they believe is a type previously unknown to science.

(A) that they believe is

(B) that they believe it to be

(C) they believe that it is of

(D) they believe that is

(E) they believe to be of

10. However much United States voters may agree that there is waste in government ~~and~~ that the government as a whole spends beyond its means, it is difficult to find broad support for a movement toward a minimal state.

(A) However much United States voters may agree that

(B) Despite the agreement among United States voters to the fact

(C) Although United States voters agree

(D) Even though United States voters may agree

(E) There is agreement among United States voters that

11. Based on accounts of various ancient writers, scholars have painted a sketchy picture ~~of~~ the activities of an all-female cult that, perhaps as early as the sixth century B.C., worshipped a goddess known in Latin as Bona Dea, "the good goddess."

(A) Based on accounts of various ancient writers

(B) Basing it on various ancient writers' accounts

(C) With accounts of various ancient writers used for a basis

(D) By the accounts of various ancient writers they used

(E) Using accounts of various ancient writers

12. Formulas for cash flow and the ratio of debt to equity do not apply to new small businesses in the same way as they do to established big businesses, because they ~~are~~ growing and are seldom in equilibrium.

- 
- (A) Formulas for cash flow and the ratio of debt to equity do not apply to new small businesses in the same way as they do to established big businesses, because they are growing and are seldom in equilibrium.
- (B) Because they are growing and are seldom in equilibrium, formulas for cash flow and the ratio of debt to equity do not apply to new small businesses in the same way as they do to established big businesses.
- (C) Because they are growing and are seldom in equilibrium, new small businesses are not subject to the same applicability of formulas for cash flow and the ratio of debt to equity as established big businesses.
- (D) Because new small businesses are growing and are seldom in equilibrium, formulas for cash flow and the ratio of debt to equity do not apply to them in the same way as to established big businesses.
- (E) New small businesses are not subject to the applicability of formulas for cash flow and the ratio of debt to equity in the same way as established big businesses, because they are growing and are seldom in equilibrium.
13. State officials report that soaring rates of liability insurance have risen to force cutbacks in the operations of everything from local governments and school districts to day-care centers and recreational facilities.
- (A) rates of liability insurance have risen to force
- (B) rates of liability insurance are a force for
- (C) rates for liability insurance are forcing
- (D) rises in liability insurance rates are forcing
- (E) liability insurance rates have risen to force
14. Paleontologists believe that fragments of a primate jawbone unearthed in Burma **d** estimated at 40 to 44 million years old provide evidence of a crucial step along the evolutionary path that led to human beings.
- (A) at 40 to 44 million years old provide evidence of
- (B) as being 40 to 44 million years old provides evidence of
- (C) that it is 40 to 44 million years old provides evidence of what was
- (D) to be 40 to 44 million years old provide evidence of
- (E) as 40 to 44 million years old provides evidence of what was
15. In his research paper, Dr. Frosh, medical director of the Payne Whitney Clinic, distinguishes mood swings, which may be violent without their being grounded in mental disease, from genuine manic-depressive psychosis.
- (A) mood swings, which may be violent without their being grounded in mental disease, from genuine manic-depressive psychosis
- (B) mood swings, perhaps violent without being grounded in mental disease, **d** genuine manic-depressive psychosis
- (C) between mood swings, which may be violent without being grounded in mental disease, and genuine manic-depressive psychosis
- (D) between mood swings, perhaps violent without being grounded in mental disease, from genuine manic-depressive psychosis
- (E) genuine manic-depressive psychosis and mood swings, which may be violent without being grounded in mental disease
16. Unlike a typical automobile loan, which requires a fifteen-to twenty-percent down

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- payment, the lease-loan buyer is not required to make an initial deposit on the ~~row~~ vehicle.
- (A) the lease-loan buyer is not required to make  
(B) with lease-loan buying there is no requirement of  
(C) lease-loan buyers are not required to make  
(D) for the lease-loan buyer there is no requirement of  
(E) a lease-loan does not require the buyer to make
17. Native American burial sites dating back 5,000 years indicate that the residents of ~~Maine~~ at that time were part of a widespread culture of Algonquian-speaking people.
- (A) were part of a widespread culture of Algonquian-speaking people  
(B) had been part of a widespread culture of people who were Algonquian-speaking  
(C) were people who were part of a widespread culture that was Algonquian-speaking  
(D) had been people who were part of a widespread culture that ~~was~~ Algonquian-speaking  
(E) were a people which had been part of a widespread, Algonquian-speaking culture
18. Each of Hemingway's wives—Hadley Richardson, Pauline Pfeiffer, Martha Gelhorn, and Mary Welsh—were strong and interesting women, very different from the often pallid women who populate his novels.
- (A) Each of Hemingway's wives—Hadley Richardson, Pauline Pfeiffer, Martha Gelhorn, and Mary Welsh—were strong and interesting women,  
(B) Hadley Richardson, Pauline Pfeiffer, Martha Gelhorn, and Mary Welsh—each of them Hemingway's wives—were strong and interesting women,  
(C) Hemingway's wives—Hadley Richardson, Pauline Pfeiffer, Martha Gelhorn, and Mary Welsh—were all strong and interesting women,  
(D) Strong and interesting women—Hadley Richardson, Pauline Pfeiffer, Martha Gelhorn, and Mary Welsh—each a wife of Hemingway, was  
(E) Strong and interesting women—Hadley Richardson, Pauline Pfeiffer, Martha Gelhorn, and Mary Welsh—every one of Hemingway's wives were
19. In addition to having more protein than wheat does, the protein in rice is higher quality than that in wheat, with more of the amino acids essential to the human diet.
- (A) the protein in rice is higher quality than that in  
(B) rice has protein of higher quality than that in  
(C) the protein in rice is higher in quality than it is in  
(D) rice protein is higher in quality than it is in  
(E) rice has a protein higher in quality than
20. An array of tax incentives has led to a boom in the construction of new office buildings; so abundant has capital been for commercial real estate that investors regularly scour the country for areas in which to build.
- (A) so abundant has capital been for commercial real estate that  
(B) capital has been so abundant for commercial real estate, so that  
(C) the abundance of capital for commercial real estate has been such,  
(D) such has the abundance of capital been for commercial real estate that

- 
- (E) such has been an abundance of capital for commercial real estate,
21. Defense attorneys have occasionally argued that their clients' misconduct stemmed ~~from~~ reaction to something ingested, but in attributing criminal or delinquent behavior to some food allergy, the perpetrators are in effect told that they are not responsible for their actions.
- (A) in attributing criminal or delinquent behavior to some food allergy
  - (B) if criminal or delinquent behavior is attributed to an allergy to some food
  - (C) in attributing behavior that is criminal or delinquent to an allergy to some food
  - (D) if some food allergy is attributed as the cause of criminal or delinquent behavior
  - (E) in attributing a food allergy as the cause of criminal or delinquent behavior
22. The voluminous personal papers of Thomas Alva Edison reveal that his inventions typically sprang to life not in a flash of inspiration but evolved slowly from previous works.
- (A) sprang to life not in a flash of inspiration but evolved slowly
  - (B) sprang to life not in a flash of inspiration but were slowly evolved
  - (C) did not spring to life in a flash of inspiration but evolved slowly
  - (D) did not spring to life in a flash of inspiration but had slowly evolved
  - (E) did not spring to life in a flash of inspiration but they were slowly evolved.
23. As more and more people invest their money in savings certificates or money-market funds in order to earn higher interest, they are abandoning traditional low-interest investment havens such as passbook accounts and life insurance policies.
- (A) As more and more people invest their money
  - (B) While people have more and more been investing their money
  - (C) As money is more and more invested by people
  - (D) More and more, when investors put their money
  - (E) While, more and more, investors have been putting their money
24. Margaret Courtney-Clarke has traveled to remote dwellings in the Transvaal to photograph the art of Ndebele women, whose murals are brilliantly colored, their geometrical symmetries embellished with old and new iconography and in a style that varies from woman to woman and house to house.
- (A) whose murals are brilliantly colored, their geometrical symmetries embellished ~~with~~ old and new iconography and in a style that varies from woman to woman and ~~to~~ house
  - (B) whose murals are brilliantly colored, their geometrical symmetries are embellished with old and new iconography, and their style is varying among women and ~~is~~
  - (C) whose murals are brilliantly colored, their geometrical symmetries are embellished with old and new iconography, and they are in styles that vary from woman to woman and house to house
  - (D) with murals brilliantly colored, their geometrical symmetries embellished with old and new iconography, and their style varies among women and houses
  - (E) with murals that are brilliantly colored, their geometrical symmetries embellished with old and new iconography, and their styles vary among women and houses
25. Florida will gain another quarter-million jobs this year alone, many of them in high-paying fields like electronics and banking, making the state's economy far more



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diversified than ten years ago.

- (A) high-paying fields like electronics and banking, making the state's economy **fi** more diversified than
- (B) high-paying fields like electronics and banking, and making the state's economy **fi** more diversified than its economy
- (C) high-paying fields such as electronics and banking, to make the state's economy **fi** more diversified than
- (D) such high-paying fields as electronics and banking, making the state's economy **fi** more diversified than it was
- (E) Such high-paying fields as electronics and banking, and make the state's economy far more diversified than it was.

### SENTENCE CORRECTION TEST SECTION 6

30 Minutes 25 Questions

1. A Labor Department study states that the numbers of women employed outside the home grew by more than a thirty-five percent increase in the past decade and accounted for more than sixty-two percent of the total growth in the civilian work force.
  - (A) numbers of women employed outside the home grew by more than a thirty-five percent increase
  - (B) numbers of women employed outside the home grew more than thirty-five percent
  - (C) numbers of women employed outside the home were raised by more than thirty-five percent
  - (D) number of women employed outside the home increased by more than thirty-five percent
  - (E) number of women employed outside the home was raised by more than a thirty-five percent increase.
2. The first decision for most tenants living in a building undergoing being converted to cooperative ownership is if to sign a no-buy pledge with the other tenants.
  - (A) being converted to cooperative ownership is if to sign
  - (B) being converted to cooperative ownership is whether they should be signing
  - (C) being converted to cooperative ownership is whether or not they sign
  - (D) conversion to cooperative ownership is if to sign
  - (E) conversion to cooperative ownership is whether to sign
3. The end of the eighteenth century saw the emergence of prize-stock breeding, with individual bulls and cows receiving awards, fetching unprecedented prices, and excited enormous interest whenever they were put on show.
  - (A) excited
  - (B) it excited
  - (C) exciting
  - (D) would excite
  - (E) it had excited
4. Of all the possible disasters that threaten American agriculture, the possibility of a adverse change in climate is maybe the more difficult for analysis.
  - (A) is maybe the more difficult for analysis
  - (B) is probably the most difficult to analyze

- 
- (C) is maybe the most difficult for analysis  
(D) is probably the more difficult to analyze  
(E) is, it may be, the analysis that is most difficult
5. Published in Harlem, the owner and editor of the *Messenger* were two young journalists, Chandler Owen and A. Philip Randolph, who would later make his reputation as a labor leader.
- (A) Published in Harlem, the owner and editor of the *Messenger* were two young journalists, Chandler Owen and A. Philip Randolph, who would later make his reputation as a labor leader.  
(B) Published in Harlem, two young journalists, Chandler Owen and A. Philip Randolph, who would later make his reputation as a labor leader, were the owner and editor of the *Messenger*.  
(C) Published in Harlem, the *Messenger* was owned and edited by two young journalists, A. Philip Randolph, who would later make his reputation as a labor leader, **d** Chandler Owen.  
(D) The *Messenger* was owned and edited by two young journalists, Chandler Owen and A. Philip Randolph, who would later make his reputation as a labor leader, **d** published in Harlem.  
(E) The owner and editor being two young journalists, Chandler Owen and A. Philip Randolph, who would later make his reputation as a labor leader, the *Messenger* ~~was~~ published in Harlem.
6. The rise in the Commerce Department's index of leading economic indicators suggest that the economy should continue its expansion into the coming months, but that the mixed performance of the index's individual components indicates that economic growth will proceed at a more moderate pace than in the first quarter of this year.
- (A) suggest that the economy should continue its expansion into the coming months, **b** that  
(B) suggest that the economy is to continue expansion in the coming months, but  
(C) suggests that the economy will continue its expanding in the coming months, but that  
(D) suggests that the economy is continuing to expand into the coming months, but that  
(E) suggests that the economy will continue to expand in the coming months, but
7. In three centuries—from 1050 to 1350—several million tons of stone were quarried in France for the building of eighty cathedrals, five hundred large churches, and some ~~two~~ of thousands of parish churches.
- (A) for the building of eighty cathedrals, five hundred large churches, and some  
(B) in order that they might build eighty cathedrals, five hundred large churches, **d** some  
(C) so as they might build eighty cathedrals, five hundred large churches, and some  
(D) so that there could be built eighty cathedrals, five hundred large churches, and  
(E) such that they could build eighty cathedrals, five hundred large churches, and
8. What was as remarkable as the development of the compact disc has been the use of **te** new technology to revitalize, in better sound than was ever before possible, some of the classic recorded performances of the pre-LP era.
- (A) What was as remarkable as the development of the compact disc  
(B) The thing that was as remarkable as developing the compact disc

- 
- (C) No less remarkable than the development of the compact disc
  - (D) Developing the compact disc has been none the less remarkable than
  - (E) Development of the compact disc has been no less remarkable as

9. Unlike computer skills or other technical skills, there is a disinclination on the part of many people to recognize the degree to which their analytical skills are weak.

- (A) Unlike computer skills or other technical skills, there is a disinclination on the part of many people to recognize the degree to which their analytical skills are weak.
- (B) Unlike computer skills or other technical skills, which they admit they lack, many people are disinclined to recognize that their analytical skills are weak.
- (C) Unlike computer skills or other technical skills, analytical skills bring out a disinclination in many people to recognize that they are weak to a degree.
- (D) Many people, willing to admit that they lack computer skills or other technical skills, are disinclined to recognize that their analytical skills are weak.
- (E) Many people have a disinclination to recognize the weakness of their analytical skills while willing to admit their lack of computer skills or other technical skills.

10. Some buildings that were destroyed and heavily damaged in the earthquake last year were constructed in violation of the city's building code.

- (A) Some buildings that were destroyed and heavily damaged in the earthquake last year were
- (B) Some buildings that were destroyed or heavily damaged in the earthquake last year had been
- (C) Some buildings that the earthquake destroyed and heavily damaged last year have been
- (D) Last year the earthquake destroyed or heavily damaged some buildings that have been
- (E) Last year some of the buildings that were destroyed or heavily damaged in the earthquake had been

11. From the earliest days of the tribe, kinship determined the way in which the Ojibwa society organized its labor, provided access to its resources, and defined rights and obligations involved in the distribution and consumption of those resources.

- (A) and defined rights and obligations involved in the distribution and consumption of those resources
- (B) defining rights and obligations involved in their distribution and consumption
- (C) and defined rights and obligations as they were involved in its distribution and consumption
- (D) whose rights and obligations were defined in their distribution and consumption
- (E) the distribution and consumption of them defined by rights and obligations

12. A report by the American Academy for the Advancement of Science has concluded that much of the currently uncontrolled dioxins to which North Americans are exposed comes from the incineration of wastes.

- (A) much of the currently uncontrolled dioxins to which North Americans are exposed comes
- (B) much of the currently uncontrolled dioxins that North Americans are exposed to

- 
- come
- (C) much of the dioxins that are currently uncontrolled and that North Americans are exposed to come
- (D) many of the dioxins that are currently uncontrolled and North Americans are exposed to come
- (E) many of the currently uncontrolled dioxins to which North Americans are exposed come
13. In June of 1987, *The Bridge of Trinquetaille*, Vincent van Gogh's view of an iron bridge over the Rhone sold for \$20.2 million and it was the second highest price ever paid for a painting at auction.
- (A) Rhone sold for \$20.2 million and it was
- (B) Rhone, which sold for \$20.2 million, was
- (C) Rhone, was sold for \$20.2 million,
- (D) Rhone was sold for \$20.2 million, being
- (E) Rhone, sold for \$20.2 million, and was
14. *Bufo marinus* toads, fierce predators that will eat frogs, lizards, and even small birds, are native to South America but were introduced into Florida during the 1930's in an attempt to control pests in the state's vast sugarcane fields.
- (A) are native to South America but were introduced into Florida during the 1930's in an attempt to control
- (B) are native in South America but were introduced into Florida during the 1930's as attempts to control
- (C) are natives of South America but were introduced into Florida during the 1930's in an attempt at controlling
- (D) had been native to South America but were introduced to Florida during the 1930's as an attempt at controlling
- (E) had been natives of South America but were introduced to Florida during the 1930's as attempts at controlling
15. While some academicians believe that business ethics should be integrated into every business course, others say that students will take ethics seriously only if it would be taught as a separately required course.
- (A) only if it would be taught as a separately required course
- (B) only if it is taught as a separate, required course
- (C) if it is taught only as a course required separately
- (D) if it was taught only as a separate and required course
- (E) if it would only be taught as a required course, separately
16. Scientists have observed large concentrations of heavy-metal deposits in the upper twenty centimeters of Baltic Sea sediments, which are consistent with the growth of industrial activity there.
- (A) Baltic Sea sediments, which are consistent with the growth of industrial activity there
- (B) Baltic Sea sediments, where the growth of industrial activity is consistent with the findings
- (C) Baltic Sea sediments, findings consistent with its growth of industrial activity
- (D) sediments from the Baltic Sea, findings consistent with the growth of industrial

- 
- activity in the area
- (E) sediments from the Baltic Sea, consistent with the growth of industrial activity there
17. For members of the seventeenth-century Ashanti nation in Africa, animal-hide shields with wooden frames were essential items of military equipment, a method to protect warriors against enemy arrows and spears.
- (A) a method to protect  
(B) as a method protecting  
(C) protecting  
(D) as a protection of  
(E) to protect
18. In metalwork one advantage of adhesive-bonding over spot-welding is that the contact, and hence the bonding, is effected continuously over a broad surface instead of a series of regularly spaced points with no bonding in between.
- (A) instead of  
(B) as opposed to  
(C) in contrast with  
(D) rather than at  
(E) as against being at
19. Under a provision of the Constitution that was never applied, Congress has been required to call a convention for considering possible amendments to the document when formally asked to do it by the legislatures of two-thirds of the states.
- (A) was never applied, Congress has been required to call a convention for considering possible amendments to the document when formally asked to do it  
(B) was never applied, there has been a requirement that Congress call a convention for consideration of possible amendments to the document when asked to do it formally  
(C) was never applied, whereby Congress is required to call a convention for considering possible amendments to the document when asked to do it formally  
(D) has never been applied, whereby Congress is required to call a convention to consider possible amendments to the document when formally asked to do so  
(E) has never been applied, Congress is required to call a convention to consider possible amendments to the document when formally asked to do so
20. The current administration, being worried over some foreign trade barriers being removed and our exports failing to increase as a result of deep cuts in the value of the dollar, has formed a group to study ways to sharpen our competitiveness.
- (A) being worried over some foreign trade barriers being removed and our exports failing  
(B) worrying over some foreign trade barriers being removed, also over the failure of our exports  
(C) worried about the removal of some foreign trade barriers and the failure of our exports  
(D) in that they were worried about the removal of some foreign trade barriers and about the failure of our exports  
(E) because of its worry concerning the removal of some foreign trade barriers, about concerning the failure of our exports

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21. In the minds of many people living in England, before Australia was Australia, it was the antipodes, the opposite pole to civilization, an obscure and unimaginable place **h** was considered the end of the world.
- (A) before Australia was Australia, it was the antipodes
  - (B) before there was Australia, it was the antipodes
  - (C) it was the antipodes that was Australia
  - (D) Australia was what was the antipodes
  - (E) Australia was what had been known as the antipodes.
22. Using a Doppler ultrasound device, fetal heartbeats can be detected by the twelfth week of pregnancy.
- (A) Using a Doppler ultrasound device, fetal heartbeats can be detected by the twelfth week of pregnancy.
  - (B) Fetal heartbeats can be detected by the twelfth week of pregnancy, using a Doppler ultrasound device.
  - (C) Detecting fetal heartbeats by the twelfth week of pregnancy, a physician can use a Doppler ultrasound device.
  - (D) By the twelfth week of pregnancy, fetal heartbeats can be detected using a Doppler ultrasound device by a physician.
  - (E) Using a Doppler ultrasound device, a physician can detect fetal heartbeats by the twelfth week of pregnancy.
23. Constance Horner, chief of the United States government's personnel agency, has recommended that the use of any dangerous or illegal drug in the five years prior to application for a job be grounds for not hiring an applicant.
- (A) the use of any dangerous or illegal drug in the five years prior to application for a job be grounds for not hiring an applicant
  - (B) any dangerous or illegal drug, if used in the five years prior to applying for a job should be grounds not to hire the applicant
  - (C) an applicant's use of any dangerous or illegal drug in the five years prior to application for a job be grounds not to hire them
  - (D) an applicant's use of any dangerous or illegal drug in the five years prior to applying for a job are grounds that they not be hired
  - (E) for five years prior to applying for a job, an applicant's use of any dangerous illegal drug be grounds for not hiring them
24. Inflation in medical costs showed in 1986 for the fifth consecutive year but were still about 50 percent greater than the rate of price increases for other items included in the consumer price index.
- (A) Inflation in medical costs slowed in 1986 for the fifth consecutive year but were
  - (B) Inflation in medical costs slowed for the fifth consecutive year in 1986 but was
  - (C) In 1986 inflation in medical costs were slowed for the fifth consecutive year **h** were
  - (D) 1986 was the fifth consecutive year in which inflation in medical costs slowed **h** was
  - (E) 1986 was the fifth consecutive year that inflation in medical costs were slowed, **h** they were
25. The most common reasons for an employee's unwillingness to accept a transfer are that

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mortgage rates are high, housing in the new location costs more, and the difficulty of selling the old home.

- (A) that mortgage rates are high, housing in the new location costs more, and ~~te~~ difficulty of selling the old home.
- (B) that mortgage rates are high, housing in the new location costs more, and that it is difficult to sell the old home
- (C) high mortgage rates, the greater cost of housing in the new location, and that the ~~ol~~ home is difficult to sell
- (D) high mortgage rates, the greater cost of housing in the new location, and it is difficult to sell the old home.
- (E) high mortgage rates, the greater cost of housing in the new location, and ~~te~~ difficulty of selling the old home

### SENTENCE CORRECTION TEST SECTION 7

30 Minutes 25 Questions

1. Delighted by the reported earnings for the first quarter of the fiscal year, it was decided by the company manager to give her staff a raise.
  - (A) it was decided by the company manager to give her staff a raise
  - (B) the decision of the company manager was to give her staff a raise
  - (C) the company manager decided to give her staff a raise
  - (D) the staff was given a raise by the company manager
  - (E) a raise was given to the staff by the company manager
2. A study commissioned by the Department of Agriculture showed that if calves exercise and associated with other calves, they will require less medication and gain weight quicker than do those raised in confinement.
  - (A) associated with other calves, they will require less medication and gain weight quicker than do
  - (B) associated with other calves, they require less medication and gain weight quicker than
  - (C) associate with other calves, they required less medication and will gain weight quicker than do
  - (D) associate with other calves, they have required less medication and will gain weight more quickly than do
  - (E) associate with other calves, they require less medication and gain weight ~~more~~ quickly than
3. Displays of the aurora borealis, or “northern lights,” can heat the atmosphere over the arctic enough to affect the trajectories of ballistic missiles, induce electric currents that can cause blackouts in some areas and corrosion in north-south pipelines.
  - (A) to affect the trajectories of ballistic missiles, induce
  - (B) that the trajectories of ballistic missiles are affected, induce
  - (C) that it affects the trajectories of ballistic missiles, induces
  - (D) that the trajectories of ballistic missiles are affected and induces
  - (E) to affect the trajectories of ballistic missiles and induce
4. The golden crab of the Gulf of Mexico has not been fished commercially in great

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numbers, primarily on account of living at great depths—2,500 to 3,000 feet down.

- (A) on account of living
- (B) on account of their living
- (C) because it lives
- (D) because of living
- (E) because they live

5. The cameras of the Voyager II spacecraft detected six small, previously unseen moons circling Uranus, which doubles to twelve the number of satellites now known as orbiting the distant planet.

- (A) which doubles to twelve the number of satellites now known as orbiting
- (B) doubling to twelve the number of satellites now known to orbit
- (C) which doubles to twelve the number of satellites now known in orbit around
- (D) doubling to twelve the number of satellites now known as orbiting
- (E) which doubles to twelve the number of satellites now known that orbit

6. As a baby emerges from the darkness of the womb with a rudimentary sense of vision, it would be rated about 20/500, or legally blind if it were an adult with such vision.

- (A) As a baby emerges from the darkness of the womb with a rudimentary sense of vision, it would be rated about 20/500, or legally blind if it were an adult with such vision.
- (B) A baby emerges from the darkness of the womb with a rudimentary sense of vision that would be rated about 20/500, or legally blind as an adult.
- (C) As a baby emerges from the darkness of the womb, its rudimentary sense of vision would be rated about 20/500; qualifying it to be legally blind if an adult.
- (D) A baby emerges from the darkness of the womb with a rudimentary sense of vision that would be rated about 20/500; an adult with such vision would be deemed legally blind.
- (E) As a baby emerges from the darkness of the womb, its rudimentary sense of vision, which would be deemed legally blind for an adult, would be rated about 20/500.

7. While Jackie Robinson was a Brooklyn Dodger, his courage in the face of physical threats and verbal attacks was not unlike that of Rosa Parks, who refused to move to the back of a bus in Montgomery, Alabama.

- (A) not unlike that of Rosa Parks, who refused
- (B) not unlike Rosa Parks, who refused
- (C) like Rosa Parks and her refusal
- (D) like that of Rosa Parks for refusing
- (E) as that of Rosa Parks, who refused

8. The rising of costs of data-processing operations at many financial institutions has created a growing opportunity for independent companies to provide these services more efficiently and at lower cost

- (A) The rising of costs
- (B) Rising costs
- (C) The rising cost
- (D) Because the rising cost
- (E) Because of rising costs



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9. There is no consensus on what role, if any, is played by acid rain in slowing the growth or damaging forests in the eastern United States.
- (A) slowing the growth or damaging
  - (B) the damage or the slowing of the growth of
  - (C) the damage to or the slowness of the growth of
  - (D) damaged or slowed growth of
  - (E) damaging or slowing the growth of
10. Galileo was convinced that natural phenomena, as manifestations of the laws of physics, would appear the same to someone on the deck of a ship moving smoothly and uniformly through the water as a person standing on land.
- (A) water as a
  - (B) water as to a
  - (C) water; just as it would to
  - (D) water, as it would to the
  - (E) water; just as to the
11. A recent study has found that within the past few years, many doctors had elected early retirement rather than face the threats of lawsuits and the rising costs of malpractice insurance.
- (A) had elected early retirement rather than face
  - (B) had elected early retirement instead of facing
  - (C) have elected retiring early instead of facing
  - (D) have elected to retire early rather than facing
  - (E) have elected to retire early rather than face
12. Architects and stonemasons, huge palace and temple clusters were built by the Maya without benefit of the wheel or animal transport.
- (A) huge palace and temple clusters were built by the Maya without benefit of the ~~w~~ or animal transport
  - (B) without the benefits of animal transport or the wheel, huge palace and temple clusters were built by the Maya
  - (C) the Maya built huge palace and temple clusters without the benefit of animal transport or the wheel
  - (D) there were built, without the benefit of the wheel or animal transport, huge ~~and~~ temple clusters by the Maya
  - (E) were the Maya who, without the benefit of the wheel or animal transport, built ~~h~~ palace and temple clusters
13. In astronomy the term “red shift” denotes the extent to which light from a distant galaxy has been shifted toward the red, or long-wave, end of the light spectrum by the rapid motion of the galaxy away from the Earth.
- (A) to which light from a distant galaxy has been shifted
  - (B) to which light from a distant galaxy has shifted
  - (C) that light from a distant galaxy has been shifted
  - (D) of light from a distant galaxy shifting
  - (E) of the shift of light from a distant galaxy

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14. William H. Johnson's artistic debt to Scandinavia is evident in paintings that range ~~fr~~ sensitive portraits of citizens in his wife's Danish home, Kerteminde, and awe-inspiring views of fjords and mountain peaks in the western and northern regions of Norway.
- (A) and
  - (B) to
  - (C) and to
  - (D) with
  - (E) in addition to
15. In 1978 only half the women granted child support by a court received the amount awarded; at least as much as a million and more others had not any support agreements whatsoever.
- (A) at least as much as a million and more others had not any
  - (B) at least as much as more than a million others had no
  - (C) more than a million others had not any
  - (D) more than a million others had no
  - (E) there was at least a million or more others without any
16. According to a recent poll, owning and living in a freestanding house on its ownland ~~is~~ still a goal of a majority of young adults, like that of earlier generations.
- (A) like that of earlier generations
  - (B) as that for earlier generations
  - (C) just as earlier generations did
  - (D) as have earlier generations
  - (E) as it was of earlier generations
17. The Gorton-Dodd bill requires that a bank disclose to their customers how long ~~ty~~ will delay access to funds from deposited checks.
- (A) that a bank disclose to their customers how long they will delay access to funds ~~fr~~ deposited checks
  - (B) a bank to disclose to their customers how long they will delay access to funds ~~fr~~ deposited check
  - (C) that a bank disclose to its customers how long it will delay access to funds from a deposited checks
  - (D) a bank that it should disclose to its customers how long it will delay access to ~~frs~~ from a deposited check
  - (E) that banks disclose to customers how long access to funds from their ~~o~~ check is to be delayed
18. Geologists believe that the warning signs for a major earthquake may include sudden fluctuations in local seismic activity, tilting and other deformations of the Earth's crust, changing the measured strain across a fault zone, and varying the electrical properties ~~o~~ underground rocks.
- (A) changing the measured strain across a fault zone, and varying
  - (B) changing measurements of the strain across a fault zone, and varying
  - (C) changing the strain as measured across a fault zone, and variations of
  - (D) changes in the measured strain across a fault zone, and variations in
  - (E) changes in measurements of the strain across a fault zone, and variations among

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19. Health officials estimate that 35 million Africans are in danger of contracting trypanosomiasis, or “African sleeping sickness,” a parasitic disease spread by the bites of tsetse flies.
- (A) are in danger of contracting
  - (B) are in danger to contract
  - (C) have a danger of contracting
  - (D) are endangered by contraction
  - (E) have a danger that they will contract
20. Unlike a funded pension system, in which contributions are invested to pay future beneficiaries, a pay-as-you-go approach is the foundation of Social Security.
- (A) a pay-as-you-go approach is the foundation of Social Security
  - (B) the foundation of Social Security is a pay-as-you-go approach
  - (C) the approach of Social Security is pay-as-you-go
  - (D) Social Security’s approach is pay-as-you-go
  - (E) Social Security is founded on a pay-as-you-go approach
21. Critics of the trend toward privately operated prisons consider corrections facilities to be an integral part of the criminal justice system and question if profits should be made from incarceration.
- (A) to be an integral part of the criminal justice system and question if
  - (B) as an integral part of the criminal justice system and they question if
  - (C) as being an integral part of the criminal justice system and question whether
  - (D) an integral part of the criminal justice system and question whether
  - (E) are an integral part of the criminal justice system, and they question whether
22. The Federal Reserve Board’s reduction of interest rates on loans to financial institutions is both an acknowledgement of past economic trends and an effort to influence their future direction.
- (A) reduction of interest rates on loans to financial institutions is both **a** acknowledgement of past economic trends and an effort
  - (B) reduction of interest rates on loans to financial institutions is an acknowledgement both of past economic trends as well as an effort
  - (C) reduction of interest rates on loans to financial institutions both acknowledge **a** economic trends and attempt
  - (D) reducing interest rates on loans to financial institutions is an acknowledgement **both** of past economic trends and an effort
  - (E) reducing interest rates on loans to financial institutions both acknowledge **part** economic trends as well as attempt
23. Tiny quantities of more than thirty rare gases, most of them industrial by-products, threaten to warm the Earth’s atmosphere even more rapidly than carbon dioxide during the next fifty years.
- (A) to warm the Earth’s atmosphere even more rapidly than carbon dioxide during **the** next fifty years
  - (B) to warm the Earth’s atmosphere even more rapidly over the next fifty years **than** carbon dioxide will
  - (C) during the next fifty years to warm the Earth’s atmosphere even more rapidly than

- 
- carbon dioxide
- (D) a warming of the Earth's atmosphere during the next fifty years even more rapid than carbon dioxide's
- (E) a warming of the Earth's atmosphere even more rapid than carbon dioxide's will be over the next fifty years
24. Several years ago the diet industry introduced a variety of appetite suppressants, but some of these drugs caused stomach disorders severe enough to have them banned by the Food and Drug Administration.
- (A) stomach disorders severe enough to have them
- (B) stomach disorders that were severe enough so they were
- (C) stomach disorders of such severity so as to be
- (D) such severe stomach disorders that they were
- (E) such severe stomach disorders as to be
25. Some analysts contend that true capitalism exists only when the ownership of both property and the means of production is regarded as an inalienable right of an individual's, and it is not a license granted by government and revokable at whim.
- (A) is regarded as an inalienable right of an individual's, and it is not
- (B) are regarded as individuals' inalienable rights, and that it not be
- (C) is regarded as an individual's inalienable right, not as
- (D) are regarded as an individual's inalienable rights, not when they are
- (E) is regarded as the inalienable rights of an individual, not when it is

### SENTENCE CORRECTION TEST SECTION 8

30 Minutes 25 Questions

1. Congress is debating a bill requiring certain employers provide workers with unpaid leave so as to care for sick or newborn children.
- (A) provide workers with unpaid leave so as to
- (B) to provide workers with unpaid leave so as to
- (C) provide workers with unpaid leave in order that they
- (D) to provide workers with unpaid leave so that they a
- (E) provide workers with unpaid leave and
2. Often visible as smog, ozone is formed in the atmosphere from hydrocarbons and nitrogen oxides, two major pollutants emitted by automobiles, react with ~~sm~~
- (A) ozone is formed in the atmosphere from
- (B) ozone is formed in the atmosphere when
- (C) ozone is formed in the atmosphere, and when
- (D) ozone, formed in the atmosphere when
- (E) ozone, formed in the atmosphere from
3. Although she had signed a pledge of abstinence while being an adolescent, Frances Willard was 35 years old before she chose to become a temperance activist.
- (A) while being an adolescent
- (B) while in adolescence

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- (C) at the time of her being adolescent  
(D) as being in adolescence  
(E) as an adolescent
4. A President entering the final two years of a second term is likely to be at a severe disadvantage and is often unable to carry out a legislative program.
- (A) likely to be at a severe disadvantage and is often unable to  
(B) likely severely disadvantaged and often unable to  
(C) liable to be severely disadvantaged and cannot often  
(D) liable that he or she is at a severe disadvantage and cannot often  
(E) at a severe disadvantage, often likely to be unable that he or she can
5. The original building and loan associations were organized as limited life funds, whose members made monthly payments on their share subscriptions, then taking turns drawing on the funds for home mortgages.
- (A) subscriptions, then taking turns drawing  
(B) subscriptions, and then taking turns drawing  
(C) subscriptions and then took turns drawing  
(D) subscriptions and then took turns, they drew  
(E) subscriptions and then drew, taking turns.
6. The number of undergraduate degrees in engineering awarded by colleges and universities in the United States increased by more than twice from 1978 to 1998.
- (A) increased by more than twice  
(B) increased more than two times  
(C) more than doubled  
(D) was more than doubled  
(E) had more than doubled
7. The British Admiralty and the War Office met in March 1892 to consider a possible Russian attempt to seize Constantinople and how they would have to act militarily to deal with them.
- (A) how they would have to act militarily to deal with them  
(B) how to deal with them if military action would be necessary  
(C) what would be necessary militarily for dealing with such an event  
(D) what military action would be necessary in order to deal with such an event  
(E) the necessity of what kind of military action in order to take for dealing with it
8. Growing competitive pressures may be encouraging auditors to bend the rules in favor of clients; auditors may, for instance, allow a questionable loan to remain on the books in order to maintain a bank's profits on paper.
- (A) clients; auditors may, for instance, allow  
(B) clients, as an instance, to allow  
(C) clients, like to allow  
(D) clients, such as to be allowing  
(E) clients; which might, as an instance, be the allowing of
9. If the proposed expenditures for gathering information abroad are reduced even further,

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international news reports have been and will continue to diminish in number and quality.

- (A) have been and will continue to diminish
- (B) have and will continue to diminish
- (C) will continue to diminish, as they already did,
- (D) will continue to diminish, as they have already,
- (E) will continue to diminish

10. Gall's hypothesis of there being different mental functions localized in different parts of the brain is widely accepted today.

- (A) of there being different mental functions localized in different parts of the brain is widely accepted today
- (B) of different mental functions that are localized in different parts of the brain is widely accepted today
- (C) that different mental functions are localized in different parts of the brain is widely accepted today
- (D) which is that there are different mental functions localized in different parts of the brain is widely accepted today
- (E) which is widely accepted today is that there are different mental functions localized in different parts of the brain

11. Though the term "graphic design" may suggest laying out corporate brochures and annual reports, they have come to signify widely ranging work, from package designs and company logotypes to signs, book jackets, computer graphics, and film titles.

- (A) suggest laying out corporate brochures and annual reports, they have come to signify widely ranging
- (B) suggest laying out corporate brochures and annual reports, it has come to signify a wide range of
- (C) suggest corporate brochure and annual report layout, it has signified widely ranging
- (D) have suggested corporate brochure and annual report layout, it has signified a wide range of
- (E) have suggested laying out corporate brochures and annual reports, they have come to signify widely ranging

12. The root systems of most flowering perennials either become too crowded, which results in loss in vigor, and spread too far outward, producing a bare center.

- (A) which results in loss in vigor, and spread
- (B) resulting in loss in vigor, or spreading
- (C) with the result of loss of vigor, or spreading
- (D) resulting in loss of vigor, or spread
- (E) with a resulting loss of vigor, and spread.

13. George Sand (Aurore Lucile Dupin) was one of the first European writers to consider the rural poor to be legitimate subjects for literature and portray these with sympathy and respect in her novels.

- (A) to be legitimate subjects for literature and portray these
- (B) should be legitimate subjects for literature and portray these
- (C) as being legitimate subjects for literature and portraying them.
- (D) as if they were legitimate subjects for literature and portray them

- 
- (E) legitimate subjects for literature and to portray them
14. Salt deposits and moisture threaten to destroy the Mohenjo-Daro excavation in Pakistan, the site of an ancient civilization that flourished at the same time as the civilizations in the Nile delta and the river valleys of the Tigris and Euphrates.
- (A) that flourished at the same time as the civilizations
  - (B) that had flourished at the same time as had the civilizations
  - (C) that flourished at the same time those had
  - (D) flourishing at the same time as those did
  - (E) flourishing at the same time as those were
15. In 1973 mortgage payments represented twenty-one percent of an average thirty-year-old male's income; and forty-four percent in 1984.
- (A) income; and forty-four percent in 1984
  - (B) income; in 1984 the figure was forty-four percent
  - (C) income, and in 1984 forty-four percent
  - (D) income, forty-four percent in 1984 was the figure
  - (E) income that rose to forty-four percent in 1984
16. In contrast to large steel plants that take iron ore through all the steps needed to produce several different kinds of steel, processing steel scrap into a specialized group of products has enabled small mills to put capital into new technology and remain economically viable.
- (A) processing steel scrap into a specialized group of products has enabled small mills to put capital into new technology and remain
  - (B) processing steel scrap into a specialized group of products has enabled small mills to put capital into new technology, remaining
  - (C) the processing of steel scrap into a specialized group of products has enabled small mills to put capital into new technology, remaining
  - (D) small mills, by processing steel scrap into a specialized group of products, have been able to put capital into new technology and remain
  - (E) small mills, by processing steel scrap into a specialized group of products, have been able to put capital into new technology and remained
17. Any medical test will sometimes fail to detect a condition when it is present and that there is one when it is not.
- (A) a condition when it is present and indicate that there is one
  - (B) when a condition is present and indicate that there is one
  - (C) a condition when it is present and indicate that it is present
  - (D) when a condition is present and indicate its presence
  - (E) the presence of a condition when it is there and indicate its presence
18. One legacy of Madison Avenue's recent campaign to appeal to people fifty years old and over is the realization that as a person ages, their concerns change as well.
- (A) the realization that as a person ages, their
  - (B) the realization that as people age, their
  - (C) to realize that when a person ages, his or her
  - (D) to realize that when people age, their

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- (E) realizing that as people age, their
19. Out of America's fascination which all things antique have grown a market for bygone styles of furniture and fixtures that are bringing back the chaise lounge, the overstuffed sofa, and the claw-footed bathtub.
- (A) things antique have grown a market for bygone styles of furniture and fixtures ~~have~~ bringing  
(B) things antique has grown a market for bygone styles of furniture and fixtures that ~~is~~ bringing  
(C) things that are antiques has grown a market for bygone styles of furniture ~~and~~ fixtures that bring  
(D) antique things have grown a market for bygone styles of furniture and fixtures ~~have~~ bringing  
(E) antique things has grown a market for bygone styles of furniture and fixtures ~~that~~ bring
20. Having the right hand and arm being crippled by a sniper's bullet during the First World War. Horace Pippin, a Black American painter, worked by holding the brush in his ~~right~~ hand and guiding its movements with his left.
- (A) Having the right hand and arm being crippled by a sniper's bullet during the ~~First~~ World War  
(B) In spite of his right hand and arm being crippled by a sniper's bullet during the ~~First~~ World War  
(C) Because there had been a sniper's bullet during the First World War that crippled ~~his~~ right hand and arm  
(D) The right hand and arm being crippled by a sniper's bullet during the ~~First World~~ War  
(E) His right hand and arm crippled by a sniper's bullet during the First World War.
21. Beyond the immediate cash flow crisis that the museum faces, its survival depends on it can broaden its membership and leave its cramped quarters for a site where it can store and exhibit its more than 12,000 artifacts.
- (A) if it can broaden its membership and leave  
(B) whether it can broaden its membership and leave  
(C) whether or not it has the capability to broaden its membership and can leave  
(D) its ability for broadening its membership and leaving  
(E) the ability for it to broaden its membership and leave
22. The Emperor Augustus, it appears, commissioned an idealized sculptured portrait, the features of which are so unrealistic as to constitute what one scholar calls an "artificial face."
- (A) so unrealistic as to constitute  
(B) so unrealistic they constituted  
(C) so unrealistic that they have constituted  
(D) unrealistic enough so that they constitute  
(E) unrealistic enough so as to constitute
23. A recent national study of the public schools shows that there are now one microcomputer for every thirty-two pupils, four times as many than there were ~~in~~



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years ago.

- (A) there are now one microcomputer for every thirty-two pupils, four times as many than there were
  - (B) there is now one microcomputer for every thirty-two pupils, four times as many than there were
  - (C) there is now one microcomputer for every thirty-two pupils, four times as many there were
  - (D) every thirty-two pupils now have one microcomputer, four times as many than there were
  - (E) every thirty-two pupils now has one microcomputer, four times as many as
24. Since 1986 when the Department of Labor began to allow investment officers' fees to be based on how the funds they manage perform, several corporations began paying their investment advisers a small basic fee, with a contract promising higher fees if the managers perform well.
- (A) investment officers' fees to be based on how the funds they manage perform, several corporations began
  - (B) investment officers' fees to be based on the performance of the funds they manage, several corporations began
  - (C) that fees of investment officers be based on how the funds they manage perform, several corporations have begun.
  - (D) fees of investment officers to be based on the performance of the funds they manage, several corporations have begun
  - (E) that investment officers' fees be based on the performance of the funds they manage, several corporations began
25. Like many self-taught artists, Perle Hessing did not begin to paint until she was well into middle age.
- (A) Like
  - (B) As have
  - (C) Just as with
  - (D) Just like
  - (E) As did
26. Never before had taxpayers confronted so many changes at once as they had in the Reform Act of 1986.
- (A) so many changes at once as they had in
  - (B) at once as many changes as
  - (C) at once as many changes that there were with
  - (D) as many changes at once as they confronted in
  - (E) so many changes at once that confronted them in
27. It is well known in the supermarket industry that how items are placed on shelves and the frequency of inventory turnovers can be crucial to profits.
- (A) the frequency of inventory turnovers can be
  - (B) the frequency of inventory turnovers is often
  - (C) the frequency with which the inventory turns over is often
  - (D) how frequently is the inventory turned over are often

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(E) how frequently the inventory turns over can be

**SENTENCE CORRECTION TEST SECTION 9**

**30 Minutes 25 Questions**

1. The psychologist William James believed that facial expressions not only provide a visible sign of an emotion, actually contributing to the feeling itself.
  - (A) emotion, actually contributing to the feeling itself
  - (B) emotion but also actually contributing to the feeling itself
  - (C) emotion but also actually contribute to the feeling itself
  - (D) emotion; they also actually contribute to the feeling of it
  - (E) emotion; the feeling itself is also actually contributed to by them
2. Along with the drop in producer prices announced yesterday, the strong retail sales figures released today seem like it is indicative that the economy, although growing slowly, is not nearing a recession.
  - (A) like it is indicative that
  - (B) as if to indicate
  - (C) to indicate that
  - (D) indicative of
  - (E) like an indication of
3. The National Transportation Safety Board has recommended the use of fail-safe mechanisms on airliner cargo door latches assuring the doors are properly closed before takeoff and to prevent them from popping open in flight.
  - (A) assuring the doors are properly closed
  - (B) for the assurance of proper closing
  - (C) assuring proper closure
  - (D) to assure closing the doors properly
  - (E) to assure that the doors are properly closed
4. Iguanas have been an important food source in Latin America since prehistoric times, it is still prized as a game animal by the campesinos, who typically cook the meat in a heavily spiced stew.
  - (A) it is still prized as a game animal
  - (B) it is still prized as game animals
  - (C) they are still prized as game animals
  - (D) they are still prized as being a game animal
  - (E) being still prized as a game animal
5. The financial crash of October 1987 demonstrated that the world's capital markets are integrated more closely than never before and events in one part of the global village may be transmitted to the rest of the village—almost instantaneously.
  - (A) integrated more closely than never before and
  - (B) closely integrated more than ever before so
  - (C) more closely integrated as never before while
  - (D) more closely integrated than ever before and that
  - (E) more than ever before closely integrated as

- 
6. New theories propose that catastrophic impacts of asteroids and comets may have ~~d~~ reversals in the Earth's magnetic field, the onset of ice ages, splitting apart continents ~~o~~ million years ago, and great volcanic eruptions.
- (A) splitting apart continents
  - (B) the splitting apart of continents
  - (C) split apart continents
  - (D) continents split apart
  - (E) continents that were split apart
7. Wisconsin, Illinois, Florida, and Minnesota have begun to enforce statewide ~~h~~ prohibiting landfills to accept leaves, brush, and grassclippings.
- (A) prohibiting landfills to accept leaves, brush, and grassclippings
  - (B) prohibiting that landfills accept leaves, brush, and grassclippings.
  - (C) prohibiting landfills from accepting leaves, brush, and grassclippings
  - (D) that leaves, brush, and grass clippings cannot be accepted in ~~h~~(E)
  - (E) that landfills cannot accept leaves, brush, and grassclippings.
8. Even though the direct costs of malpractice disputes amounts to a sum lower than ~~o~~ percent of the \$541 billion the nation spent on health care last year, doctors say fear ~~o~~ lawsuits plays major role in health-care inflation.
- (A) amounts to a sum lower
  - (B) amounts to less
  - (C) amounted to less
  - (D) amounted to lower
  - (E) amounted to a lower sum
9. Except for a concert performance that the composer himself staged in 1911, Scott Joplin's ragtime opera *Treemonisha* was not produced until 1972, sixty-one years after its completion.
- (A) Except for a concert performance that the composer himself staged
  - (B) Except for a concert performance with the composer himself staging it
  - (C) Besides a concert performance being staged by the composer himself
  - (D) Excepting a concert performance that the composer himself staged
  - (E) With the exception of a concert performance with the staging done by the composer himself
10. Students in the metropolitan school district lack math skills to such a large degree as to make it difficult to absorb them into a city economy becoming ever more dependent ~~o~~ information-based industries.
- (A) lack math skills to such a large degree as to make it difficult to absorb them into a city economy becoming
  - (B) lack math skills to a large enough degree that they will be difficult to absorb into a city's economy that becomes
  - (C) lack of math skills is so large as to be difficult to absorb them into a city's ~~o~~ that becomes
  - (D) are lacking so much in math skills as to be difficult to absorb into a city's ~~o~~ economy becoming
  - (E) are so lacking in math skills that it will be difficult to absorb them into a city

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economy becoming

11. The diet of the ordinary Greek in classical times was largely vegetarian—vegetables, fresh cheese, oatmeal, and meal cakes, and meat rarely.
- (A) and meat rarely
  - (B) and meat was rare
  - (C) with meat as rare
  - (D) meat a rarity
  - (D)with meat as a rarity
12. An inventory equal to 90 days sales is as much as even the strongest businesses carry, **d** then only as a way to anticipate higher prices or ensure against shortages.
- (A) as much as even
  - (B) so much as even
  - (C) even so much as
  - (D) even as much that
  - (E) even so much that
13. The decision by one of the nation's largest banks to admit to \$3 billion in potential losses on foreign loans could mean less lending by commercial banks to developing countries and increasing the pressure on multigovernment lenders to supply the **f**
- (A) increase the pressure
  - (B) the increasing pressure
  - (C) increased pressure
  - (D) the pressure increased
  - (E) the pressure increasing
14. Downzoning, zoning that typically results in the reduction of housing density, allows **6** more open space in areas where little water or services exist.
- (A) little water or services exist
  - (B) little water or services exists
  - (C) few services and little water exists
  - (D) there is little water or services available
  - (E) there are few services and little available water
15. Reporting that one of its many problems had been the recent extended sales slump in women's apparel, the seven-store retailer said it would start a three month liquidation sale in all of its stores.
- (A) its many problems had been the recent
  - (B) its many problems has been the recently
  - (C) its many problems is the recently
  - (D) their many problems is the recent
  - (E) their many problems had been the recent
16. Legislation in the Canadian province of Ontario requires of both public and private employers that pay be the same for jobs historically held by women as for jobs requiring comparable skill that are usually held by men.
- (A) that pay be the same for jobs historically held by women as for jobs requiring

- 
- comparable skill that are
- (B) that pay for jobs historically held by women should be the same as for a job requiring comparable skills
  - (C) to pay the same in jobs historically held by women as in jobs of comparable skill that are
  - (D) to pay the same regardless of whether a job was historically held by women or is a demanding comparable skills
  - (E) to pay as much for jobs historically held by women as for a job demanding comparable skills
17. It has been estimated that the annual cost to the United States of illiteracy in lost industrial output and tax revenues is at least \$20 billion a year.
- (A) the annual cost to the United States of illiteracy in lost industrial output and tax revenues is at least \$20 billion a year
  - (B) the annual cost of illiteracy to the United States is at least \$20 billion a year of lost industrial output and tax revenues
  - (C) illiteracy costs the United States at least \$20 billion a year in lost industrial and tax revenues
  - (D) \$20 billion a year in lost industrial output and tax revenues is the annual cost to the United States of illiteracy
  - (E) lost industrial output and tax revenues cost the United States at least \$20 billion a year because of illiteracy
18. Egyptians are credited as having pioneered embalming methods as long ago as 2650 B.C.
- (A) as having
  - (B) with having
  - (C) to have
  - (D) as the ones who
  - (E) for being the ones who
19. Domestic automobile manufacturers have invested millions of dollars into research to develop cars more gasoline-efficient even than presently on the road.
- (A) into research to develop cars more gasoline-efficient even than presently on the road
  - (B) into research for developing even more gasoline-efficient cars on the road than a present
  - (C) for research for cars to be developed that are more gasoline-efficient even than presently on the road.
  - (D) in research to develop cars even more gasoline-efficient than those at present on the road
  - (E) in research for developing cars that are even more gasoline-efficient than presently on the road
20. Visitors to the park have often looked up into the leafy canopy and saw monkeys sleeping on the branches, whose arms and legs hang like socks on a clothesline.
- (A) saw monkeys sleeping on the branches, whose arms and legs hang
  - (B) saw monkeys sleeping on the branches, whose arms and legs were hanging
  - (C) saw monkeys sleeping on the branches, with arms and legs hanging
  - (D) seen monkeys sleeping on the branches, with arms and legs hanging

- 
- (E) seen monkeys sleeping on the branches, whose arms and legs have hung
21. From the bark of the paper birch tree the Menomini crafted a canoe about twenty feet long and two feet wide, with small ribs and rails of cedar, which could carry four persons or eight hundred pounds of baggage so light that a person could easily portage it around impeding rapids.
- (A) baggage so light  
(B) baggage being so light  
(C) baggage, yet being so light  
(D) baggage, and so light  
(E) baggage yet was so light
22. From the time of its defeat by the Germans in 1940 until its liberation in 1944, France was a bitter and divided country; a kind of civil war raged in the Vichy government between those who wanted to collaborate with the Nazis with those who opposed them.
- (A) between those who wanted to collaborate with the Nazis with those who opposed  
(B) between those who wanted to collaborate with the Nazis and those who opposed  
(C) between those wanting to collaborate with the Nazis with those opposing  
(D) among those who wanted to collaborate with the Nazis and those who opposed  
(E) among those wanting to collaborate with the Nazis with those opposing
23. Those who come to church with a predisposition to religious belief will be happy in a auditorium or even a storefront, and there is no doubt that religion is sometimes better served by adapted spaces of this kind instead of by some of the buildings actually designed for it.
- (A) adapted spaces of this kind instead of by some of the buildings actually designed for it  
(B) adapted spaces like these rather than some of the buildings actually designed for them  
(C) these adapted spaces instead of by some of the buildings actually designed for it  
(D) such adapted spaces rather than by some of the buildings actually designed for them  
(E) such adapted spaces than by some of the buildings actually designed for it
24. A firm that specializes in the analysis of handwriting claims from a one-page writing sample that it can assess more than three hundred personality traits, including enthusiasm, imagination, and ambition.
- (A) from a one-page writing sample that it can assess  
(B) from a one-page writing sample it has the ability of assessing  
(C) the ability, from a one-page writing sample, of assessing  
(D) to be able, from a one-page writing sample, to assess  
(E) being able to assess, from a one-page writing sample,
25. The question of whether to divest themselves of stock in companies that do business in South Africa is particularly troublesome for the nation's 116 private Black colleges because their economic bases are often more fragile than most predominantly White colleges.
- (A) than  
(B) than those of

- 
- (C) than is so of  
(D) compared to  
(E) compared to those of
26. Executives and federal officials say that the use of crack and cocaine is growing rapidly among workers, significantly compounding the effects of drug and alcohol abuse, which already are a cost to business of more than \$100 billion a year.
- (A) significantly compounding the effects of drug and alcohol abuse, which already are a cost to business of  
(B) significantly compounding the effects of drug and alcohol abuse, which already cost business  
(C) significantly compounding the effects of drug and alcohol abuse, already with business costs of  
(D) significant in compounding the effects of drug and alcohol abuse, and already costing business  
(E) significant in compounding the effects of drug and alcohol abuse, and already cost business
27. The Parthenon was a church from 1204 until 1456, when Athens was taken by General Mohammed the Conqueror, the Turkish sultan, who established a mosque in the building and used the Acropolis as a fortress.
- (A) who established a mosque in the building and used the Acropolis as  
(B) who, establishing a mosque in the building, used the Acropolis like  
(C) who, when he had established a mosque in the building, used the Acropolis like  
(D) who had established a mosque in the building, using the Acropolis to be  
(E) establishing a mosque in the building and using the Acropolis as

### SENTENCE CORRECTION TEST SECTION 10

30 Minutes 25 Questions

1. The Baldrick Manufacturing Company has for several years followed a policy aimed at decreasing operating costs and improving the efficiency of its distribution system.
- (A) aimed at decreasing operating costs and improving  
(B) aimed at the decreasing of operating costs and to improve  
(C) aiming at the decreasing of operating costs and improving  
(D) the aim of which is the decreasing of operating costs and improving  
(E) with the aim to decrease operating costs and to improve
2. *The Federalist* papers, a strong defense of the United States Constitution and important a body of work in political science as well, represents the handiwork of three different authors.
- (A) and important as a body of work in political science as well, represents  
(B) as well as an important body of work in political science, represent  
(C) and also a body of work of importance in political science is representing  
(D) an important body of work in political science and has been representative of  
(E) and as political science an important body of work too, represent

- 
3. Although the term “psychopath” is popularly applied to an especially brutal criminal, in psychology it is someone who is apparently incapable of feeling compassion or the pangs of conscience.
- (A) it is someone who is
  - (B) it is a person
  - (C) they are people who are
  - (D) it refers to someone who is
  - (E) it is in reference to people
4. A representative of the Women’s Bureau of the United States Department of Labor contends that employers who offer benefits which permit that employees can balance home and work responsibilities better, realizing gains in attendance, recruiting, and retention.
- (A) which permit that employees can balance home and work responsibilities better, realizing
  - (B) which permit employees balancing home and work responsibilities better will realize
  - (C) that permit employees to balance the responsibilities of home and work better will realize
  - (D) that permit employees a better balance between the responsibilities of home and work, thus realizing
  - (E) such that employees are permitted a balance between home and work ~~and~~ and they will realize
5. Parliament did not accord full refugee benefits to twelve of the recent immigrants because it believed that to do it rewards them for entering the country illegally.
- (A) to do it rewards
  - (B) doing it rewards
  - (C) to do this would reward
  - (D) doing so would reward
  - (E) to do it would reward
6. Many policy experts say that shifting a portion of health-benefit costs back to the workers helps to control the employer’s costs, but also helps to limit medical spending by making patients more careful consumers.
- (A) helps to control the employer’s costs, but also helps
  - (B) helps the control of the employer’s costs, and also
  - (C) not only helps to control the employer’s costs, but also helps
  - (D) helps to control not only the employer’s costs, but
  - (E) not only helps to control the employer’s costs, and also helps
7. The plot of *The Bostonians* centers on the rivalry between Olive Chancellor, an active feminist, with her charming and cynical cousin, Basil Ransom, when they find themselves drawn to the same radiant young woman whose talent for public speaking ~~h~~ won her an ardent following.
- (A) rivalry between Olive Chancellor, an active feminist, with her charming and cynical cousin, Basil Ransom
  - (B) rivals Olive Chancellor, an active feminist, against her charming and cynical cousin, Basil Ransom
  - (C) rivalry that develops between Olive Chancellor, an active feminist, and Basil Ransom,



- 
- her charming and cynical cousin
- (D) developing rivalry between Olive Chancellor, an active feminist, with Basil Ransom, her charming and cynical cousin
- (E) active feminist, Olive Chancellor, and the rivalry with her charming and cynical cousin Basil Ransom
8. Despite protests from some waste-disposal companies, state health officials have ordered the levels of bacteria in seawater at popular beaches to be measured and that the results be published.
- (A) the levels of bacteria in seawater at popular beaches to be measured and that the results be
- (B) that seawater at popular beaches should be measured for their levels of bacteria, with the results being.
- (C) the measure of levels of bacteria in seawater at popular beaches and the results to be
- (D) seawater measured at popular beaches for levels of bacteria, with their results
- (E) that the levels of bacteria in seawater at popular beaches be measured and the results.
9. While larger banks can afford to maintain their own data-processing operations, many smaller regional and community banks are finding that the cost associated with upgrading data-processing equipment and with the development and maintenance of new products and technical staff are prohibitive.
- (A) cost associated with
- (B) costs associated with
- (C) costs arising from
- (D) cost of
- (E) costs of
10. For almost a hundred years after having its beginning in 1788. England exiled some 160,000 criminals to Australia.
- (A) For almost a hundred years after having its beginning in 1788.
- (B) Beginning in 1788 for a period of a hundred years.
- (C) Beginning a period of almost a hundred years, in 1788
- (D) During a hundred years, a period beginning in 1788.
- (E) Over a period of a hundred years beginning in 1788.
11. Eating saltwater fish may significantly reduce the risk of heart attacks and also aid sufferers of rheumatoid arthritis and asthma, according to three research studies published in the *New England Journal of Medicine*.
- (A) significantly reduce the risk of heart attacks and also aid for
- (B) be significant in reducing the risk of heart attacks and aid for
- (C) significantly reduce the risk of heart attacks and aid
- (D) cause a significant reduction in the risk of heart attacks and aid to
- (E) significantly reduce the risk of heart attacks as well as aiding
12. By a vote of 9 to 0, the Supreme Court awarded the Central Intelligence Agency discretionary powers enabling it to withhold from the public the identities of its sources of intelligence information.
- (A) enabling it to withhold from the public

- 
- (B) for it to withhold from the public  
(C) for withholding disclosure to the public of  
(D) that enable them to withhold from public disclosure  
(E) that they can withhold public disclosure of
13. As business grows more complex, students majoring in specialized areas like those of finance and marketing have been becoming increasingly successful in the job market.
- (A) majoring in specialized areas like those of finance and marketing have ~~h~~ becoming increasingly  
(B) who major in such specialized areas as finance and marketing are becoming ~~more and more~~  
(C) who majored in specialized areas such as those of finance and marketing are ~~being~~ increasingly  
(D) who major in specialized areas like those of finance and marketing have ~~h~~ becoming more and more  
(E) having majored in such specialized areas as finance and marketing are ~~being~~ increasingly
14. Inuits of the Bering Sea were in isolation from contact with Europeans longer than Aleuts or Inuits of the North Pacific and northern Alaska.
- (A) in isolation from contact with Europeans longer than  
(B) isolated from contact with Europeans longer than  
(C) in isolation from contact with Europeans longer than were  
(D) isolated from contact with Europeans longer than were  
(E) in isolation and without contacts with Europeans longer than
15. Once the economic and social usefulness of the motor car was demonstrated and with its superiority to the horse being proved, much of the early hostility to it in rural regions disappeared.
- (A) and with its superiority to the horse being  
(B) and its superiority over the horse had been  
(C) and its superiority to the horse  
(D) its superiority over the horse  
(E) with its superiority to the horse having been
16. Minnesota is the only one of the contiguous forty-eight states that still has a sizable wolf population, and where this predator remains the archenemy of cattle and sheep.
- (A) that still has a sizable wolf population, and where  
(B) that still has a sizable wolf population, where  
(C) that still has a sizable population of wolves, and where  
(D) where the population of wolves is still sizable;  
(E) where there is still a sizable population of wolves and where
17. Pablo Picasso, the late Spanish painter, credited African art with having had a strong influence on his work.
- (A) with having had  
(B) for its having  
(C) to have had

- 
- (D) for having  
(E) in that it had
18. Judicial rules in many states require that the identities of all prosecution witnesses are made known to defendants so they can attempt to rebut the testimony, but the Constitution explicitly requires only that the defendant have the opportunity to ~~can~~ accuse in court.
- (A) that the identities of all prosecution witnesses are made known to defendants so ~~they~~ can attempt to rebut  
(B) that the identities of all prosecution witnesses be made known to defendants so ~~it~~ they can attempt to rebut  
(C) that the defendants should know the identities of all prosecution witnesses so ~~they~~ attempt a rebuttal of  
(D) the identities of all prosecution witnesses should be made known to defendants so ~~they~~ can attempt rebutting  
(E) making known to defendants the identities of all prosecution witnesses so that they ~~can~~ attempt to rebut
19. Quasars, at billions of light-years from Earth the most distant observable objects in ~~the~~ universe, believed to be the cores of galaxies in an early stage of development.
- (A) believed to be  
(B) are believed to be  
(C) some believe them to be  
(D) some believe they are  
(E) it is believed that they are
20. The colorization of black-and-white films by computers is defended by those who ~~own~~ the film rights, for the process can mean increased revenues for them; many others in the film industry, however, contend that the technique degrades major works of art, which they liken to putting lipstick on a Greek statue.
- (A) which they liken to putting lipstick on a Greek statue  
(B) which they liken to a Greek statue with lipstick put on it  
(C) which they liken to lipstick put on a Greek statue  
(D) likening it to a Greek statue with lipstick put on it  
(E) likening it to putting lipstick on a Greek statue
21. In reference to the current hostility toward smoking, smokers frequently ~~anxiety~~ that their prospects for being hired and promoted are being stunted by their habit.
- (A) In reference to the current hostility toward smoking, smokers frequently ~~anxiety~~ that  
(B) Referring to the current hostility toward smoking, smokers frequently ~~anxiety~~ about  
(C) when referring to the current hostility toward smoking, smokers frequently ~~anxiety~~ about  
(D) With reference to the current hostility toward smoking, smokers frequently expressed anxiety about  
(E) Referring to the current hostility toward smoking, smokers frequently ~~anxiety~~ anxiety that

- 
22. Ms. Chambers is among the forecasters who predict that the rate of addition to arable lands will drop while those of loss rise.
- (A) those of loss rise
  - (B) it rises for loss
  - (C) those of losses rise
  - (D) the rate of loss rises
  - (E) there are rises for the rate of loss
23. Unlike auto insurance, the frequency of claims does not affect the premiums for personal property coverage, but if the insurance company is able to prove excessive loss due to owner negligence, it may decline to renew the policy.
- (A) Unlike auto insurance, the frequency of claims does not affect the premiums for personal property coverage
  - (B) Unlike with auto insurance, the frequency of claims do not affect the premiums for personal property coverage
  - (C) Unlike the frequency of claims for auto insurance, the premiums for personal property coverage are not affected by the frequency of claims
  - (D) Unlike the premiums for auto insurance, the premiums for personal property coverage are not affected by the frequency of claims
  - (E) Unlike with the premiums for auto insurance, the premiums for personal property coverage is not affected by the frequency of claims
24. Recently implemented “shift-work equations” based on studies of the human sleep cycle have reduced sickness, sleeping on the job, fatigue among shift workers, and have raised production efficiency in various industries.
- (A) fatigue among shift workers, and have raised
  - (B) fatigue among shift workers, and raised
  - (C) and fatigue among shift workers while raising
  - (D) lowered fatigue among shift workers, and raised
  - (E) and fatigue among shift workers was lowered while raising
25. The physical structure of the human eye enables it to sense light of wavelengths up to 0.0005 millimeters; infrared radiation, however, is invisible because its wavelength—0.1 millimeters—is too long to be registered by the eye.
- (A) infrared radiation, however, is invisible because its wavelength—0.1 millimeters—is too long to be registered by the eye
  - (B) however, the wavelength of infrared radiation—0.1 millimeters—is too long to be registered by the eye making it invisible
  - (C) infrared radiation, however, is invisible because its wavelength—0.1 millimeters—is too long for the eye to register it
  - (D) however, because the wavelength of infrared radiation is 0.1 millimeters, it is too long for the eye to register and thus invisible
  - (E) however, infrared radiation has a wavelength of 0.1 millimeters that is too long for the eye to register, thus making it invisible
26. Spanning more than fifty years, Friedrich Muller began his career in an unpromising apprenticeship as a Sanskrit scholar and culminated in virtually every honor that European governments and learned societies could bestow.

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- (A) Muller began his career in an unpromising apprenticeship as  
(B) Muller's career began in an unpromising apprenticeship as  
(C) Muller's career began with the unpromising apprenticeship of being  
(D) Muller had begun his career with the unpromising apprenticeship of being  
(E) the career of Muller has begun with an unpromising apprenticeship of
27. The Coast guard is conducting tests to see whether pigeons can be trained to help find survivors of wrecks at sea.
- (A) to see whether pigeons can be trained to help find  
(B) to see whether pigeons can be trained as help to find  
(C) to see if pigeons can be trained for helping to find  
(D) that see if pigeons are able to be trained in helping to find.  
(E) that see whether pigeons are able to be trained for help in finding

### SENTENCE CORRECTION TEST SECTION 11

30 Minutes 27 Questions

1. One of the most powerful driving forces behind recycling is the threat of legislation ~~that~~ would require companies that they take more responsibility for the disposal of its products.
- (A) that they take more responsibility for the disposal of its products  
(B) that they should take more responsibility for disposing of products  
(C) having to take more responsibility for disposing of their products  
(D) to take more responsibility for the disposal of their products  
(E) taking more responsibility for their product's disposal
2. Poor management, outdated technology, competition from overseas, and steel's replacement to materials like aluminum and fiber-reinforced plastics have all been cited as causes for the decline of the United States steel industry.
- (A) steel's replacement to materials like  
(B) the replacement of steel by such materials as  
(C) the replacing of steel with materials of  
(D) the replacing of steel by means of materials like  
(E) to replace steel by materials such as
3. The evolution of the technology of microelectronics over the past decade has been so rapid that it is sometimes called a revolution.
- (A) has been so rapid that it is sometimes  
(B) has been rapid enough sometimes to be  
(C) has been rapid enough it is sometimes  
(D) is so rapid it has sometimes been  
(E) is so rapid that it is sometimes
4. Comparing the Quechans with other Native Americans of the Southwest, the Quechans were singularly uninterested in the accumulation of material wealth or in the crafting of elaborate pottery and basketry.

- 
- (A) Comparing the Quechans with other Native Americans of the Southwest, **h**  
Quechans
- (B) When you compare the Quechans to other Native Americans of the Southwest,  
they
- (C) When other Native Americans of the Southwest are compared to the Quechans,  
they
- (D) Comparison to other Native Americans of the Southwest shows that the Quechans
- (E) Compared with other Native Americans of the Southwest, the Quechans
5. Contrary to popular belief, victors in the ancient Greek Olympic Games received **h**  
prizes in addition to their laurel wreaths.
- (A) Contrary to
- (B) In contrast with
- (C) Opposite of
- (D) Unlike
- (E) In spite of
6. The guiding principles of the tax plan released by the Treasury Department could **hæ**  
even a greater significance for the economy than the particulars of the plan.
- (A) even a greater significance for the economy than
- (B) a significance that is even greater for the economy than
- (C) even greater significance for the economy than have
- (D) even greater significance for the economy than do
- (E) a significance even greater for the economy than have
7. One noted economist has made a comparison of the Federal Reserve and an automobile  
as racing through a tunnel, bouncing first off one wall, then the other; the car may get  
where it is going, but people may be hurt in the process.
- (A) made a comparison of the Federal Reserve and an automobile as racing through a  
tunnel, bouncing
- (B) made a comparison between the Federal Reserve and an automobile racing  
through a tunnel, bouncing
- (C) compared the Federal Reserve with an automobile as racing through a tunnel **and**  
which bounced
- (D) compared the Federal Reserve to an automobile racing through a tunnel, bouncing
- (E) compared the Federal Reserve with an auto mobile that races through a tunnel **and**  
bounces
8. The demand for airplane mechanics is expected to grow about ten percent a year inte  
next decade, largely because new federal rules calling for major modifications to older

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planes and because the airlines are adding hundreds of new jets.

- (A) new federal rules calling for major modifications to older planes
  - (B) new federal rules, which call for major modifications to older planes
  - (C) new federal rules call for major modifications to older planes
  - (D) major modifications to older planes called for by new federal rules
  - (E) major modifications to older planes are called for according to new federal rules
9. The proposed urban development zones do not represent a new principle; it was employed in "Operation Bootstrap" in Puerto Rico.
- (A) do not represent a new principle; it
  - (B) represent not a new principle, but one that
  - (C) are not a new principle; the same one
  - (D) are not a new principle, but one that
  - (E) are not new in principle; it
10. The report on the gross national product---the nation's total production of goods and services---showed that second-quarter inflation was somewhat lower than a previous estimation and the savings rate slightly higher.
- (A) a previous estimation and the savings rate slightly higher.
  - (B) a previous estimation and with a slightly higher savings rate
  - (C) a previous estimate and that the savings rate is slightly higher
  - (D) previously estimated and a slightly higher savings rate
  - (E) previously estimated and that the savings rate was slightly higher
11. The lack of complete historical records from the mid-to-late 1800's have made some Black inventions difficult to trace to their originators.
- (A) have made some Black inventions difficult to trace to their originators.
  - (B) have made for difficulties in tracing some inventions by Blacks to their originators
  - (C) have made it difficult to trace some inventions by Blacks to their originators
  - (D) has made it difficult to trace some inventions to their Black originators
  - (E) has made it difficult in tracing some Black inventions to their originators
12. Alaska regularly deposits some of its profits from the sale of oil into a special fund, with the intention to sustain the state's economy after the exhaustion of its oil reserves.
- (A) fund, with the intention to sustain the state's economy after the exhaustion of its oil reserves.
  - (B) fund, the intention of which is to sustain the state's economy after they have exhausted their oil reserves
  - (C) fund intended to sustain the state's economy after oil reserves are exhausted
  - (D) fund intended to sustain the state's economy after exhausting its oil reserves
  - (E) fund that they intend to sustain the state's economy after oil reserves are exhausted

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13. The nation's three military academies have seen a dramatic rise in applications, one fueled by a resurgence of patriotism, increasing tuition costs at private colleges, and improved recruiting by the academies.
- (A) one fueled by a resurgence of patriotism, increasing tuition costs at private colleges, and improved recruiting by the academies.
  - (B) one fueled by a resurgence of patriotism, tuition costs that have increased at private colleges, and academies improving their recruiting
  - (C) one fueled by a resurgence of patriotism, private colleges that increased tuition costs, and recruiting improvements by the academies
  - (D) fueled by a resurgence of patriotism, tuition costs increasing at private colleges and academies improving their recruiting
  - (E) fueled by a resurgence of patriotism, increasing tuition costs at private colleges and academies improving their recruiting
14. In the late seventh century, in a dispute over whether the Prophet Muhammad's son-in-law, Ali, should carry on as the fourth caliph, Muhammad's successor, Islam split into two branches, the Sunnis and the Shiites.
- (A) over whether the Prophet Muhammad's son-in-law, Ali, should carry on as the fourth caliph, Muhammad's successor
  - (B) over if Ali, the Prophet Muhammad's son-in-law, was going to carry on and be the fourth caliph, Muhammad's successor
  - (C) over whether Ali, the Prophet Muhammad's son-in-law, was going to carry on as the fourth caliph, Muhammad's successor
  - (D) as to whether the fourth caliph, Muhammad's successor, is to be the Prophet Muhammad's son-in-law, Ali
  - (E) concerning if the fourth caliph, Muhammad's successor, was to be the Prophet Muhammad's son-in-law, Ali
15. Like John McPhee's works, Ann Beattie painstakingly assembles in her works a interesting and complete world out of hundreds of tiny details about a seemingly uninteresting subject.
- (A) Like John McPhee's works, Ann Beattie painstakingly assembles in her works
  - (B) Like John McPhee, Ann Beattie's works painstakingly assemble
  - (C) Like John McPhee, Ann Beattie painstakingly assembles in her works
  - (D) Just as John McPhee's, so Ann Beattie's works painstakingly assemble
  - (E) Just as John McPhee, Ann Beattie painstakingly assembles in her works
16. Because natural gas is composed mostly of methane, a simple hydrocarbon, vehicles powered by natural gas emit less of certain pollutants than the burning of gasoline or diesel fuel.



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- (A) less of certain pollutants than the burning of gasoline or diesel fuel  
(B) fewer of certain pollutants than burning gasoline or diesel fuel do  
(C) less of certain pollutants than gasoline or diesel fuel  
(D) fewer of certain pollutants than does burning gasoline or diesel fuel  
(E) less of certain pollutants than those burning gasoline or diesel fuel
17. Scientists calculated that the asteroid, traveling at 46,000 miles an hour, is on an elliptical path that orbits the Sun once a year and regularly brings it back toward Earth.
- (A) hour, is on an elliptical path that orbits the Sun once a year and regularly brings it  
(B) hour, is orbiting the Sun once a year on an elliptical path that regularly brings it  
(C) hour, once a year orbits the Sun, regularly bringing it on an elliptical path  
(D) hour and orbiting the Sun once a year on an elliptical path, regularly bringing it  
(E) hour, orbits the Sun on an elliptical path once a year and that regularly brings it
18. It is not likely that the competitive imbalance that now exists between Japan with a major industrial nations will be redressed during the foreseeable future.
- (A) with all major industrial nations will be redressed during  
(B) with all other major industrial nations will be redressed within  
(C) with all other major industrial nations will be redressed during  
(D) and all major industrial nations will be redressed during  
(E) and all other major industrial nations will be redressed within
19. Similar to rising interest rates, consumer and producer prices have been rising.
- (A) Similar to rising interest rates, consumer and producer prices have been rising.  
(B) Consumer and producer prices have been rising, as have interest rates.  
(C) As interest rates are rising, so have consumer and producer prices.  
(D) Consumer and producer prices have been rising, like interest rates do.  
(E) Consumer and producer prices, as interest rates, have been rising.
20. Byron possessed powers of observation that would have made him a great anthropologist and that makes his letters as a group the rival of the best novels of his time.
- (A) makes his letters as a group the rival of  
(B) makes his letters as a group one to rival  
(C) makes his letters a group rivaling  
(D) make his letters as a group the rival of  
(E) make his letters a group which is the rival of
21. Promotions, retirements, deaths, and other actions approved by the board of directors at

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its May meeting will be reported in the July 15 issue of the company paper.

- (A) Promotions, retirements, deaths, and other actions approved by the board of directors at its May meeting will be reported in the July 15 issue of the company paper.
  - (B) Promotions, retirements, and other actions which have been approved at the May meeting of the board of directors along with deaths, will be reported in the July 15 issue of the company paper.
  - (C) To be reported in the July 15 issue of the company paper are the promotions, retirements, deaths, and other actions which were approved at the board of directors' May meeting.
  - (D) Meeting in May, the promotions, retirements, and other actions approved by the board of directors, including obituaries, will be reported in the July 15 issue of the company paper.
  - (E) The July 15 issue of the company paper will report on promotions, retirements, and other actions approved by the board of directors at its May meeting; the issue will also include obituaries.
22. Although fruit can no longer grow once it is picked, it continues for some time to respire, taking in oxygen and giving off carbon dioxide, similar to the way human beings breathe.
- (A) similar to the way human beings breathe.
  - (B) similarly to human beings who are breathing
  - (C) just like the breathing of human beings
  - (D) as human beings when breathing
  - (E) just as human beings do when they breathe
23. In June of 1989, Princeton Township approved a developer's plans to build 300 houses on a large portion of the 210-acre site of the Battle of Princeton, one of only eight Revolutionary War battlefields that had remained undeveloped.
- (A) one of only eight Revolutionary War battlefields that had remained undeveloped.
  - (B) one of eight of the only Revolutionary War battlefields that have remained undeveloped
  - (C) one of the only eight undeveloped Revolutionary War battlefields that remains
  - (D) only one of eight Revolutionary War battlefields to remain undeveloped
  - (E) only one of the eight remaining undeveloped Revolutionary War battlefields
24. The labor agreement permits staff reductions through attrition with increased pension benefits and a special early-retirement program for speeding it up.
- (A) attrition with increased pension benefits and a special early-retirement program for speeding it up.
  - (B) attrition and provides increased pension benefits and a special early-retirement

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- program to speed the attrition process
- (C) attrition, which will be speeded up by providing increased pension benefits and a special early-retirement program
- (D) attrition, which, by their providing increased pension benefits and a special early-retirement program, will speed the process
- (E) attrition, which provides increased pension benefits and a special early-retirement program for speeding the attrition process
25. Water and resource management problems will be at the head of the legislature's list of concerns for the coming session.
- (A) Water and resource management problems
- (B) Problems of managing water and resources
- (C) Problems in the management of water and other resources
- (D) Problems of water and other resource management
- (E) Resource management problems, including water.
26. Once common throughout the Western plains, black-footed ferrets are thought to have declined in number as a result of the poisoning of prairie dogs, their prey.
- (A) black-footed ferrets are thought to have declined in number as
- (B) it is thought that the decline in number of black-footed ferrets is
- (C) the decline in the number of black-footed ferrets is thought of as
- (D) that black-footed ferrets have declined in their numbers is thought to be
- (E) the numbers of the black-footed ferret are thought to have declined as
27. The most favorable locations for the growth of glaciers, rather than being the cold, dry polar regions, would be instead the cool, moist middle latitudes, where there is abundant precipitation and where it is cold enough to allow some snow to accumulate year by year.
- (A) glaciers, rather than being the cold, dry polar regions, would be instead the cool, moist middle latitudes
- (B) glaciers are not the cold, dry polar regions but the cool, moist middle latitudes
- (C) glaciers are the cool, moist middle latitudes rather than the cold, dry polar regions
- (D) glaciers, instead of being the cold, dry polar regions, would be the cool, moist middle latitudes
- (E) glaciers are, instead of the cold, dry polar regions, rather the cool, moist middle latitudes

## SENTENCE CORRECTION TEST SECTION 12

30 Minutes 27 Questions

1. The brochure notes that in the seminar the importance that communication is a two-way

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process will be emphasized.

- (A) importance that communication is a two-way process will be emphasized
  - (B) importance of communication as a two-way process will be emphasized
  - (C) importance of communication being a two-way process will be the emphasis
  - (D) fact will be emphasized that communication is a two-way process and its importance
  - (E) emphasis will be that communication being a two-way process is important
2. In the 1950's astronomers were divided between those who believed the universe began in a cosmic explosion (the "big bang") with those who favored the model of an eternal and infinite steady-state universe.
- (A) universe began in a cosmic explosion (the "big bang") with
  - (B) universe began with a cosmic explosion (the "big bang") and
  - (C) universe had a beginning a cosmic explosion (the "big bang") or
  - (D) universe's beginning was a cosmic explosion (the "big bang") or
  - (E) universe's beginning was a cosmic explosion (the "big bang") against
3. Most large companies prefer customized computer software because it can be molded to fit the way a company does business, when off-the-shelf software often requires the company to alter its procedures to fit the software.
- (A) when
  - (B) since
  - (C) whereas
  - (D) because
  - (E) insofar as
4. Stable interest rates on long-term bonds are the financial market's vote of confidence in the Federal Reserve keeping in control of inflation.
- (A) in the Federal Reserve keeping in control of inflation
  - (B) that the Federal Reserve will keep inflation under control
  - (C) for the Federal Reserve, that it would keep control of inflation
  - (D) that inflation will be kept control of by the Federal Reserve
  - (E) that inflation would be kept control of by the Federal Reserve
5. The Forbidden City in Beijing, from which the emperors ruled by heavenly mandate, was a site which a commoner or foreigner could not enter without any permission, on pain of death.
- (A) which a commoner or foreigner could not enter without any permission,
  - (B) which a commoner or foreigner could enter without any permission only
  - (C) which no commoner or foreigner could enter without permission.

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- (D) which, without permission, neither commoner or foreigner could only enter,  
(E) which, to enter without permission, neither commoner or foreigner could do.

6. Citing evidence that the carbon dioxide content of the atmosphere has increased more than seven percent in the last 30 years, many scientists have expressed a fear of destroying forests and continued use of fossil fuels will cause an irreversible shift in Earth's climatic pattern.

- (A) many scientists have expressed a fear of destroying forests and continued use of  
(B) many scientists have expressed a fear that destruction of forests and continued use of  
(C) many scientists have expressed a fear that destruction of forests and continually using  
(D) a fear that many scientists have expressed is that destroying forests and continually using  
(E) a fear that many scientists have expressed is that destruction of forests and continual using of

- 
7. Rather than continue to produce most of the items necessary for subsistence, a growing number of farm families during the first decades of the nineteenth century began to specialize in the production of grain or cotton and to use the cash proceeds from selling their crops for buying necessities.
- (A) selling their crops for buying
  - (B) the sales of their crops for buying
  - (C) their selling of crops so as to buy
  - (D) their selling crops for buying of
  - (E) the sale of their crops to buy
8. The United States government employs a much larger proportion of women in trade negotiations than any government.
- (A) a much larger proportion of women in trade negotiations than any
  - (B) a much larger proportion of women in trade negotiations than does any other
  - (C) much larger proportions of women in trade negotiations than has any
  - (D) proportions of women in trade negotiations that are much larger than any
  - (E) proportions of women in trade negotiations that are much larger than any other
9. Prompted by new evidence that the health risk posed by radon gas is far more serious than was previously thought, property owners are being advised by authorities to test dwellings below the third floor for radon gas and to make repairs as needed.
- (A) property owners are being advised by authorities to
  - (B) property owners are advised by authorities that they should
  - (C) authorities are advising property owners to
  - (D) authorities are advising property owners they
  - (E) authorities' advice to property owners is they should
10. A migraine typically afflicts one side of the head, lasts for hours or days, and may occur infrequently as once every other month or often, as daily.
- (A) as infrequently as once every other month or often, as
  - (B) as infrequently as once every other month or as often as
  - (C) infrequently, as often as once every other month, or often, like
  - (D) infrequently, like once every other month, or often, like
  - (E) infrequently, like once every other month, or as often as
11. Founded in 1983, the magazine increased its circulation more than double since then and its advertising.

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- (A) increased its circulation more than double since then,  
(B) has since increased its circulation more than double,  
(C) has since more than doubled its circulation  
(D) since then more than doubled its circulation  
(E) more than doubled its circulation since then
12. Although all the proceedings of the Communist party conference held in Moscow were not carried live, Soviet audiences have seen a great deal of coverage.
- (A) all the proceedings of the Communist party conference held in Moscow were ~~n~~ carried live  
(B) all the Communist party conference's Moscow proceedings were not carried live  
(C) all the Communist party conference Moscow proceedings have not been ~~at~~ live  
(D) not all the Communist party conference Moscow proceedings have been ~~at~~ live  
(E) not all the proceedings of the Communist party conference held in Moscow were carried live
13. Some analysts point out that because people are becoming accustomed to a ~~of~~ inflation rate of four to five percent, businesses found that they could raise prices according to this amount without thereby provoking strong public reaction.
- (A) found that they could raise prices according to this amount without ~~thereby~~ provoking  
(B) found that they were capable of raising prices by this amount and not provoke  
(C) find that they are capable of raising prices by this amount and not provoke  
(D) are finding that they can raise prices by this amount without provoking  
(E) are finding that they can raise prices according to this amount and will not ~~by~~ provoke
14. Although it was once funded entirely by the government, the Victoria and Albert Museum was one of the first of Britain's national museums seeking support from corporations and private donors and to increase income by increasing attendance.
- (A) one of the first of Britain's national museums seeking support from  
(B) one of Britain's first national museums seeking support of  
(C) among Britain's first national museums to seek support of  
(D) among the first of Britain's national museums to seek support from  
(E) among Britain's first national museums that have sought the support of
15. In 1933 the rubber, clothing, and shipbuilding industries put into effect a six-hour workday, believing it a seeming permanent accommodation rather than a temporary expedient for what many observers thought was an economy made overproductively advances in technology.
- (A) believing it a seeming permanent accommodation rather than a temporary

- 
- expedient for what many observers thought was
- (B) believing it a seeming permanent accommodation instead of a temporary ~~if~~ for what many observers thought was
  - (C) believing that it was not a temporary expedient but a seeming permanent accommodation to what many observers thought of as a
  - (D) not as a temporary expedient but as a seemingly permanent accommodation to what many observers thought was
  - (E) not as a temporary expedient but believing it a seemingly permanent accommodation for what many observers thought
16. Unlike Gertrude Stein, Ezra Pound, and other expatriates, William Carlos Williams insisted that poets honor their own regions and employ specifically American rhythms.
- (A) Unlike Gertrude Stein, Ezra Pound, and other expatriates, William Carlos Williams insisted
  - (B) Although Gertrude Stein, Ezra Pound, and other expatriates did not, William Carlos Williams' insistence was
  - (C) Contrary to Gertrude Stein, Ezra Pound, and other expatriates, it was William Carlos Williams who insisted
  - (D) As opposed to what Gertrude Stein, Ezra Pound, and other expatriates did, William Carlos Williams was to insist.
  - (E) While Gertrude Stein, Ezra Pound, and other expatriates did not, William Carlos Williams was insistent
17. Under the restructuring, the huge organization that operates the company's ~~basic~~ businesses will be divided into five groups, each with its own executive.
- (A) each with its own executive
  - (B) all having their own executive
  - (C) each having their own executive
  - (D) with its own executive for each
  - (E) every one with an executive of their own
18. Temporary-employment agencies benefit not only from the increasing demand for clerical workers but also the higher profits made when highly paid professionals are placed, requests for whom have increased in the recent wave of corporate takeovers.
- (A) the higher profits made when highly paid professionals are placed, requests ~~to~~ whom
  - (B) the higher profits that are made in the placement of highly paid ~~to~~ requests for whom
  - (C) from the requests for highly paid professionals, who make higher profits for ~~to~~ agencies when placed and whose requests
  - (D) from highly paid professionals, whose placement makes higher profits for ~~to~~ agencies and whose requests
  - (E) from the higher profits made in placing highly paid professionals, requests ~~to~~ whom



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19. Although it claims to delve into political issues, television can be superficial such as when each of the three major networks broadcast exactly the same statement from political candidate.

- (A) superficial such as when each of the three major networks
- (B) superficial, as can sometimes occur if all of the three major networks
- (C) superficial if the three major networks all
- (D) superficial whenever each of the three major networks
- (E) superficial, as when the three major networks each

20. In December of 1987 an automobile manufacturer pleaded no contest to criminal charges of odometer tampering and agreed to pay more than \$16 million in civil damages for cars that were test-driven with their odometers disconnected

- (A) cars that were test-driven with their odometers disconnected
- (B) cars that it had test-driven with their disconnected odometers
- (C) its cars having been test-driven with disconnected odometers
- (D) having test-driven cars with their odometers disconnected
- (E) having cars that were test-driven with disconnected odometers

21. The filibuster, a parliamentary device that slows the snail's pace that prevails even in the best of times in congressional sessions and tests the endurance of everyone associated with it, seems more and more an anachronism in the age of telecommunications.

- (A) sessions and tests the endurance of everyone associated with it, seems
- (B) sessions and tests the endurance of everyone who is associated with it, seeming to be
- (C) sessions, tests the endurance of everyone associated with it, seems
- (D) sessions, that tests the endurance of everyone associated with it and seems
- (E) sessions, testing the endurance of everyone associated with it and seeming

22. The bank acknowledged that they are and will continue to experience difficulties as it attempts to deal with the precipitous fall of the dollar against the yen and the dislocations reflected in the stock market decline.

- (A) they are and will continue to experience difficulties as it attempts
- (B) they are and will continue to experience difficulties as they attempt
- (C) it is and will continue to experience difficulties as it attempts
- (D) it is experiencing and will continue to experience difficulties as they make an attempt
- (E) its difficulties are likely to continue as it attempts

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23. In terms of physics, the characteristic feature of the roller coaster is that the cars' potential energy, gained through their being lifted by a chain drive through the Earth's gravity to the top of the first drop, has been converted to kinetic energy by the time the ride ends.
- (A) cars' potential energy, gained through their being lifted by a chain drive
  - (B) cars' potential energy, a gain achieved as they are lifted by a chain drive
  - (C) potential energy from the cars' being lifted by a chain drive
  - (D) potential energy of the cars, gained as a chain drive lifts them
  - (E) potential energy gained by the cars, being achieved while a chain drive lifts them
24. Just as plant species native to regions with browsing mammals evolved many natural anti-browser defenses (such as sharp spines and toxic chemicals), so humans in malarial regions have evolved dozens of chemical defenses against malaria.
- (A) so humans in malarial regions have evolved dozens of chemical defenses against malaria
  - (B) humans in malarial regions have been evolving dozens of chemical defenses against malaria
  - (C) there has been, in malarial regions, an evolution of dozens of human chemical defenses against malaria
  - (D) dozens of chemical defenses against malaria have been evolved by humans in malarial regions
  - (E) similarly, in malarial regions, humans have evolved dozens of chemical defenses against malaria
25. The record of the past is always incomplete, and the historian who writes about it inevitably reflects the preoccupations of their owntime.
- (A) the historian who writes about it inevitably reflects
  - (B) the historian writing about it will inevitably reflect
  - (C) a historian writing about it inevitably reflects
  - (D) writing about it, it is inevitable for historians to reflect
  - (E) historians in writing about it inevitable reflect
26. According to some analysts, whatever its merits, the proposal to tax away all gains on short-term investments would, if enacted, have a disastrous effect on Wall Street trading and employment.
- (A) its merits, the proposal to tax
  - (B) its merits may be, the proposal of taxing
  - (C) its merits as a proposal, taxing
  - (D) the proposal's merits, to tax
  - (E) the proposal's merits are, taxing

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27. As virtually all the nation's 50 busiest airports are, New York's were built for an age of propellers, before jet planes weighing 800,000 pounds needed over two miles of runway.

- (A) As virtually all the nation's 50 busiest airports are
- (B) As with virtually all of the nation's 50 busiest airports
- (C) Like virtually all of the nation's 50 busiest airports
- (D) Like the cities where virtually all the nation's 50 busiest airports are
- (E) Like other cities where virtually all the nation's 50 busiest airports are

### SENTENCE CORRECTION TEST SECTION 13

30 Minutes 27 Questions

1. The key to control over the Eurasian steppes lay in the nomad's ability to use the **both** as a means of transport but also as an effective military tool.

- (A) but also as
- (B) or as
- (C) and as
- (D) or
- (E) and also

2. Judge Lois Forer's study asks why do some litigants have a preferred status over others in the use of a public resource, the courts, which in theory are available to all but in fact are unequally distributed among rich and poor.

- (A) do some litigants have a preferred status over others in the use of a public ~~at~~ the courts, which in theory are available to all but in fact are unequally distributed among
- (B) some litigants have a preferred status over others in the use of a public resource, the courts, which in theory are available to all but in fact are unequally distributed between
- (C) do some litigants have a preferred status over another in the use of a public resource, the courts, in theory available to all but in fact are unequally distributed among
- (D) some litigants have a preferred status to another in the use of a public resource, ~~to~~ courts, in theory available to all but in fact not equally distributed between
- (E) does one litigant have a preferred status over the other in the use of a public resource, the courts, in theory available to all but in fact they are not equally distributed among

3. As litigation grows more complex, the need that experts explain technical issues . becomes more apparent.

- (A) that experts explain technical issues becomes
- (B) for experts to explain technical issues became
- (C) for experts to explain technical issues becomes

- 
- (D) that technical issues be explained by experts became  
(E) that there be explanations of technical issues by experts has become
4. Last spring a Colorado health department survey of 72 playgrounds in private child-care centers found unsafe conditions in 95 percent of them and they ranged from splinters to equipment near collapse.
- (A) unsafe conditions in 95 percent of them and they ranged  
(B) conditions in 95 percent were unsafe and ranging  
(C) the ranging of unsafe conditions in 95 percent of them to be  
(D) that 95 percent had unsafe conditions ranging  
(E) that 95 percent of them had conditions that were unsafe; the range was
5. The expected rise in the price of oil could be a serious impact to industrialized nations and severely diminish the possibility to have an economy free of inflation.
- (A) be a serious impact to industrialized nations and severely diminish the possibility to have  
(B) seriously impact on industrialized nations and severely impede the possibility to have  
(C) seriously impact on industrialized nations and severely impede the possibility of having  
(D) have a serious impact on industrialized nations and severely impede the possibility to have  
(E) have a serious impact on industrialized nations and severely diminish the possibility of having
6. Recent excavations suggest that the ancient peoples of the Italian peninsula merged the cult of Damia---a goddess of fertility and the harvest---with Venus.
- (A) with Venus  
(B) and Venus  
(C) with that of Venus  
(D) and Venus'  
(E) and Venus' cult
7. Since the 1930's aircraft manufacturers have tried to build airplanes with frictionless wings, shaped so smoothly and perfectly that the air passing over them would not become turbulent.
- (A) wings, shaped so smoothly and perfectly  
(B) wings, wings so smooth and so perfectly shaped  
(C) wings that are shaped so smooth and perfect  
(D) wings, shaped in such a smooth and perfect manner  
(E) wings, wings having been shaped smoothly and perfectly so

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8. Some biographers have not only disputed the common notion that Edgar Allan Poe drank to excess but also questioned whether he drank at all.
- (A) have not only disputed the common notion that Edgar Allan Poe drank to excess but also questioned whether he drank
  - (B) not only have disputed the common notion that Edgar Allan Poe drank to excess but also over whether he drank
  - (C) have disputed not only the common notion that Edgar Allan Poe drank to excess but also whether he may not have drunk
  - (D) not only have disputed the common notion that Edgar Allan Poe drank to excess but also questioned whether or not he had drunk
  - (E) have disputed the common notion not only that Edgar Allan Poe drank to excess but also questioned whether he may not have drunk
9. According to Interstudy, a nonprofit organization that studies health maintenance organizations (HMO's), they estimate that, in comparison to last year, when only 36 percent of the nation's 607 HMO's was profitable, this year 73 percent will be.
- (A) they estimate that, in comparison to last year, when only 36 percent of the nation's 607 HMO's was profitable, this year 73 percent will be
  - (B) compared to only 36 percent of the nation's 607 HMO's being profitable last year, they estimate 73 percent would be this year
  - (C) only 36 percent of the nation's 607 HMO's were profitable last year; it estimates that this year 73 percent will be
  - (D) it estimates 73 percent of the nation's 607 HMO's would be profitable this year, last year that was only 36 percent
  - (E) only 36 percent of the nation's 607 HMO's last year were profitable, whereas they estimate it this year to be 73 percent
10. The visiting pharmacologists concluded that the present amalgam of Chinese and Western medicine is probably as good, or better than, any system that might be devised for the patients who are treated at the Nan Kai hospital in Tian-jing.
- (A) as good, or better than, any system that might be devised for the patients who are
  - (B) as good, or better, than any system that might be devised for patients being
  - (C) as good, or better than, any system that might be devised for patients which a being
  - (D) good as, or even better than, any other system that may be devised for the patients who are
  - (E) as good as, or better than, any other system that might be devised for the patients
11. One of four babies are now born to mothers aged thirty years or more, compared with just one of six born in 1975.
- (A) of four babies are now born to mothers aged thirty years or more, compared with just one of six born
  - (B) of four babies is now born to a mother whose age is thirty of older, compared to just one of six babies who were born

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- (C) baby in four are now born to mothers aged thirty or older, compared to just one in six
- (D) baby in four is now born to a mother aged thirty or older, compared with just ~~in~~ six
- (E) baby in four is now born to mothers aged thirty years or more, compared to ~~ju~~ one in six
12. School desegregation has worked well in Buffalo, New York, in part because parents and teachers were given major roles in designing the city's magnet schools, because extra federal funds were allocated to make each school unique, and because the federal judge enforced desegregation orders.
- (A) because extra federal funds were allocated to make each school unique
- (B) because of the allocation of extra federal funds that make each school unique
- (C) because each school is made unique by allocating it extra federal funds
- (D) extra federal funds were allocated in order to make each school unique
- (E) extra federal funds were allocated for making each school unique
13. Among the cossacks, vegetable farming was once so despised that it was forbidden ~~n~~ pain of death.
- (A) so despised that it was
- (B) so despised to be
- (C) so despised it had been
- (D) despised enough that it was
- (E) despised enough as to be
14. Researchers have questioned the use of costly and experimental diagnostic tests to identify food allergies, such as milk, that supposedly disrupt normal behavior.
- (A) to identify food allergies, such as
- (B) to identify food allergies, like
- (C) to identify food allergies, such as to
- (D) for identifying food allergies, like that of
- (E) for identifying food allergies, such as for
15. Biologists believe that they have found one of the substances that tell individual ~~both~~ when to become active and when to remain quiescent in the earliest phases of ~~a~~ embryo's development.
- (A) tell individual genes both when to become active and when to remain
- (B) tell individual genes both at which time they should become active or ~~should~~ remain
- (C) tells individual genes both when to become active or remain
- (D) tells individual genes both when to become active or when to remain

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(E) will tell an individual gene both about when it should become active and remain

16. Unlike the lives of Pushkin, Gogol, Tolstoi, and Dostoevski, subjects of other Troyat biographies, Chekhov belongs to the twentieth century, an age of fretfulness and melancholy skepticism.

- (A) Unlike the lives of Pushkin, Gogol, Tolstoi, and Dostoevski, subjects of other Troyat biographies, Chekhov belongs
- (B) Chekhov, unlike the other Troyat biographies of Pushkin, Gogol, Tolstoi, and Dostoevski, belongs
- (C) The life of Chekhov, unlike the lives of the subjects of other Troyat biographies, Pushkin, Gogol, Tolstoi, and Dostoevski, belongs
- (D) Chekhov and his life, unlike that of the other Troyat biographies--- Pushkin, Gogol, Tolstoi, and Dostoevski, belong
- (E) The life of Chekhov, unlike that of other Troyat biographies of Pushkin, Gogol, Tolstoi, and Dostoevski, belongs

17. Not Scored

18. The capital of Bosnia-Herzegovina, Sarajevo's population on the eve of the First World War was 51,919.

- (A) Bosnia-Herzegovina, Sarajevo's population
- (B) Bosnia-Herzegovina is Sarajevo, whose population
- (C) Bosnia-Herzegovina is Sarajevo, with a population
- (D) Bosnia-Herzegovina, Sarajevo having a population that
- (E) Bosnia-Herzegovina, the population of Sarajevo

19. The growing demand for housing, traffic congestion, and longer commuting trips all but eliminated the cost advantage of owning a house in many rural communities.

- (A) The growing demand for housing, traffic congestion, and longer commuting trips has
- (B) Traffic congestion, the growing demand for housing, and longer commuting trips has
- (C) Longer commuting trips, traffic congestion, and the growing demand for housing has
- (D) Traffic congestion, longer commuting trips, and the growing demand for housing have
- (E) The growing demand for housing, as well as traffic congestion and longer commuting trips, have

- 
20. The investor who is uncertain about the future is more likely to put money ~~in~~ blue-chip stocks or treasury bills than into gold.
- (A) than into
  - (B) than they do
  - (C) than they are
  - (D) as into
  - (E) as
21. According to the Better Business Bureau, if you fail to advertise the highest price in a range of prices for a service or product as prominently as that of the lowest, it violates the New York Consumer Protection Law.
- (A) if you fail to advertise the highest price in a range of prices for a service or ~~it~~ as prominently as that of the lowest, it
  - (B) if one fails to advertise the highest price in a range of prices for a service ~~product~~ as prominently as the lowest price, it
  - (C) failure to advertise the highest price in a range of prices for a service or product ~~prominently~~ as the lowest
  - (D) failure to advertise as prominently the highest price in a range of prices for a service or product as the lowest
  - (E) failing to advertise as prominently the highest price in a range of prices for a service or products as that of the lowest
22. In its most recent approach, the comet Crommelin passed the Earth at about the ~~same~~ distance and in about the same position, some 25 degrees above the horizon, that Halley's comet will pass the next time it appears.
- (A) that Halley's comet will pass
  - (B) that Halley's comet is to be passing
  - (C) as Halley's comet
  - (D) as will Halley's comet
  - (E) as Halley's comet will do
23. The number of mountain gorillas is declining with such rapidity that the population is one-half in the twenty years between a count made by George Schaller in 1960 and ~~to~~ one made by Dian Fossey in 1980.
- (A) with such rapidity that the population is one-half
  - (B) with such rapidity that the population was one-half
  - (C) so rapidly the population divided in half
  - (D) so rapidly that the population was halved
  - (E) in such rapidity that the population is halved
24. The ordinance is intended to force householders to separate such hazardous waste pesticides, batteries, fertilizers, and oil-based paints from the general stream of household trash.



- 
- (A) to separate such hazardous waste like  
(B) that they should separate such hazardous waste like  
(C) separating such hazardous wastes as  
(D) that they should separate such hazardous wastes as  
(E) to separate such hazardous wastes as
25. The distinctive hereditary tartans that are alleged to be worn since antiquity by members of the Highland clans were in fact designed by Scottish woolen manufacturers in the eighteenth and nineteenth centuries.
- (A) that are alleged to be worn  
(B) alleged to have been worn  
(C) that are worn, it was alleged.  
(D) alleged as having been worn  
(E) that are worn, allegedly.
26. According to a panel of health officials, there has been a great deal of confusion in ~~the~~ medical profession about whether obesity is a biological disorder posing serious health risks or a condition more related to appearance than to health.
- (A) about whether obesity is a biological disorder posing serious health risks or a condition more related to appearance than to  
(B) with respect to obesity being a biological disorder posing serious health risks or it is related more to appearance than  
(C) over whether or not obesity is a biological disorder posing serious health risks or is a condition more related to appearance than to  
(D) about obesity and if it is a biological disorder posing serious health risks or a condition related to appearance more than to  
(E) concerning whether obesity is a biological disorder posing serious health risks or it is a condition related to appearance more than
27. A recent study of ancient clay deposits has provided new evidence supporting the theory of global forest fires ignited by a meteorite impact that contributed to the extinction of the dinosaurs and many other creatures some 65 million years ago.
- (A) supporting the theory of global forest fires ignited by a meteorite impact that  
(B) supporting the theory that global forest fires ignited by a meteorite impact  
(C) that supports the theory of global forest fires that were ignited by a meteorite impact and that  
(D) in support of the theory that global forest fires were ignited by a meteorite impact and that  
(E) of support for the theory of a meteorite impact that ignited global forest fires and

## SENTENCE CORRECTION TEST SECTION 14

25 Minutes 22 Questions

1. As Hurricane Hugo approached the Atlantic coast, it increased dramatically in strength,

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becoming the tenth most intense hurricane to hit the United States mainland in the twentieth century and most intense since Camille in 1969.

- (A) most intense since Camille in 1969
  - (B) most intense after Camille in 1969
  - (C) the most intense since Camille in 1969
  - (D) the most intense after 1969, which had Camille
  - (E) since 1969 and Camille, the most intense
2. The commission has directed advertisers to restrict the use of the word "natural" to foods that do not contain color or flavor additives, chemical preservatives, or that has been synthesized.
- (A) or nothing that has been
  - (B) or that has been
  - (C) and nothing that is
  - (D) or anything that has been
  - (E) and anything
3. Doctors generally agree that such factors as cigarette smoking, eating rich foods high in fats, and alcohol consumption not only do damage by themselves but also aggravate genetic predispositions toward certain diseases.
- (A) not only do damage by themselves but also aggravate
  - (B) do damage by themselves but also are aggravating to
  - (C) are damaging by themselves but also are aggravating
  - (D) not only do damage by themselves, they are also aggravating to
  - (E) are doing damage by themselves, and they are also aggravating
4. In a plan to stop the erosion of East Coast beaches, the Army Corps of Engineers proposed building parallel to shore a breakwater of rocks that would rise six feet above the waterline and act as a buffer, so that it absorbs the energy of crashing waves and protecting the beaches.
- (A) act as a buffer, so that it absorbs
  - (B) act like a buffer so as to absorb
  - (C) act as a buffer, absorbing
  - (D) acting as a buffer, absorbing
  - (E) acting like a buffer, absorb
5. Senior executives had a larger percentage increase in pay in 1990 than the wages of other salaried workers.
- (A) Senior executives had a larger percentage increase in pay in 1990 than
  - (B) The percentage of senior executives' pay increase in 1990 was larger than for

- 
- (C) The 1990 increase in pay for senior executives was larger in terms of percentage than
- (D) In 1990 senior executives had a larger pay increase in terms of percentage than did
- (E) The pay of senior executives increased in 1990 by a larger percentage than did
6. The Iroquois were primarily planters, but supplementing their cultivation of maize, squash, and beans with fishing and hunting.
- (A) but supplementing
- (B) and had supplemented
- (C) and even though they supplemented
- (D) although they supplemented
- (E) but with supplementing
7. Affording strategic proximity to the Strait of Gibraltar, Morocco was also of interest to the French throughout the first half of the twentieth century because they assumed that if they did not hold it, their grip on Algeria was always insecure.
- (A) if they did not hold it, their grip in Algeria was always insecure.
- (B) without it their grip on Algeria would never be secure
- (C) their grip on Algeria was not ever secure if they did not hold it
- (D) without that, they could never be secure about their grip on Algeria
- (E) never would their grip on Algeria be secure if they did not hold it.
8. Beatrix Potter, in her book illustrations, carefully coordinating them with her narratives, capitalized on her keen observation and love of the natural world.
- (A) Beatrix Potter, in her book illustrations, carefully coordinating them with her narratives
- (B) In her book illustrations, carefully coordinating them with her narratives, Beatrix Potter
- (C) In her book illustrations, which she carefully coordinated with her narratives, Beatrix Potter
- (D) Carefully coordinated with her narratives, Beatrix Potter, in her book illustrations
- (E) Beatrix Potter, in her book illustrations, carefully coordinated them with her narratives and
9. As contrasted with the honeybee, the yellow jacket can sting repeatedly without dying and carries a potent venom that can cause intense pain.
- (A) As contrasted with the honeybee
- (B) In contrast to the honeybee's
- (C) Unlike the sting of the honeybee
- (D) Unlike that of the honeybee
- (E) Unlike the honeybee

- 
10. The development of a new jumbo rocket that is expected to carry the United States into its next phase of space exploration will be able to deliver a heavier load of instruments into orbit than the space shuttle and at a lower cost.
- (A) The development of a new jumbo rocket that is expected to carry the United States into its next phase of space exploration will be able to deliver a heavier load of instruments into orbit than the space shuttle and at a lower cost.
  - (B) The development of a new jumbo rocket is expected to carry the United States into its next phase of space exploration and be able to deliver a heavier load of instruments into orbit at a lower cost than the space shuttle.
  - (C) The new development of a jumbo rocket, which is expected to carry the United States into its next phase of space exploration, will be able to deliver a heavier load of instruments into orbit at a lower cost than the space shuttle.
  - (D) A newly developed jumbo rocket, which is expected to carry the United States into its next phase of space exploration, will be able to deliver a heavier load of instruments into orbit than the space shuttle can, and at a lower cost.
  - (E) A newly developed jumbo rocket, which is expected to carry the United States into its next phase of space exploration, will be able to deliver a heavier load of instruments into orbit than the space shuttle and to cost less.
11. Once they had seen the report from the medical examiner, the investigators did not doubt whether the body recovered from the river was the man who had attempted to escape from the state prison.
- (A) did not doubt whether the body recovered from the river was
  - (B) have no doubt whether the body recovered from the river was
  - (C) had not doubted that the body recovered from the river was
  - (D) have no doubt whether the body recovered from the river was that of
  - (E) had no doubt that the body recovered from the river was that of
12. Nuclear fusion is the force that powers the Sun, the stars, and hydrogen bombs, merging the nuclei of atoms and not splitting them apart, as in nuclear reactors.
- (A) merging the nuclei of atoms and not splitting them apart, as in nuclear reactors
  - (B) merging the nuclei of atoms instead of splitting them apart, like nuclear reactors
  - (C) merging the nuclei of atoms rather than splitting them apart, as nuclear reactors do
  - (D) and merges the nuclei of atoms but does not split them apart, as is done in nuclear reactors
  - (E) and merges the nuclei of atoms, unlike atomic reactors that split them apart.
13. His studies of ice-polished rocks in his Alpine homeland, far outside the range of present-day glaciers, led Louis Agassiz in 1837 to propose the concept of an age in which great ice sheets had existed in now currently temperate areas.
- (A) in which great ice sheets had existed in now currently temperate areas
  - (B) in which great ice sheets existed in what are now temperate areas
  - (C) when great ice sheets existed where there were areas now temperate
  - (D) when great ice sheets had existed in current temperate areas

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(E) when great ice sheets existed in areas now that are temperate

14. More and more in recent years, cities are stressing the arts as a means to greater economic development and investing millions of dollars in cultural activities, despite strained municipal budgets and fading federal support.

- (A) to greater economic development and investing
- (B) to greater development economically and investing
- (C) of greater economic development and invest
- (D) of greater development economically and invest
- (E) for greater economic development and the investment of

15. Since 1986 enrollments of African Americans, American Indians, and Hispanic Americans in full-time engineering programs in the United States has steadily ~~while~~ the number of other students who enter the field has fallen.

- (A) has steadily increased, while the number of other students who enter the field ~~h~~ fallen
- (B) has steadily increased, while other students entering the field have declined ~~i~~ number.
- (C) increased steadily, while there was a decline in the number of other ~~n~~ entering the field
- (D) have steadily increased, while the number of other students entering the field ~~h~~ fallen
- (E) have steadily increased, while that of other students who enter the field fell

16. Originally developed for detecting air pollutants, a technique called proton-induced x-ray emission, which can quickly analyze the chemical elements in almost any substance without destroying it, is finding uses in medicine, archaeology, and criminology.

- (A) Originally developed for detecting air pollutants, a technique called proton-induced x-ray emission, which can quickly analyze the chemical elements in almost any substance without destroying it,
- (B) Originally developed for detecting air pollutants, having the ability to analyze ~~the~~ the chemical elements in almost any substance without destroying it, a technique called proton-induced x-ray emission
- (C) A technique originally developed for detecting air pollutants, called proton-induced x-ray emission, which can quickly analyze the chemical elements in almost any substance without destroying it,
- (D) A technique originally developed for detecting air pollutants, called proton-induced x-ray emission, which has the ability to analyze the chemical elements in almost any substance quickly and without destroying it,
- (E) A technique that was originally developed for detecting air pollutants and has ~~the~~ the ability to analyze the chemical elements in almost any substance quickly and without destroying the substance, called proton-induced x-ray emission,

- 
17. None of the attempts to specify the causes of crime explains why most of the people exposed to the alleged causes do not commit crimes and, conversely, why so many of those not so exposed have.
- (A) have
  - (B) has
  - (C) shall
  - (D) do
  - (E) could
18. Computers are becoming faster, more powerful, and more reliable, and so too are modems, they are the devices to allow two or more computers to share information on regular telephone lines.
- (A) so too are modems, they are the devices to allow
  - (B) so too are modems, the devices that allow
  - (C) so too modems, the devices allowing
  - (D) also modems, they are the devices that allow
  - (E) also modems, which are the devices to allow
19. A 1972 agreement between Canada and the United States reduced the amount of phosphates that municipalities had been allowed to dump into the Great Lakes.
- (A) reduced the amount of phosphates that municipalities had been allowed to dump
  - (B) reduced the phosphate amount that municipalities had been dumping
  - (C) reduces the phosphate amount municipalities have been allowed to dump
  - (D) reduced the amount of phosphates that municipalities are allowed to dump
  - (E) reduces the amount of phosphates allowed for dumping by municipalities
20. Among the objects found in the excavated temple were small terra-cotta effigies left by supplicants who were either asking the goddess Bona Dea's aid in healing physical and mental ills or thanking her for such help.
- (A) in healing physical and mental ills or thanking her for such help
  - (B) in healing physical and mental ills and to thank her for helping
  - (C) in healing physical and mental ills, and thanking her for helping
  - (D) to heal physical and mental ills or to thank her for such help
  - (E) to heal physical and mental ills or thanking her for such help
21. A proposal has been made to trim the horns from rhinoceroses to discourage poachers; the question is whether tourists will continue to visit game parks and see rhinoceroses after their horns are trimmed.
- (A) whether tourists will continue to visit game parks and see rhinoceroses after their horns are

- 
- (B) whether tourists will continue to visit game parks to see one once their horns are
  - (C) whether tourists will continue to visit game parks to see rhinoceroses once ~~the~~ animals' horns have been
  - (D) if tourists will continue to visit game parks and see rhinoceroses once the animals' horns are
  - (E) if tourists will continue to visit game parks to see one after the animals' horns ~~have~~ been

22. The technical term "pagination" is a process that leaves editors, instead of ~~is~~ assemble the page images that become the metal or plastic plates used in printing.

- (A) is a process that leaves editors, instead of printers, assemble
- (B) refers to a process that allows editors, rather than printers, to assemble
- (C) is a process leaving the editors, rather than printers, to assemble
- (D) refers to a process which allows editors, but not to printers, the assembly of
- (E) has reference to the process leaving to editors, instead of the printer, assembling

### SENTENCE CORRECTION TEST SECTION 15

25 Minutes 22 Questions

1. Although early soap operas were first aired on evening radio in the 1920's, they had moved to the daytime hours of the 1930's when the evening schedule became crowded with comedians and variety shows.

- (A) were first aired on evening radio in the 1920's, they had moved to the ~~daytime~~ hours of the 1930's
- (B) were first aired on evening radio in the 1920's, they were moved to ~~the~~ daytime hours in the 1930's
- (C) were aired first on evening radio in the 1920's, moving to the daytime hours in the 1930's
- (D) were aired first in the evening on 1920's radio, they moved to the daytime ~~hour~~ of the 1930's
- (E) aired on evening radio first in the 1920's, they were moved to the 1930's in the daytime hours

2. In 1527 King Henry VIII sought to have his marriage to Queen Catherine annulled so ~~to~~ marry Anne Boleyn.

- (A) so as so marry
- (B) and so could be married to
- (C) to be married to
- (D) so that he could marry
- (E) in order that he would marry

3. The energy source on Voyager 2 is not a nuclear reactor, in which atoms are actively

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broken apart; rather a kind of nuclear battery that uses natural radioactive decay to produce power.

- (A) apart; rather
- (B) apart, but rather
- (C) apart, but rather that of
- (D) apart, but that of
- (E) apart; it is that of

4. Seismologists studying the earthquake that struck northern California in October 1989 are still investigating some of its mysteries: the unexpected power of the seismic waves, the upward thrust that threw one man straight into the air, and the strange electromagnetic signals detected hours before the temblor.

- (A) the upward thrust that threw one man straight into the air, and the strange electromagnetic signals detected hours before the temblor
- (B) the upward thrust that threw one man straight into the air, and strange electromagnetic signals were detected hours before the temblor
- (C) the upward thrust threw one man straight into the air, and hours before the temblor strange electromagnetic signals were detected
- (D) one man was thrown straight into the air by the upward thrust, and hours before the temblor strange electromagnetic signals were detected
- (E) one man who was thrown straight into the air by the upward thrust, and strange electromagnetic signals that were detected hours before the temblor

5. A letter by Mark Twain, written in the same year as The Adventures of Huckleberry Finn were published, reveals that Twain provided financial assistance to one of the first Black students at Yale Law School.

- (A) A letter by Mark Twain, written in the same year as The Adventures of Huckleberry Finn were published,
- (B) A letter by Mark Twain, written in the same year of publication as The Adventures of Huckleberry Finn.
- (C) A letter by Mark Twain, written in the same year that The Adventures of Huckleberry Finn was published.
- (D) Mark Twain wrote a letter in the same year as he published The Adventures of Huckleberry Finn that
- (E) Mark Twain wrote a letter in the same year of publication as The Adventures of Huckleberry Finn that

6. Two new studies indicate that many people become obese more due to the fact that their bodies burn calories too slowly than overeating.

- (A) due to the fact that their bodies burn calories too slowly than overeating
- (B) due to their bodies burning calories too slowly than to eating too much
- (C) because their bodies burn calories too slowly than that they are overeaters
- (D) because their bodies burn calories too slowly than because they eat too much
- (E) because of their bodies burning calories too slowly than because of their eating



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too much

7. As a result of the ground-breaking work of Barbara McClintock, many scientists ~~w~~ believe that all of the information encoded in 50,000 to 100,000 of the different g found in a human cell are contained in merely three percent of the cell's DNA.
- (A) 50,000 to 100,000 of the different genes found in a human cell are contained in merely
  - (B) 50,000 to 100,000 of the human cell's different genes are contained in amere
  - (C) the 50,000 to 100,000 different genes found in human cells are contained in merely
  - (D) 50,000 to 100,000 of human cell's different genes is contained in merely
  - (E) the 50,000 to 100,000 different genes found in a human cell is contained in a mere
8. So poorly educated and trained are many young recruits to the United States work ~~th~~ many business executives fear this country will lose its economic preeminence.
- (A) So poorly educated and trained are many young recruits to the United States work force that
  - (B) As poorly educated and trained as many young recruits to the United States work force are
  - (C) Because of many young recruits to the United States work force who are ~~s~~ poorly educated and trained.
  - (D) That many young recruits to the United States work force are so ~~poorly~~ educated and trained is why
  - (E) Many young recruits to the United States work force who are so poorly ~~educated~~ and trained explains why
9. In the last few years, the number of convicted criminals given community service, sentences, which allow the criminals to remain unconfined while they perform specific jobs benefiting the public, have risen dramatically.
- (A) sentences, which allow the criminals to remain unconfined while they perform specific jobs benefiting the public, have
  - (B) sentences, performing specific jobs that benefit the public while being allowed to remain unconfined, have
  - (C) sentences, performing specific jobs beneficial to the public while they are allowed to remain unconfined, have
  - (D) sentences which allow them to remain unconfined in their performing ~~o~~ specific jobs beneficial to the public has
  - (E) sentences allowing them to remain unconfined while performing specific jobs ~~that~~ benefit the public has
10. During the early years of European settlement on a continent that was viewed as "wilderness" by the newcomers, Native Americans, intimately knowing the ecology of the land, were a help in the rescuing of many Pilgrims and pioneers from hardship, ~~r~~

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even death.

- (A) Native Americans, intimately knowing the ecology of the land, were a help in ~~the~~ rescuing of
- (B) Native Americans knew the ecology and the land intimately and this enabled ~~them~~ to help in the rescue of
- (C) Native Americans, with their intimate knowledge of the ecology of ~~the~~ land, helped to rescue
- (D) having intimate knowledge of the ecology of the land, Native Americans ~~helped~~ the rescue of
- (E) knowing intimately the ecology of the land, Native Americans helped to rescue

11. Quasars are so distant that their light has taken billions of years to reach the Earth; consequently, we see them as they were during the formation of the universe.

- (A) we see them as they were during
- (B) we see them as they had been during
- (C) we see them as if during
- (D) they appear to us as they did in
- (E) they appear to us as though in

12. Because of the enormous research and development expenditures required to survive in the electronics industry, an industry marked by rapid innovation and volatile demand, such firms tend to be very large.

- (A) to survive
- (B) of firms to survive
- (C) for surviving
- (D) for survival
- (E) for firms' survival

13. Consumers may not think of household cleaning products to be hazardous substances, but many of them can be harmful to health, especially if they are used improperly.

- (A) Consumers may not think of household cleaning products to be
- (B) Consumers may not think of household cleaning products being
- (C) A consumer may not think of their household cleaning products being
- (D) A consumer may not think of household cleaning products as
- (E) Household cleaning products may not be thought of, by consumers, as

14. NOT SCORED

15. Archaeologists in Ireland believe that a recently discovered chalice, which dates ~~in~~ the eighth century, was probably buried to keep from being stolen by invaders.

- 
- (A) to keep from
  - (B) to keep it from
  - (C) to avoid
  - (D) in order that it would avoid
  - (E) in order to keep from

16. As measured by the Commerce Department, corporate profits peaked in the fourth quarter of 1988 and have slipped since then, as many companies have been unable to pass on higher costs.

- (A) and have slipped since then, as many companies have been unable to pass on higher costs
- (B) and have slipped since then, the reason being because many companies have been unable to pass on higher costs
- (C) and slipped since then, many companies being unable to pass on higher costs
- (D) but, many companies unable to pass on higher costs, they have slipped since then
- (E) yet are slipping since then, because many companies were unable to pass on higher costs

17. The recent surge in the number of airplane flights has clogged the nation's air-traffic control system, to lead to 55 percent more delays at airports, and prompts fears among some officials that safety is being compromised.

- (A) to lead to 55 percent more delays at airports, and prompts
- (B) leading to 55 percent more delay at airports and prompting
- (C) to lead to a 55 percent increase in delay at airports and prompt
- (D) to lead to an increase of 55 percent in delays at airports, and prompted
- (E) leading to a 55-percent increase in delays at airports and prompting

18. Judge Bonham denied a motion to allow members of the jury to go home at the end of each day instead of to confine them to a hotel.

- (A) to allow members of the jury to go home at the end of each day instead of to confine them to
- (B) that would have allowed members of the jury to go home at the end of each day instead of confined to
- (C) under which members of the jury are allowed to go home at the end of each day instead of confining them in
- (D) that would allow members of the jury to go home at the end of each day rather than confinement in
- (E) to allow members of the jury to go home at the end of each day rather than be confined to

19. In one of the bloodiest battles of the Civil War, fought at Sharpsburg, Maryland, on September 17, 1862, four times as many Americans were killed as would later be killed

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on the beaches of Normandy during D-Day.

- (A) Americans were killed as
- (B) Americans were killed than
- (C) Americans were killed than those who
- (D) more Americans were killed as there
- (E) more Americans were killed as those who

20. As a result of medical advances, many people that might at one time have died as children of such infections as diphtheria, pneumonia, or rheumatic fever now live well into old age.

- (A) that might at one time have died as children
- (B) who might once have died in childhood
- (C) that as children might once have died
- (D) who in childhood might have at one time died
- (E) who, when they were children, might at one time have died

21. Proponents of artificial intelligence say they will be able to make computers that can understand English and other human languages, recognize objects, and reason as an expert does---computers that will be used to diagnose equipment breakdowns, deciding whether to authorize a loan, or other purposes such as these.

- (A) as an expert does---computers that will be used to diagnose equipment breakdowns, deciding whether to authorize a loan, or other purposes such as these
- (B) as an expert does, which may be used for purposes such as diagnosing equipment breakdowns or deciding whether to authorize a loan
- (C) like an expert---computers that will be used for such purposes as diagnosing equipment breakdowns or deciding whether to authorize a loan
- (D) like an expert, the use of which would be for purposes like the diagnosis of equipment breakdowns or the decision whether or not a loan should be authorized
- (E) like an expert, to be used to diagnose equipment breakdowns, deciding whether to authorize a loan or not, or the like

22. Manifestations of Islamic political militancy in the first period of religious reformism were the rise of the Wahhabis in Arabia, the Sanusi in Cyrenaica, the Fulani in Nigeria, the Mahdi in the Sudan, and the victory of the Usuli "mujtahids" in Shiite Iran and Iraq.

- (A) Manifestations of Islamic political militancy in the first period of religious reformism were the rise of the Wahhabis in Arabia, the Sanusi in Cyrenaica, the Fulani in Nigeria, the Mahdi in the Sudan, and
- (B) Manifestations of Islamic political militancy in the first period of religious reformism were shown in the rise of the Wahhabis in Arabia, the Sanusi in Cyrenaica, the Fulani in Nigeria, the Mahdi in the Sudan, and also
- (C) In the first period of religious reformism, manifestations of Islamic political militancy were the rise of the Wahhabis in Arabia, of the Sanusi in Cyrenaica, the Fulani in Nigeria, the Mahdi in the Sudan, and
- (D) In the first period of religious reformism, manifestations of Islamic political

- 
- militancy were shown in the rise of the Wahhabis in Arabia, the Sanusi in Cyrenaica, the Fulani in Nigeria, the Mahdi in the Sudan, and
- (E) In the first period of religious reformism, Islamic political militancy was manifested in the rise of the Wahhabis in Arabia, the Sanusi in Cyrenaica, the Fulani in Nigeria, and the Mahdi in the Sudan, and in

### SENTENCE CORRECTION TEST SECTION 16

25 Minutes 22 Questions

1. Machines replacing human labor there was wide anticipation that the workweek would continue to become shorter.
- (A) Machines replacing human labor, there was wide anticipation that  
(B) When machines replaced human labor, there was wide anticipation  
(C) As machines replaced human labor, it was widely anticipated that  
(D) Insofar as machines replaced human labor, it was widely anticipated  
(E) Human labor being replaced by machines, there was wide anticipation that
2. More ancient Egyptian temples were constructed in the reign of Ramses II as in other.
- (A) as in any other  
(B) as any other  
(C) as in others  
(D) than others  
(E) than in any other
3. Because the financial review covered only the last few fiscal years, and therefore investigators were unable to determine the extent of possible earlier overpayments.
- (A) and therefore the investigators were unable to determine the extent of possible  
(B) so therefore the investigators were not capable of determining the possible extent of  
(C) therefore the investigators were unable to determine the possible extent of  
(D) the investigators were not capable of determining the possible extent of  
(E) the investigators were unable to determine the extent of possible
4. At ground level ozone is a harmful pollutant, but in the stratosphere it shields the Earth from the most biologically harmful radiation emitted by the Sun, radiation in the ultraviolet band of the spectrum.
- (A) in the stratosphere  
(B) in the stratosphere, in which  
(C) it is in the stratosphere in which

- 
- (D) in the stratosphere where
  - (E) it is in the stratosphere and

5. Socrates could have fled from Athens after he was sentenced to death, but he refused to do it.

- (A) Socrates could have fled from Athens after he was sentenced to death, but he refused to do it.
- (B) After he was sentenced to death, Socrates might have fled from Athens, but he refused to do it.
- (C) After he was sentenced to death, Socrates could have fled from Athens, but he refused to do so.
- (D) Refusing to flee from Athens, Socrates could have done so after he was sentenced to death.
- (E) Socrates could have fled from Athens but refused to after he was sentenced to death.

6. As sales of cars and light trucks made in North America were declining 13.6 percent in late February many analysts conclude that evidence of a recovering automotive market remains slight.

- (A) As sales of cars and light trucks made in North America were declining 13.6 percent in late February many analysts conclude
- (B) Since sales of cars and light trucks made in North America declined 13.6 percent in late February, and many analysts conclude
- (C) With sales of cars and light trucks made in North America declining 13.6 percent in late February, with many analysts concluding
- (D) Because sales of cars and light trucks made in North America declined 13.6 percent in late February, many analysts concluded
- (E) Because of sales of cars and light trucks made in North America declining 13.6 percent in late February therefore many analysts concluded

7. A prolific architect who worked from the turn of the century until the late 1950's, Julia Morgan designed nearly 800 buildings in California, perhaps most notably William Randolph Hearst's monumental estate at San Simeon.

- (A) Julia Morgan designed nearly 800 buildings in California, perhaps most notably William Randolph Hearst's monumental estate at San Simeon
- (B) perhaps the most notable of the nearly 800 buildings in California designed by Julia Morgan was William Randolph Hearst's monumental estate at San Simeon
- (C) of the nearly 800 buildings in California designed by Julia Morgan, perhaps the most notable was William Randolph Hearst's monumental estate at San Simeon

- 
- (D) nearly 800 buildings in California were designed by Julia Morgan, of which William Randolph Hearst's monumental estate at San Simeon is perhaps the most notable
- (E) William Randolph Hearst's monumental estate at San Simeon is perhaps the most notable of the nearly 800 buildings in California designed by Julia Morgan
8. The new regulations mandate that a company allows their retiring employees who would otherwise lose group health care coverage to continue the same insurance at their own expense for a specified period.
- (A) the a company allows their retiring employees who would otherwise lose health care coverage to continue
- (B) companies to allow their retiring employees who would otherwise lose health care coverage that they can continue
- (C) that a company allow its retiring employees who would otherwise lose health care coverage to continue
- (D) companies allowing a retiring employee whose group health care coverage would otherwise be lost the continuation of
- (E) companies to allow a retiring employee whose group health care coverage would otherwise be lost the continuation of
9. Studies show that young people with higher-than-average blood pressure and their families have a history of high blood pressure are more likely than others to develop a severe form of the condition.
- (A) and their families have a history of high blood pressure
- (B) whose families have a history of high blood pressure
- (C) and a history of high blood pressure runs in the family
- (D) whose families have a history of high blood pressure running in them
- (E) with a history of high blood pressure running in their family
10. During the 1980's approximately \$50 billion in private investment capital is estimated to have left Mexico and added to the strain on the country's debt-ridden economy.
- (A) During the 1980's approximately \$50 billion in private investment capital is estimated to have left Mexico and added
- (B) During the 1980's it is estimated that approximately \$50 billion in private investment capital left Mexico and added
- (C) It is estimated that there was approximately \$50 billion in private investment capital that left Mexico during the 1980's and added
- (D) It is estimated that during the 1980's approximately \$50 billion in private investment capital left Mexico, adding.

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(E) Approximately \$50 billion in private investment capital is estimated as having ~~been~~ Mexico during the 1980's, adding

11. Like the color-discriminating apparatus of the human eye, insects' eyes depend on recording and comparing light intensities in three regions of the electromagnetic spectrum.
- (A) insects' eyes depend on
  - (B) an insect eye depends on
  - (C) that of insects depend on the
  - (D) that of an insect's eye depends on
  - (E) that of an insect's is dependent on the
12. As envisioned by researchers, commercial farming of lobsters will enable fisheries to sell the shellfish year-round, taking advantage of off-season demand, standardize its sizes and colors, and to predict sales volume in advance.
- (A) taking advantage of off-season demand, standardize
  - (B) taking advantage of off-season demand, to standardize
  - (C) taking advantage of off-season demand, standardizing
  - (D) take advantage of off-season demand standardizing
  - (E) take advantage of off-season demand, to standardize
13. Frances Wright's book on America contrasted the republicanism of the United States, with what she saw as the aristocratic and corrupt institutions of England.
- (A) with what she saw as
  - (B) with that which she saw to be
  - (C) to that she saw being
  - (D) and that which she saw as
  - (E) and what she saw to be
14. The complex tax dispute between the Covered Bridge Mall and Harris Township is not likely to be adjudicated for several years, and in the meantime both sides are intent on creating difficulties for the other.
- (A) both sides are intent on creating difficulties for the other
  - (B) both sides are intent on creating difficulties for each other
  - (C) each side is intent on creating difficulties for the another
  - (D) each side is intent on creating difficulties for one another
  - (E) the sides are both intent on creating difficulties for each other



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15. The computer software being designed for a project studying Native American assess to higher education will not only meet the needs of that study, but also has the versatility and power of facilitating similar research endeavors.
- (A) but also has the versatility and power of facilitating
  - (B) but also have the versatility and power to facilitate
  - (C) but it also has the versatility and power to facilitate
  - (D) and also have the versatility and power of facilitating
  - (E) and it also has such versatility and power that it can facilitate
16. Factory outlet stores operated by manufacturers are usually located miles from downtown and regional shopping centers so as not directly to be competitive against department stores in the same trading area.
- (A) so as not directly to be competitive against
  - (B) in order for them not to have direct competition with
  - (C) so that they do not compete directly with
  - (D) in order that they are not directly competitive against
  - (E) for the purpose of not competing directly with
17. According to a study published by Dr. Myra Weissman, only one percent of Americans born before 1905 had suffered major depression by the age of seventy-five of those born since 1955, six percent had become depressed by age twenty-four.
- (A) only one percent of Americans born before 1905 had suffered major depression by the age of seventy-five of those born since 1955, six percent had become depressed by age twenty-four
  - (B) only one percent of Americans born before 1905 suffer major depression by the age of seventy-five if they are born since 1955, six percent become depressed by age twenty-four
  - (C) of Americans born before 1905, only one percent of them have suffered major depression by age seventy-five but six percent of those born since 1955 do by the age of twenty-four
  - (D) major depression is suffered by the age of seventy-five by only one percent of Americans born before 1905 and by age twenty-four by the six percent born since 1955
  - (E) Americans born before 1905 suffer major depression by the age of seventy-five only one percent of the time, but six percent of those born since 1955 did so by age twenty-four
18. The official languages are of India, Hindi and of Pakistan Urdu but neither are spoken by a majority of the population.

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- (A) The official languages are of India, Hindi, and of Pakistan, Urdu, but neither are  
(B) The official languages are of India, Hindi, and of Pakistan, Urdu, but neither is  
(C) Officially, the languages are Hindi for India and for Pakistan, Urdu, but neither are  
(D) The official language of India is Hindi, and that of Pakistan is Urdu, but neither is  
(E) The official language of India is Hindi, and Urdu in Pakistan, but none is
19. In contrast to true hibernators such as woodchucks and hedgehogs whose body temperatures drop close to the freezing point during the winter months, the body temperature of bears remains nearly normal throughout their prolonged sleep.
- (A) the body temperature of bears remains nearly normal  
(B) a nearly normal body temperature is maintained by bears  
(C) a bear's body temperature remains nearly normal  
(D) a bear maintains a body temperature that is nearly normal  
(E) bears maintain a nearly normal body temperature
20. According to the National Pasta Association precipitate consumption of pasta in the United States which has already been approaching 19 pounds a year, will achieve 30 pounds a year by the twenty-first century.
- (A) According to the National Pasta Association, per-capita consumption of pasta in the United States which has already been approaching 19 pounds a year will achieve 30 pounds a year by the twenty-first century.  
(B) Already approaching 19 pounds a year in the United States, the National Pasta Association predicts that per-capita consumption of pasta will reach 30 pounds a year by the twenty-first century.  
(C) The National Pasta Association predicts by the twenty-first century that per-capita consumption of pasta in the United States, which is already approaching 19 pounds a year will achieve 30 pounds a year.  
(D) By the twenty-first century, the National Pasta Association predicts that per-capita consumption of pasta in the United States, having already approached 19 pounds a year, will reach 30 pounds a year.  
(E) According to the National Pasta Association, per-capita consumption of pasta in the United States is already approaching 19 pounds a year and will reach 30 pounds a year by the twenty-first century.
21. Most teen-agers who work for pay hold jobs that require few skills little responsibility and also no hope for career advancement.
- (A) little responsibility, and also  
(B) little responsibility, and with  
(C) little responsibility, and offer

- 
- (D) carry little responsibility and
  - (E) carry little responsibility and offer

22. Car owners who inflate their tires properly can substantially boost their vehicles fuel efficiency since the increase in car-road friction can waste up to five percent of car fuel by under inflation.

- (A) Car owners who inflate their tires properly can substantially boost their vehicles' fuel efficiency, since the increase in car-road friction can waste up to five percent of car fuel by under inflation
- (B) Because the under inflation of tires can waste up to five percent of a car's fuel by increasing car-road friction car owners can substantially boost their vehicles' fuel efficiency by properly inflating the tires
- (C) Their vehicles' fuel efficiency is substantially boosted by car owners through the proper inflation of tires that, when under inflated can waste up to five percent of car fuel by an increase in car-road friction
- (D) The proper inflation of tires by car owners, due to the fact that under inflation can waste up to five percent of a car's fuel by the increase of car-road friction, can substantially boost their fuel efficiency
- (E) Because up to five percent of a car's fuel are wasted through the increases in car-road friction when the tires are under inflated car owners properly inflating tires can substantially boost their fuel efficiency

### SENTENCE CORRECTION TEST SECTION 17

25 Minutes 22 Questions

1. Lawmakers are examining measures that would require banks to disclose all fees and account requirements in writing provide free cashing of government checks, and to create basic savings accounts to carry minimal fees and require minimal initial deposits.
- (A) provide free cashing of government checks, and to create basic savings accounts to carry
  - (B) provide free cashing of government checks, and creating basic savings accounts carrying
  - (C) to provide free cashing of government checks, and creating basic savings accounts carrying
  - (D) to provide free cashing of government checks, creating basic savings accounts to carry.
  - (E) to provide free cashing of government checks, and to create basic savings accounts to carry.

- 
2. Cajuns speak a dialect brought to southern Louisiana by the four thousand Acadians who migrated there in 1755; their language is basically seventeenth-century French to which has been added English, Spanish and Italian words.
- (A) to which has been added English, Spanish, and Italian words  
(B) added to which is English, Spanish, and Italian words  
(C) to which English, Spanish, and Italian words have been added  
(D) with English, Spanish, and Italian words having been added to it  
(E) and, in addition, English, Spanish, and Italian words are added.
3. NOT SCORED
4. Unlike the United States, where farmers can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka are concentrated in the monsoon months, June to September, and the skies are generally clear for the rest of the year.
- (A) Unlike the United States, where farmers can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka.  
(B) Unlike the United States farmers, who can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka.  
(C) Unlike those of the United States, where farmers can usually depend on rain or snow all year long, most parts of Sri Lanka rains  
(D) In comparison with the United States, whose farmers can usually depend on rain or snow all year long, the rains in most parts of Sri Lanka  
(E) In the United States, farmers can usually depend on rain or snow all year long, but in most parts of Sri Lanka rains
5. Presenters at the seminar, one who is blind, will demonstrate adaptive equipment that allows visually impaired people to use computers.
- (A) one who  
(B) one of them who  
(C) and one of them who  
(D) one of whom  
(E) one of which
6. Dr. Tonegawa won the Nobel Prize for discovering how the body can constantly change its genes to fashion a seeming unlimited number of antibodies each specifically targeted at an invading microbe or foreign substance.
- (A) seeming unlimited number of antibodies, each specifically targeted at  
(B) seeming unlimited number of antibodies, each specifically targeted to  
(C) seeming unlimited number of antibodies, all specifically targeted at

- 
- (D) seemingly unlimited number of antibodies, all of them targeted specifically to  
(E) seemingly unlimited number of antibodies, each specifically targeted at

7. It is possible that Native Americans originally have migrated to the Western Hemisphere over a bridge of land that once existed between Siberia and Alaska.

- (A) have migrated to the Western Hemisphere over a bridge of land that once existed  
(B) were migrating to the Western Hemisphere over a bridge of land that existed once  
(C) migrated over a bridge of land to the Western Hemisphere that once existed  
(D) migrated to the Western Hemisphere over a bridge of land that once existed  
(E) were migrating to the Western Hemisphere over a bridge of land existing once

8. In the fall of 1985, only 10 percent of the women entering college planned to major in education, while 28 percent chose business making it the most popular major for women as well as for men.

- (A) as well as for men  
(B) as well as the men  
(C) and men too  
(D) and men as well  
(E) and also men

9. Because the Earth's crust is more solid there and thus better able to transmit seismic waves, an earthquake of a given magnitude typically devastates an area 100 times greater in the eastern United States than it does in the West.

- (A) of a given magnitude typically devastates an area 100 times greater in the eastern United States than it does in the West.  
(B) of a given magnitude will typically devastate 100 times the area if it occurs in the eastern United States instead of the West  
(C) will typically devastate 100 times the area in the eastern United States than one of comparable magnitude occurring in the West  
(D) in the eastern United States will typically devastate an area 100 times greater than will a quake of comparable magnitude occurring in the West.  
(E) that occurs in the eastern United States will typically devastate 100 times more area than if it occurred with comparable magnitude in the West.

10. Although Napoleon's army entered Russia with far more supplies than they had in their previous campaigns, it had provisions for only twenty-four days.

- (A) they had in their previous campaigns  
(B) their previous campaigns had had  
(C) they had for any previous campaign

- 
- (D) in their previous campaigns
  - (E) for any previous campaign

11. Certain pesticides can become ineffective if used repeatedly in the same place; a reason is suggested by the finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals.

- (A) Certain pesticides can become ineffective if used repeatedly in the same place; a reason is suggested by the finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals.
- (B) If used repeatedly in the same place, one reason that certain pesticides can become ineffective is suggested by the finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals.
- (C) If used repeatedly in the same place, one reason certain pesticides can become ineffective is suggested by the finding that much larger populations of pesticide-degrading microbes are found in soils with a relatively long history of pesticide use than those that are free of such chemicals.
- (D) The finding that there are much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in soils that are free of such chemicals is suggestive of one reason, if used repeatedly in the same place, certain pesticides can become ineffective.
- (E) The finding of much larger populations of pesticide-degrading microbes in soils with a relatively long history of pesticide use than in those that are free of such chemicals suggests one reason certain pesticides can become ineffective if used repeatedly in the same place.

12. One view of the economy contends that a large drop in all prices should eventually lead to lowering interest rates, as well as lowering fears about inflation, a rally in stocks and bonds, and a weakening of the dollar.

- (A) lowering interest rates, as well as lowering fears about inflation.
- (B) a lowering of interest rates and of fears about inflation.
- (C) a lowering of interest rates, along with fears about inflation.
- (D) interest rates being lowered, along with fears about inflation.
- (E) interest rates and fears about inflation being lowered, with

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13. After the Civil War contemporaries of Harriet Tubman's maintained that she has all the qualities of a great leader coolness in the face of danger an excellent sense of strategy and an ability to plan in minute detail.

- (A) Tubman's maintained that she has
- (B) Tubman's maintained that she had
- (C) Tubman's have maintained that she had
- (D) Tubman maintained that she had
- (E) Tubman had maintained that she has

14. From 1982 to 1987 sales of new small boats increased between five and ten annually.

- (A) From 1982 to 1987 sales of new small boats increased between five and ten annually.
- (B) Five to ten percent is the annual increase in sales of new small boats in the years 1982 to 1987.
- (C) Sales of new small boats have increased annually five and ten percent in the years 1982 to 1987.
- (D) Annually an increase of five to ten percent has occurred between 1982 to 1987 in the sales of new small boats.
- (E) Occurring from 1982 to 1987 was an annual increase of five and ten percent in the sales of new small boats.

15. In recent years cattle breeders have increasingly used crossbreeding in part that their steers should acquire certain characteristics and partly because crossbreeding is said to provide hybrid vigor.

- (A) in part that their steers should acquire certain characteristics
- (B) in part for the acquisition of certain characteristics in their steers.
- (C) partly because of their steers acquiring certain characteristics
- (D) partly because certain characteristics should be acquired by their steers.
- (E) partly to acquire certain characteristics in their steers

16. The peaks of a mountain range, acting like rocks in a streambed, produce ripples in the air flowing over them: the resulting flow pattern, with crests and troughs that remain stationary although the air that forms them is moving rapidly are known as "standing waves".

- (A) crests and troughs that remain stationary although the air that forms them is moving rapidly are
- (B) crests and troughs that remain stationary although they are formed by rapidly moving air are

- 
- (C) crests and troughs that remain stationary although the air that forms them is moving rapidly is
- (D) stationary crests and troughs although the air that forms them is moving rapidly are
- (E) stationary crests and troughs although they are formed by rapidly moving air is

17. Like Auden the language of James Merrill is chatty arch and conversational—given complex syntactic flights as well as to prosaic free-verse strolls.

- (A) Like Auden the language of James Merrill
- (B) Like Auden, James Merrill's language
- (C) Like Auden's, James Merrill's language
- (D) As with Auden, James Merrill's language
- (E) As is Auden's the language of James Merrill

18. In the textbook publishing business, the second quarters is historically weak, because revenues are low and marketing expenses are high as companies prepare for the coming school year.

- (A) low and marketing expenses are high as companies prepare
- (B) low and their marketing expenses are high as they prepare
- (C) low with higher marketing expenses in preparation
- (D) low, while marketing expenses are higher to prepare
- (E) low, while their marketing expenses are higher in preparation

19. Teratomas are unusual forms of cancer because they are composed of tissues such as a tooth and bone not normally found in the organ in which the tumor appears.

- (A) because they are composed of tissues such as tooth and bone
- (B) because they are composed of tissues like tooth and bone that are
- (C) because they are composed of tissues, like tooth and bone, tissues
- (D) in that their composition, tissues such as tooth and bone, is
- (E) in that they are composed of tissues such as tooth and bone, tissues

20. The Senate approved immigration legislation that would grant permanent residency to millions of aliens currently residing here and if employers hired illegal aliens they would be penalized.

- (A) if employers hired illegal aliens they would be penalized
- (B) hiring illegal aliens would be a penalty for employers
- (C) penalize employers who hire illegal aliens
- (D) penalizing employers hiring illegal aliens
- (E) employers to be penalized for hiring illegal aliens



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21. Scientists have recently discovered what could be the largest and oldest living ~~in~~ on Earth, a giant fungus that is an interwoven filigree of mushrooms and rootlike tentacles spawned by a single fertilized spore some 10,000 years ago and extending for more than 30 acres in the soil of a Michigan forest.
- (A) extending  
(B) extends  
(C) extended  
(D) it extended  
(E) is extending
22. The period when the great painted caves at Lascaux and Altamira were occupied by Upper Paleolithic people has been established by carbon-14 dating, but what is much more difficult to determine are the reason for their decoration, the use to which primitive people put the caves, and the meaning of the magnificently depicted animals.
- (A) has been established by carbon-14 dating, but what is much more difficult to determine are  
(B) has been established by carbon-14 dating, but what is much more difficult to determine is  
(C) (C)have been established by carbon-14 dating, but what is much more difficult to determine is  
(D) have been established by carbon-14 dating, but what is much more difficult to determine are  
(E) are established by carbon-14 dating, but which is much more difficult to determine is

### SENTENCE CORRECTION TEST SECTION 18

25 Minutes 22 Questions

1. Clark and Florence Wallace, a husband-and-wife medical team, worked steadily and efficiently through the night, but sipping their coffee the next morning, she noticed that he seemed disoriented.
- (A) sipping their coffee the next morning, she noticed that he seemed disoriented.  
(B) sipping their coffee the next morning, he seemed to be disoriented, she noticed  
(C) as they sipped their coffee the next morning, she noticed that he seemed disoriented  
(D) as they were sipping their coffee the next morning, he seemed, she noticed, disoriented  
(E) he seemed disoriented, she noticed, sipping their coffee the next morning

- 
2. Very popular from 1900 until the 1920's, the renewed interest in ceiling fans began when the energy crisis in 1974 forced homeowners to look for alternative methods of heating and cooling.
- (A) Very popular from 1900 until the 1920's, the renewed interest in ceiling fans began
  - (B) The renewed interest in ceiling fans, which were very popular from 1900 until the 1920's began
  - (C) After they were very popular from 1900 until the 1920's, the renewed interest in ceiling fans was beginning
  - (D) Ceiling fans were very popular from 1900 until the 1920's, with renewed interest beginning in them
  - (E) From 1900 until the 1920's ceiling fans were very popular, and now the interest in them has begun
3. There is speculation that increasing cold weather was what may have been responsible for the Anastasia move from Mesa Verde to sites in other canyons.
- (A) that increasing cold weather was what may have been
  - (B) whether increasing cold weather was what was
  - (C) that increasingly cold weather was what had been
  - (D) whether increasingly cold weather may have been what had been
  - (E) that increasingly cold weather may have been
4. In Aristophanes' *Lysistrata* women are seen as the means of bringing peace and good sense to a war-worn world.
- (A) as
  - (B) as if they are
  - (C) that they will be
  - (D) that they are
  - (E) for being
5. Despite no proof that the consumption of any particular foods reverses hardening of the arteries, studies indicate that refraining from eating certain foods could help reverse blockage of coronary arteries, the blood vessels that feed the heart.
- (A) Despite no proof that the consumption of any particular foods reverse hardening of the arteries, studies indicate that refraining from eating certain foods could
  - (B) Despite no foods having been proved to reverse hardening of the arteries when consumed, studies indicate that refraining from eating certain foods can
  - (C) Although the consumption of no particular foods have been proved to reverse hardening of the arteries, studies indicate that to refrain from eating certain foods could

- 
- (D) Although not proved that the consumption of any foods reverse hardening of the arteries, studies indicate that refraining from eating certain foods can
- (E) Although it has not been proved that the consumption of any particular food will reverse hardening of the arteries, studies indicate that refraining from eating certain foods can

6. Artificial intelligence emerged during the late 1950's as an academic discipline ~~on~~ the assumption that computers are able to be programmed to think like people.

- (A) are able to be programmed to think like people
- (B) were able to be programmed to think as people
- (C) can be programmed to think as people can
- (D) could be programmed to think like people
- (E) are capable of being programmed to think like people do

7. Although the coordination of monetary policy can help facilitate the orderly ~~ing~~ of existing imbalances, it is unlikely that its effect on their size is significant in the absence of an appropriate fiscal adjustment.

- (A) it is unlikely that its effect on their size is significant
- (B) it is unlikely that the size of their effect would be significant
- (C) affecting their sizes are not likely to be significant
- (D) the significance of their effect on its size is unlikely
- (E) its effect on their size is not likely to be significant

8. The proposed health care bill would increase government regulation of health insurance, establish standards that would guarantee wider access to people with past health problems and to workers changing jobs who otherwise could be uncovered for months.

- (A) establish standards that would guarantee wider access to people with past health problems and to workers changing jobs who
- (B) establish standards that would guarantee wider access to people with past health problems and to workers who are changing jobs and
- (C) to establish standards that would guarantee wider access to people with past ~~h~~ problems and to workers who change jobs that
- (D) for establishing standards that would guarantee wider access for people with past health problems and workers changing jobs who
- (E) for the establishment of standards that would guarantee wider access for people with past health problems and workers who are changing jobs that

- 
9. Many writers of modern English have acquired careless habits that damage the clarity of their prose, but these habits can be broken if they are willing to take the trouble.
- (A) but these habits can be broken  
(B) but these habits are breakable  
(C) but they can break these habits  
(D) which can be broken  
(E) except that can be broken
10. While the base salary for the top five officers of the company did not change from 1991, cuts were made in nonsalary compensation, as in allowances for overseas assignments and club memberships.
- (A) cuts were made in nonsalary compensation, as in  
(B) cuts were made in such nonsalary compensation as  
(C) cuts were made in such nonsalary compensation as those in  
(D) cuts in nonsalary compensation were made in areas like  
(E) there were cuts made in nonsalary compensation, in areas like
11. It is an oversimplified view of cattle raising to say that all one has to do with cattle is leave them alone while they feed themselves, corral them, and to drive them to market when the time is ripe.
- (A) all one has to do with cattle is leave them alone while they feed themselves, corral them and to  
(B) all one has to do with cattle is to leave them alone to feed themselves, to corral them and  
(C) all one has to do with cattle is leave them alone while they feed themselves and corral them and  
(D) the only thing that has to be done with cattle is leave them alone while they feed themselves, corral them, and  
(E) the only thing that has to be done with cattle is to leave them alone while they feed themselves, to corral them, and
12. Although dozens of New York's small museums are either devoted to local history or various ethnic groups, there are many one-of-a-kind museums from Manhattan to the Bronx that are open for exploration on summer weekends.
- (A) Although dozens of New York's small museums are either devoted to local history or various ethnic groups, there are  
(B) Although dozens of New York's small museums are devoted to local history or various ethnic groups,

- 
- (C) Dozens of New York's small museums are devoted to local history or various ethnic groups, but there are
- (D) Dozens of New York's small museums are devoted to local history or various ethnic groups, and there are also
- (E) Devoted to local history or various ethnic groups, dozens of New York's small museums and also

13. Oberlin College in Ohio was a renegade institution at its 1833 founding for deciding to accept both men and women as students.

- (A) at its 1833 founding for deciding to accept
- (B) for the decision at its 1833 founding to accept
- (C) when it was founded in 1833 for its decision to accept
- (D) in deciding at its founding in 1833 to accept
- (E) by deciding at its founding in 1833 on the acceptance of

14. Unlike a hurricane, which can be observed from within, a tornado is so small that such a study has not been practical.

- (A) that such a study has not been practical
- (B) that studying it that way has not been impractical
- (C) for such studies as this to have been impractical
- (D) as to not make such a study practical
- (E) as to be impractical of study

15. After the Colonial period's 50 percent mortality rate life expectancy improved for children, but as late as the nineteenth century about one child in three died ~~to~~ reaching the age of six.

- (A) After the Colonial period's 50 percent mortality rate, life expectancy improved ~~to~~ children, but
- (B) Even though children's life expectancy, which improved over the Colonial period's ~~to~~ percent mortality rate
- (C) Although life expectancy for children improved after the Colonial period, during which the mortality rate was 50 percent
- (D) While there was an improvement in life expectancy for children after the 50 percent mortality rate of the Colonial period, still
- (E) Despite children's life expectancy improvement from the Colonial period's 50 ~~to~~ mortality rate

16. Just as a writer trying to understand shelter life might read Shalom Aleichem or ~~the~~ Bashevis Singer, in the same way writers trying to understand Black life in the

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American South might well listen to records by the Mississippi Delta bluesman Charlie Patton.

- (A) in the same way writers trying to understand Black life in the American South might well listen to records
- (B) in the same way writers who try and understand Black life in the American South might well listen to record
- (C) so a writer trying to understand Black life in the American South might well listen to records
- (D) so do writers try and understand Black life in the American South and might well listen to a record
- (E) then writers trying to understand Black life in the American South could well listen to records

17. The pattern of whisker spots on the face of a male lion. like human fingerprints, are a lifelong means of identification, since they are both unique and unchanging.

- (A) like human fingerprints, are a lifelong means of identification, since they are both unique and unchanging
- (B) like human fingerprints, is a lifelong means of identification, since it is both unique and unchanging
- (C) like human fingerprints, is a means of identification for life, being both unique and unchanging
- (D) since they are both unique and unchanging, like human fingerprints, are a means of identification for life
- (E) both unique and unchanging, are like human fingerprints, a lifelong means of identification

18. Eleven though the state has spent ten years and seven million dollars planning a reservoir along the Ubi River, the project will have to be abandoned as a result of the river becoming so heavily polluted.

- (A) will have to be abandoned as a result of the river becoming so heavily polluted
- (B) is to be abandoned on account of the heavy pollution which the river received
- (C) had to be abandoned because the river had received such heavy pollution
- (D) has to be abandoned because of the river and its heavy pollution
- (E) must be abandoned because the river has become so heavily polluted

19. In spite of federal subsidizing of public transportation systems massively and major local efforts to persuade the public to use public transportation, mass transit has steadily losing patronage to the private automobile for the past thirty years.

- 
- (A) In spite of federal subsidizing of public transportation systems massively and major local efforts to persuade
- (B) In spite of massive federal subsidizing of public transportation systems and major efforts locally at persuading
- (C) Despite massive federal subsidies to public transportation systems and the making of major efforts locally to persuade
- (D) Despite massive federal subsidies to public transportation systems and major local efforts to persuade
- (E) Despite massive federal subsidies to public transportation systems and making major local efforts at persuading
20. Bankers require that the financial information presented to them by mortgage applicants be complete and follow a prescribed format.
- (A) be complete and follow a prescribed format
- (B) is complete and it follows a prescribed format
- (C) be complete and a prescribed format is followed
- (D) to be complete and a prescribed format be followed
- (E) be complete, and it followed a prescribed format
21. In the face of widespread concern about environmental waste, compact disk manufactures are attempting to find a replacement for the disposable plastic box in which they package their product.
- (A) the disposable plastic box in which they
- (B) the disposable plastic box where they
- (C) a disposable plastic box in which to
- (D) disposable plastic boxes inside which they
- (E) the disposable plastic boxes in which to
22. In feudal Europe, urban areas developed from clusters of houses where peasants lived and commuted to farmlands in the countryside, unlike homesteading policies in the American West that required residency on the land itself in order to obtain eventual ownership.
- (A) In feudal Europe, urban areas developed from clusters of houses where peasants lived and commuted to farmlands in the countryside, unlike homesteading policies in the American West that
- (B) In feudal Europe, urban areas developed from clusters of houses where peasants lived and from which they commuted to farmlands in the countryside, but in the American West homesteading policies

- 
- (C) Unlike feudal Europe where urban areas developed from clusters of houses where peasants lived and commuted to farmlands in the countryside, the American West's homesteading policies
- (D) Unlike feudal Europe where urban areas developed from clusters of houses where peasants lived and commuted to farmlands in the countryside the homesteading policies of the American West
- (E) Urban areas developed from clusters of houses where peasants lived from which they commuted to farmlands in the countryside in feudal Europe, unlike the American West where homesteading policies

### SENTENCE CORRECTION TEST SECTION 19

25 Minutes 22 Questions

1. Carnivorous mammals can endure what would otherwise be lethal levels of body heat because they have a heat-exchange network which kept the brain from getting too hot
- (A) which kept
- (B) that keeps
- (C) which has kept
- (D) that has been keeping
- (E) having kept
2. Rising inventories, when unaccompanied correspondingly by increases in sales, can lead to production cutbacks that would hamper economic growth.
- (A) when unaccompanied correspondingly by increases in sales, can lead
- (B) when not accompanied by corresponding increases in sales, possibly leads
- (C) when they were unaccompanied by corresponding sales increases, can lead
- (D) if not accompanied by correspondingly increased sales, possibly leads
- (E) if not accompanied by corresponding increases in sales, can lead
3. That educators have not anticipated the impact of microcomputer technology can hardly be said that it is their fault: Alvin Toffler, one of the most prominent students of the future, did not even mention microcomputers in Future Shock, published in 1970.
- (A) That educators have not anticipated the impact of microcomputer technology can hardly be said that it is their fault
- (B) That educators have not anticipated the impact of microcomputer technology can hardly be said to be at fault
- (C) It can hardly be said that it is the fault of educators who have not anticipated the impact of microcomputer technology



- 
- (D) It can hardly be said that educators are at fault for not anticipating the impact of microcomputer technology
- (E) The fact that educators are at fault for not anticipating the impact of microcomputer technology can hardly be said
4. Sunspots, vortices of gas associated with strong electromagnetic activity, are visible as dark spots on the surface of the Sun but have never been sighted on the Sun's poles or equator.
- (A) are visible as dark spots on the surface of the Sun but have never been sighted on
- (B) are visible as dark spots that never have been sighted on the surface of the Sun
- (C) appear on the surface of the Sun as dark spots although never sighted at
- (D) appear as dark spots on the surface of the Sun, although never having been sighted at
- (E) appear as dark spots on the Sun's surface, which have never been sighted on
5. Legend has it that when the Mohawk Joseph Brant was presented to George in 1776, he proudly refused to kiss the King's hand, inasmuch as he regarded himself an ally, not a subject.
- (A) as he regarded himself an ally, not
- (B) that he regarded himself to be an ally rather than
- (C) as he considered himself an ally, not
- (D) that he considered himself to be ally instead of
- (E) as he considered himself as an ally rather than
6. An artistic presence of the first order, one frequently ranked with Picasso, Stravinsky, and James Joyce, Martha Graham was acclaimed as a great dancer long before her innovative masterworks made her the most honored of American choreographers.
- (A) Martha Graham was acclaimed as
- (B) Martha Graham was acclaimed to be
- (C) Martha Graham's acclaim is as
- (D) Martha Graham's acclaim to be
- (E) Martha Graham's acclaim was in being
7. Research during the past several decades on the nature of language and the fact that produce and make it understandable has revealed great complexity instead of underlying simplicity.
- (A) that produce and make it understandable has revealed great complexity instead of underlying simplicity
- (B) of producing and understanding it have revealed not underlying simplicity but great complexity

- 
- (C) by which it is produced and understood has revealed not underlying simplicity but ~~g~~ complexity
- (D) by which it is produced and understood have revealed great complexity rather ~~than~~ underlying simplicity
- (E) by which one produces and understands it have revealed great complexity instead ~~of~~ underlying simplicity

8. The metabolic rate of sharks is low compared with the rates of most other fishes.

- (A) with the rates of most other fishes
- (B) to most other fishes' rate
- (C) to that of rates for most other fishes
- (D) to most other fishes
- (E) with most other fishes

9. Even as they never forgave the Crusaders who overran their homeland, the Syrians ~~have~~ never absolved the French for taking territory from them.

- (A) Even as they never forgave
- (B) While they never forgave
- (C) Just like they never forgave
- (D) Similarly to not forgiving
- (E) In spite of their never forgiving

10. The data collected by weather airplanes that fly into the heart of a hurricane are ~~is~~ mainly for gauging the storm's structure and strength, not for the speed and the path of their movement.

- (A) not for the speed and the path of their movement
- (B) not for the speed and path of its movement
- (C) not the speed and path of its movement
- (D) and not the speed and path of their movements
- (E) and not for the speed and the path of its movements

11. Unlike the United States. Japanese unions appear reluctant to organize lower-paid workers.

- (A) Unlike the United States, Japanese unions appear reluctant to organize
- (B) Unlike those in the United States, Japanese unions appear reluctant to organize
- (C) In Japan, unlike the United States, unions appear reluctant about organizing
- (D) Japanese unions, unlike the United States, appear reluctant to organize
- (E) Japanese unions, unlike those in the United States, appear reluctant about organizing

- 
12. The Olympic Games helped to keep peace among the pugnacious states of the Greek world in that a sacred truce was proclaimed during the festival's month.
- (A) world in that a sacred truce was proclaimed during the festival's month  
(B) world, proclaiming a sacred truce during the festival's month  
(C) world when they proclaimed a sacred truce for the festival month  
(D) world, for a sacred truce was proclaimed during the month of the festival  
(E) world by proclamation of a sacred truce that was for the month of the festival
13. The delinquency rates on mortgages for office buildings, hotels, shopping malls, and other commercial properties held by the nation's insurance companies in recent months have increased sharply, leading to predictions that foreclosures on these types of loan could double over the next three years.
- (A) in recent months have increased sharply, leading to predictions that foreclosures **n** these types of loan could double over the next three years  
(B) have increased sharply in recent months, leading to predictions that foreclosures **n** these types of loans could double over the next three years.  
(C) have increased sharply in recent months, leading to predictions that doubling **o** foreclosures on these types of loans could occur over the next three years.  
(D) has increased sharply in recent months and lead to predictions that over the next **b** years doubling of foreclosures on this type of loan could occur.  
(E) in recent months has increased sharply, and this leads to predictions that foreclosures **n** that type of loan in the next three years could double.
14. Just as reading Samuel Pepy's diary gives a student a sense of the seventeenth century—of its texture and psyche—so Jane Freed's guileless child narrator takes **te** operator inside turn-of-the-century Vienna.
- (A) so Jane Freed's guileless child narrator takes the operator  
(B) so listening to Jane Freed's guileless child narrator takes the operator  
(C) so the guileless child narrator of Jane Freed takes the operator  
(D) listening to Jane Freed's guileless child narrator takes the operator  
(E) Jane Freed's guileless child narrator takes the operator to her opera
15. Warning that computers in the United States are not secure, the National Academy **o** Sciences has urged the nation to revamp computer security procedures, institute new emergency response teams, creating a special nongovernment organization to take charge of computer security planning.
- (A) creating a special nongovernment organization to take  
(B) creating a special nongovernment organization that takes.  
(C) creating a special nongovernment organization fortaking

- 
- (D) and create a special nongovernment organization fortaking  
(E) and create a special nongovernment organization totake

16. Bihar is India's poorest state, with an annual per capita income of \$111, lower than in the most impoverished countries of the world.

- (A) lower than in  
(B) lower than that of  
(C) and lower than that of  
(D) which is lower than in  
(E) which is lower than it is in

17. Before the Civil War, Harriet Tubman, herself an escaped slave, returned slave, returned again and again to Maryland to guide other slaves along the Underground Railroad to freedom.

- (A) herself an escaped slave, returned again and again to Maryland to guide  
(B) being escaped slave herself, returned again and again to Maryland so as to guide  
(C) an escaped slave herself, returned again and again to Maryland for guiding  
(D) herself as an escaped slave, returned again and again to Maryland so as to be the guide of  
(E) who had been herself as an escaped slave, returned again and again to Maryland for to guiding of

18. While all states face similar industrial waste problems the predominating industries and the regulatory environment of the states obviously determines the types and amounts of waste produced, as well as the cost of disposal.

- (A) all states face similar industrial waste problems, the predominating industries and the regulatory environment of the states obviously determines  
(B) each state faces a similar industrial waste problem, their predominant industries and regulatory environment obviously determine  
(C) all states face a similar industrial waste problem, their predominating industries and regulatory environment obviously determines  
(D) each state faces similar industrial waste problems, the predominant industries and the regulatory environment of each state obviously determines  
(E) all states face similar industrial waste problems, the predominant industries and the regulatory environment of each state obviously determine

19. Section 13 (d) of the Securities Exchange Act of 1934 requires anyone who buys more than 5 percent of a company's stock make a public disclosure of the purchase.

- (A) make

- 
- (B) will also make
  - (C) to make
  - (D) must make
  - (E) must then make

20. When Congress reconvenes, some newly elected members from rural states will try and establish tighter restrictions for the amount of grain farmers are to be allowed to grow and to encourage more aggressive sales of United States farm products overseas.

- (A) and establish tighter restrictions for the amount of grain farmers are to be allowed to grow and to encourage,
- (B) and establish tighter restrictions on the amount of grain able to be grown by farmers and encouraging
- (C) establishing tighter restrictions for the amount of grain farmers are allowed to grow to encourage
- (D) to establish tighter restrictions on the amount of grain capable of being grown by farmers and encouraging
- (E) to establish tighter restrictions on the amount of grain farmers will be allowed to grow and to encourage.

21. After gradual declension down to about 39 hours in 1970, the workweek in the United States has steadily increased to the point that the average worker now puts in an estimated 164 extra hours of paid labor a year.

- (B) After gradual declension down
- (C) Following a gradual declension down
- (D) After gradual declining down
- (E) After gradually declining
- (F) Following gradually declining

22. El Niño, the periodic abnormal warming of the sea surface off Peru, a phenomenon in which changes in the ocean and atmosphere combine allowing the warm water that has accumulated in the western Pacific to flow back to the east.

- (A) a phenomenon in which changes in the ocean and atmosphere combine allowing the warm water that has accumulated
- (B) a phenomenon where changes in the ocean and atmosphere are combining to allow the warm water that is accumulating
- (C) a phenomenon in which ocean and atmosphere changes combine and which allows the warm water that is accumulated
- (D) is a phenomenon in which changes in the ocean and atmosphere combine to allow the warm water that has accumulated

- 
- (E) is a phenomenon where ocean and atmosphere changes are combining and allow the warm water accumulating

**SECTION 20**  
**25 Minutes 22 Questions**

1. The black hole has entered the popular imagination as an object too massive that neither light nor matter can escape its gravitational pull.
- (A) too massive that neither light nor matter can escape its
  - (B) too massive for either allowing light or matter to escape its
  - (C) massive enough that either light or matter cannot escape their
  - (D) so massive that neither light nor matter could escape their
  - (E) so massive that neither light nor matter can escape its
2. After crude oil, natural gas is the United States second biggest fuel source and supplied almost exclusively from reserves in North America.
- (A) After crude oil, natural gas is the United States second biggest fuel source supplied almost exclusively from reserves in North America.
  - (B) Natural gas, after crude oil the United States second biggest fuel source, supplied almost exclusively from reserves in North America.
  - (C) Being supplied almost exclusively from reserves in North America, natural gas the United States second biggest fuel source after crude oil.
  - (D) Natural gas, the United States' second biggest fuel source after crude oil, is supplied almost exclusively from reserves in North America.
  - (E) Natural gas is supplied almost exclusively from reserves in North America, being the United States' second biggest fuel source after crude oil.
3. The airline industry is cutting its lowest discount fares more widely, more substantially, and earlier this year than it normally does at the end of the summer, a time during which travel usually decreases and the industry uses some lower fares for the attraction of passengers.
- (A) during which travel usually decreases and the industry uses some lower fares for the attraction of
  - (B) during which travel usually decreases and therefore the industry will use lower fares for the attraction of
  - (C) in which travel usually decreases and in which the industry therefore uses lower fares attracting
  - (D) when travel usually decreases and the industry uses some lower fares to attract
  - (E) when travel usually decreases and therefore the industry will use lower fares for the attraction of
4. The aristocratic values expressed in the writings of Marguerite Yourcenar place within the French classical tradition, as does her passionate interest in history, particularly Roman history.
- (A) as does
  - (B) so do
  - (C) as do
  - (D) so is the case with

- 
- (E) similarly, does
5. Selling several hundred thousand copies in six months, the publication of “Maple Leaf Rag” in 1899 was an instant hit, helping to establish Scott Joplin as the preeminent ragtime composer.
- (A) Selling several hundred thousand copies in six months, the publication of “Maple Leaf Rag” in 1899 was an instant hit, helping to establish Scott Joplin as the preeminent ragtime composer.
- (B) The publication in 1899 of “Maple Leaf Rag” was an instant hit: in six months they sold several hundred thousand copies and it helped establish Scott Joplin as the preeminent ragtime composer.
- (C) Helping to establish Scott Joplin as the preeminent ragtime composer was the publication of “Maple Leaf Rag” in 1899, which was an instant hit: it sold several hundred thousand copies in six months.
- (D) “Maple Leaf Rag” was an instant hit: it helped establish Scott Joplin as the preeminent ragtime composer, published in 1899 and selling several hundred thousand copies in six months.
- (E) Published in 1899, “Maple Leaf Rag” was an instant hit, selling several hundred thousand copies in six months: it helped establish Scott Joplin as the preeminent ragtime composer.
6. Because paper of all kinds is the biggest single component of municipal trash, many municipalities have tried recycling to reduce the cost of trash disposal.
- (A) Because paper of all kinds is the biggest single component of municipal trash, many municipalities have tried recycling to reduce the cost of trash disposal.
- (B) Because paper of all kinds is the biggest single component in municipal trash, many municipalities tried to recycle so that the cost of trash disposal is reduced.
- (C) Because paper of all kinds are the biggest single components in municipal trash, many municipalities have tried to recycle to reduce the cost of trash disposal.
- (D) All kinds of paper are the biggest single components of municipal trash, and many municipalities have tried recycling to reduce the cost of trash disposal.
- (E) All kinds of paper is the biggest single component of municipal trash, so many municipalities have tried to recycle so that the cost of trash disposal could be reduced.
7. As rare as something becomes, the more avidly it is sought by collectors.
- (A) As rare as something becomes, be it
- (B) As rare as something becomes, whether it is
- (C) As something becomes rarer and rarer, like
- (D) The rarer something becomes, like
- (E) The rarer something becomes, whether it is
8. Psychologists now contend that the way adults think and feel are determined as much by their peers in early childhood than by their parents.
- (A) are determined as much by their peers in early childhood than by their
- (B) are determined as much by peers in early childhood as do their
- (C) is determined as much by their early childhood peers as by their
- (D) have been determined by childhood peers as much as their
- (E) was determined as much by one’s peers in childhood as by one’s

- 
9. Migraine, the most debilitating common form of headache, afflicts perhaps 18 million Americans, who collectively lose 64 million workdays a year, and they cost the nation \$50 billion in medical expenses and lost work time.
- (A) year, and they cost the nation \$50 billion in medical expenses and lost
  - (B) year and thus cost the nation \$50 billion in medical expenses and lost
  - (C) year, so as to cost the nation \$50 billion in medical expenses and lost
  - (D) year that costs the nation \$50 billion in lost medical expenses and
  - (E) year, which thus cost the nation \$50 billion in lost medical expenses and
10. Like many others of his generation of Native American leaders, Joseph Brant lived in two worlds; born into an Iroquois community and instructed in traditional Iroquois ways, he also received an education from English-speaking teachers.
- (A) Like many others of his generation of Native American leaders, Joseph Brant ~~lived~~ in two worlds;
  - (B) Like many others of his generation of Native American leaders, living in ~~to~~ worlds, Joseph Brant was
  - (C) Like many another of his generation of Native American leaders, Joseph ~~but~~ living in two worlds, was
  - (D) As with many others of his generation of Native American leaders, living in ~~to~~ worlds, Joseph Brant was
  - (E) As with many another of his generation of Native American leaders, Joseph ~~but~~ lived in two worlds;
11. Sales of United States manufactured goods to nonindustrialized countries rose to ~~8~~ billion in 1992, which is 14 percent more than the previous year and largely ~~off~~ weak demand from Europe and Japan.
- (A) which is 14 percent more than the previous year
  - (B) which is 14 percent higher than it was the previous year
  - (C) 14 percent higher than the previous year's figure
  - (D) an amount that is 14 percent more than the previous year was
  - (E) an amount that is 14 percent higher than the previous year's figure
12. All-terrain vehicles have allowed vacationers to reach many previously ~~in~~ areas, but they have also been blamed for causing hundreds of deaths, injury to thousands, and seriously damaging the nation's recreational areas.
- (A) deaths, injury to thousands, and seriously damaging
  - (B) deaths and injuring thousands, and serious damage to
  - (C) deaths, thousands who are injured, as well as seriously damaging
  - (D) deaths and thousands of injuries, as well as doing serious damage to
  - (E) deaths, thousands are injured, and they do serious damage to
13. Foreign investors, because of their growing confidence in their capability for making profitable investments in the United States, have been led to move from passive involvement in commercial real estate partnerships to active development of their own increasingly ambitious projects.
- (A) Foreign investors, because of their growing confidence in their capability ~~in~~ making profitable investments in the United States, have been led
  - (B) Foreign investors, growing confident about their capability for making profitable investments in the United States, has led them
  - (C) Growing confidence in their ability to make profitable investments in the United



- 
- States has led foreign investors
- (D) Growing confidence in their ability for making profitable investments in the United States have led foreign investors
- (E) Growing confident about their capabilities for making profitable investments in the United States, foreign investors have been led
14. Local residents claim that San Antonio, Texas, has more good Mexican American restaurants than any city does in the United States.
- (A) any city does
- (B) does any other city
- (C) other cities do
- (D) any city
- (E) other cities
15. If the new airboat does what it is to be doing—travel at high speeds undeterred by sandbars, crocodile-infested mudflats, or marshy hippo haunts—it could revolutionize transport on the 2,900-mile-long Congo River.
- (A) If the new airboat does what it is to be doing
- (B) If the new airboat does what it is supposed to do
- (C) If it does as the new airboat is supposed to do
- (D) Doing what it is the new airboat is supposed to do
- (E) Doing what the new airboat is to be doing
16. The company is negotiating to sell its profitable credit card subsidiary, which it plans to use money from to acquire some of the mortgage-servicing operations that are being sold by troubled savings institutions.
- (A) subsidiary, which it plans to use money from
- (B) subsidiary, from which it plans to use money
- (C) subsidiary, and it plans the use of money from that
- (D) subsidiary and plans to use money from that sale
- (E) subsidiary and plans the use of money from that sale
17. In the 1980's the rate of increase of the minority population of the United States was nearly twice as fast as the 1970's.
- (A) twice as fast as
- (B) twice as fast as it was in
- (C) twice what it was in
- (D) two times faster than that of
- (E) two times greater than
18. The figure of the jaguar, being a recurring symbol within Olmec art, is prominent among the hieroglyphics inscribed on a monument that was discovered in the Mexican state of Veracruz.
- (A) being a recurring symbol within
- (B) a symbol having recurred within
- (C) a recurring symbol in
- (D) having been a symbol that recurred in
- (E) recurring as it is, a symbol in

- 
19. As the etched lines on computer memory chips have become thinner and the circuits more complex, both the power of the chips and the electronic devices they drive have vastly increased.
- (A) the chips' circuits more complex, both the power of the chips and the devices they drive have
  - (B) the chips' circuits more complex, the power of both the chips and the devices they drive has
  - (C) the chips' circuits are more complex, both the power of the chips and the devices they drive has
  - (D) their circuits are more complex, the power of both the chips and the devices they drive have
  - (E) their circuits more complex, both the power of the chips and the electronic devices they drive have
20. Since savings banks have to use short-term deposits to finance long-term ~~fixed~~ mortgage loans, they sometimes lose money when there is a rise in short-term rates and on the other hand, they are unable to raise the rates on their mortgages.
- (A) when there is a rise in short-term rates and, on the other hand, they are unable to raise
  - (B) when short-term rates rise and they are unable to raise
  - (C) when a rise in short-term rates occurs and, correspondingly, there is no possible in
  - (D) with a rise in short-term rates, and they are unable to raise
  - (E) with short-term rates on the rise and no rise possible in
21. St. John's, Newfoundland, lies on the same latitude as Paris, France, but in spring St. John's residents are less likely to be sitting at outdoor cafes than to be bracing themselves against arctic chills, shoveling snow, or seeking shelter from a raging northeast storm.
- (A) residents are less likely to be sitting at outdoor cafes than to be bracing themselves against arctic chills, shoveling snow, or seeking
  - (B) residents are less likely to sit at outdoor cafes, and more to brace themselves against arctic chills, shovel snow, or be seeking
  - (C) residents are less likely to be sitting at outdoor cafes, and more likely to be bracing themselves against arctic chills, shoveling snow, or to be seeking
  - (D) residents, instead of their sitting at outdoor cafes, they are more likely to brace themselves against arctic chills, shovel snow, or seek
  - (E) residents, instead of sitting at outdoor cafes, are more likely to brace themselves against arctic chills, shovel snow, or to be seeking
22. Unlike other arachnids, which have their nerve cells evenly distributed along ~~its~~ bodies, the scorpion's nerve cells are clustered in its head, like a mammal's.
- (A) bodies, the scorpion's nerve cells are clustered in its head, like a mammal's
  - (B) bodies, the scorpion's head had a cluster of nerve cells, as a mammal does
  - (C) body, the scorpions has a cluster of nerve cells in its head, as a mammal does
  - (D) body, nerve cells are clustered in the scorpion's head, like a mammal's
  - (E) body, a cluster of nerve cells is in the scorpion's head, like a mammal's

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**SENTENCE CORRECTION TEST SECTION 21**

**25 Minutes    22 Questions**

1. Most energy analysts now agree that the costs of building and maintaining ~~nuclear~~ reactors are too high for nuclear power to likely prove cheaper than coal or oil in the long run.
  - (A) too high for nuclear power to likely
  - (B) high enough for nuclear power to be unlikely to
  - (C) high enough that it is unlikely nuclear power will
  - (D) so high that nuclear power is unlikely to
  - (E) so high as to be unlikely that nuclear power will
  
2. New Jersey's is one of the five highest number of reported cases of Lyme disease in ~~the~~ United States.
  - (A) New Jersey's is one of the five highest number of reported
  - (B) New Jersey's is one of the five highest numbers in reporting
  - (C) New Jersey has a report of one of the five highest numbers of
  - (D) New Jersey has one of the five highest numbers of reported
  - (E) New Jersey reports one of the five highest number of
  
3. According to a ruling by the state supreme court, the owner of polluted land is liable ~~for~~ the cleanup of the property even if the owner did not have the responsibility that pollution occurred before the title changed hands.
  - (A) the owner did not have the responsibility that pollution
  - (B) the owner is not responsible for pollution that
  - (C) it was not the owner's responsibility that pollution would have
  - (D) the responsibility of the owner is not that pollution
  - (E) the responsibility was not the owner's that pollution would have
  
4. Scientists have suggested that once every 10 million years or so a truly colossal ~~object~~ from space cuts through the atmosphere and slams into Earth, sending up a global pall of dust that blots out the Sun, alters the climate, and changes the course of evolution ~~by~~ killing off many plant and animal species.
  - (A) sending up a global pall of dust that blots
  - (B) thus sending up a global pall of dust to blot
  - (C) thereby sending up a global pall of dust to blot
  - (D) and that sends up a global pall of dust, blotting
  - (E) which sends up a global pall of dust, blots
  
5. By the mid-seventeenth century, Amsterdam had built a new town hall so large that only St. Peter's in Rome, the Escorial in Spain, and the Palazza Ducale in Venice could rival it for scale or magnificence.
  - (A) could rival it for
  - (B) were the rivals of it in their
  - (C) were its rival as to
  - (D) could be its rivals in their
  - (E) were rivaling its

- 
6. The Audubon Society and other conservation groups, concerned over what they ~~is~~ perceived to be the serious threatening of the environment as posed by the policies ~~the~~ government, are preparing for a major political effort.
- (A) have perceived to be the serious threatening of the environment as
  - (B) perceived as the serious threat to the environment as
  - (C) perceive being the serious threat to the environment
  - (D) are perceiving as the serious threatening of the environment
  - (E) perceive as the serious threat to the environment
7. At a time when it was unusual to do it, Dorothy Sterling wrote about such major figures of Black history as Harriet Tubman and W. E. B. Du. Bois.
- (A) it was unusual to do it
  - (B) it was unusual to do so
  - (C) doing that was unusual
  - (D) that was an unusual thing to be doing
  - (E) it was not usual to do
8. Houseflies that hatch in summer live only about three weeks, but those that emerge in the cooler days of fall often live longer than six months.
- (A) weeks, but those that emerge in the cooler days of fall often live
  - (B) weeks, but those that emerge in the cooler days of fall often live as long or
  - (C) weeks, which is different from those that emerge in the cooler days of fall and often live
  - (D) weeks; then those that emerge in the cooler days of fall often live as long as or
  - (E) weeks; this is different from those that emerge in the cooler days of fall, who ~~ofn~~ live
9. The auto industry has experienced one of its most significant trends in the last 50 years which is the migration of motorists from passenger cars to minivans, sport ~~ly~~ vehicles, and pickups.
- (A) The auto industry has experienced one of its most significant trends in the last ~~6~~ years, which is
  - (B) Of the trends the auto industry experienced in the last 50 years has been one of he most significant.
  - (C) In the last 50 years, one of the most significant trends that the auto industry ~~is~~ been experiencing has been
  - (D) One of the most significant trends that the auto industry has experienced in the ~~150~~ years is
  - (E) In the last 50 years, the auto industry experienced one of the most ~~significant~~ trends that it has had, that of
10. The animosity between those who regulate and those who are regulated, never is pronounced than in recent debates over environmentalism and pollution control.
- (A) The animosity between those who regulate and those who are regulated, never
  - (B) The animosity between those who regulate and those who are regulated, ~~is~~ being
  - (C) The animosity between those who regulate and those who are regulated has ~~never~~ been

- 
- (D) Between those who regulate and those who are regulated, such animosity ~~is~~ never
- (E) Between those who regulate and between those regulated, such animosity ~~is~~ never been
11. Some psychiatric studies indicate that among distinguished artists the rates of manic depression and major depression are ten to thirteen times as prevalent as in the population at large.
- (A) the rates of manic depression and major depression are ten to thirteen times as prevalent as in
- (B) the rates of manic depression and major depression are ten to thirteen times more prevalent than in
- (C) the rates of manic depression and major depression are ten to thirteen times more prevalent when compared to
- (D) manic depression and major depression are ten to thirteen times as prevalent when compared to
- (E) manic depression and major depression are ten to thirteen times more prevalent than in
12. Until quite recently, American presidents lived in a world in which the public and private realms of their lives were largely separate, and the press cooperated in maintaining the distinction, and Americans judged national leaders without receiving, or expecting, intimate information about them.
- (A) and the press cooperated in maintaining the distinction, and
- (B) where the press cooperated in maintaining the distinction, and where
- (C) for the press cooperated to maintain the distinction and
- (D) the press cooperated to maintain the distinction, for
- (E) in which the press cooperated in maintaining the distinction, and in which
13. On the Great Plains, nineteenth-century settlers used mud and grass to build their homes, doing it without timber and nails.
- (A) settlers used mud and grass to build their homes, doing it without
- (B) settlers used mud and grass to build their homes, did it without
- (C) settlers used mud and grass to build their homes, making them while not having
- (D) settlers used mud and grass to build their homes, making do without
- (E) settlers' homes were built of mud and grass, making do without
14. Intended primarily to stimulate family summer travel, the new airfare, which ~~does~~ both an adult and a child to fly for the price of one ticket, and also shortens the advance-purchase requirement for family travel to a minimum of seven days rather than fourteen.
- (A) and also shortens the advance-purchase requirement for family travel to a minimum of seven days rather than
- (B) and also lessens the advance-purchase requirement for family travel to a seven-day minimum from
- (C) also shortens the advance-purchase requirement for family travel to a minimum of seven days rather than that of
- (D) also lessens the advance-purchase requirement for family travel to a seven-day minimum from

- 
- (E) also shortens the advance-purchase requirement for family travel to a minimum of seven days rather than
15. People have discovered the principles of solar energy whenever fuel becomes scarce and expensive but will forget them every time a new source of cheap energy is developed.
- (A) have discovered the principles of solar energy whenever fuel becomes scarce and expensive but will forget
  - (B) have discovered the principles of solar energy whenever fuel has become scarce and expensive but they forget
  - (C) discovered the principles of solar energy every time fuel becomes scarce and expensive, forgetting
  - (D) discover the principles of solar energy every time fuel became scarce and expensive, but they forget
  - (E) discover the principles of solar energy whenever fuel becomes scarce and expensive but forget
16. New techniques in thermal-scanning photography, a process that records radiation from surface areas, makes it possible to study the effects of calefaction, or warming, of a river in greater detail than ever before.
- (A) makes it possible to study the effects of calefaction, or warming, of a river in greater detail than ever before
  - (B) make it possible to study, in greater detail, the effects of calefaction, or warming, of a river than everbefore
  - (C) have made it possible to study in greater detail than ever before the effects of calefaction, or warming, of a river
  - (D) make possible the study of the effects of calefaction, or warming, of a river in greater detail than it ever was before
  - (E) has made it more possible than ever before to study in greater detail the effects of calefaction, or warming, of a river
17. Bob Wilber became Sidney Bechet's student and protege when he was nineteen and, for a few years in the 1940's, came as close to being a carbon copy of the jazz virtuoso in performance as anyone has ever come.
- (A) as anyone has ever come
  - (B) as anyone ever had been
  - (C) as anyone ever had done
  - (D) that anyone ever did
  - (E) that anyone ever came
18. Despite its attractiveness, investing abroad can still pose big risks, ranging from the potential for political instability in some countries to the shortage of regulations to protect investors and a serious lack of information about investments in others.
- (A) to the shortage of regulations to protect investors and a serious lack of information about investments in others
  - (B) to the shortage of regulations to protect investors and in others a serious lack of information about investments
  - (C) and the shortage of regulations to protect investors and a serious lack of information about investments in others

- 
- (D) and the shortage of regulations to protect investors to a serious lack of information about investments in others
- (E) to the shortage of regulations to protect investors in others and a serious lack of information about investments
19. That the new managing editor rose from the publication's "soft" news sections to a leadership position is more of a landmark in the industry than her being a woman.
- (A) her being a woman
- (B) being a woman is
- (C) her womanhood
- (D) that she was a woman
- (E) that she is a woman
20. In the initial planning stages, the condominium corporation took into account only the concerns of its prospective clients, not those of surrounding homeowners.
- (A) the condominium corporation took into account only the concerns of its prospective clients
- (B) the condominium corporation has only taken into account the concerns of its prospective clients
- (C) the condominium corporation only took their prospective clients' concerns into account
- (D) the concerns of its prospective clients only were taken into account by the condominium corporation
- (E) prospective clients had their concerns only taken into account by the condominium corporation
21. Of all the wild animals in their area, none was more useful to the Delaware tribes than the Virginia white-tailed deer: it was a source of meat, and its hide was used for clothing, its antlers and bones for tools, and its sinews and gut for bindings and glue.
- (A) deer: it was a source of meat, and its hide was used for clothing, its antlers and bones for tools, and its sinews and gut
- (B) deer: it was a source of meat, and its hide used for clothing, with its antlers and bones for tools, and its sinews and gut used
- (C) deer: which was a source of meat, with its hide used for clothing, antlers and bones for tools, as well as its sinews and gut used
- (D) deer: which, as well as being a source of meat, its hide was used for clothing, its antlers and bones for tools, and its sinews and gut were
- (E) deer: with, as well as being a source of meat, its hide used for clothing, its antlers and bones for tools, and its sinews and gut
22. Unlike most warbler species, the male and female blue-winged warbler are very difficult to tell apart.
- (A) Unlike most warbler species, the male and female blue-winged warbler are very difficult to tell apart.
- (B) Unlike most warbler species, the gender of the blue-winged warbler is very difficult to distinguish.
- (C) Unlike those in most warbler species, the male and female blue-winged warblers are very difficult to distinguish.
- (D) It is very difficult, unlike in most warbler species, to tell the male and female

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blue-winged warbler apart.

- (E) Blue-winged warblers are unlike most species of warbler in that it is very difficult to tell the male and female apart.

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Teststreams



## ANSWERS KEYS

### SENTENCE CORRECTION

- Section 1: CBDDA BBDEA DCECE CEADB CACBD  
Section 2: DBBCE ACDBA DBCDA EACAD EBAED  
Section 3: EBDAB ECABC DDDAD BEBCE AAEBE  
Section 4: BAECA DACED EADAB CBDCE CECEB  
Section 5: DCBEB ECDEA EDCDC EACBA BCAAD
- Section 6: DECBC EACDB AECAB DCDEC AEABE  
Section 7: CEECB DACEB ECABD ECDAE DABDC  
Section 8: DBEAC CDAEC BDEAB DCBBE BACDACC DE  
Section 9: CCECD BCCAEE EACEA ACBDD EBEDB BA  
Section 10: ABDCE CCEBE CABDC EABBE EDDCA BA
- Section 11: DBAEA DDCBE DCAAC EBEBD EEABC AB  
Section 12: BBCBC BEBCB CEDDD AAED AEDAE AC  
Section 13: CBCDE CBACE DAACA C□BDA CDDEB AB  
Section 14: CDACE DBCED EEBAD ADBAA CB  
Section 15: BDBAC DE EC ABD□B AEEAB CE
- Section 16: CEEAC DACBD DBACB CADEE EB  
Section 17: EC□ED EDADE ABDAE CCAEC AB  
Section 18: CBEAE DEBCB CDDAC CBEDA AB  
Section 19: BEDCC AAAAC BCBBE BAECE DD  
Section 20: EDDAE AECBA EDCBB DCCBB AC  
Section 21: DDBAA EBADC EEDEE CAAEA AE

## CRITICAL REASONING

- Section 1: DBEDA CEEDD CEACA BDCCA  
Section 2: ACBEB EDBBB CABAD AAEAD  
Section 3: BBCEE ACCCE DBBDA CCDAE  
Section 4: ACBAB BBDDE CECBC DACEB  
Section 5: DEEDC BBDCE DECAA CCEAC
- Section 6: BBBCE CBCCD DEAAD DEEAC  
Section 7: CCECA DDCAA DADBE EDBEB  
Section 8: DABDC AABEB AAEBB EBCDE  
Section 9: ABDDB ECDAE BDACE BBACA  
Section 10: CCEDA DADCA DCBBB EABBD
- Section 11: ADBCA EDBEC CDEAB ACBEB  
Section 12: DBDCE C□ECA CCECA B□EED  
Section 13: DECBA D□DEC CAEAE D  
Section 14: ECABA BEBAE CBDDA B  
Section 15: DEDAB DADAC CEBCB D
- Section 16: DABEB ECDBB CCCAC B  
Section 17: BECCB ADDBA BDECE D  
Section 18: AAEAD EBAEC EDABC C  
Section 19: CAEEB AEDBD DBDBC D  
Section 20: EBEDA DAADA EBCDB A

## COMPREHENSION

Passage 1: BECAC BEC  
Passage 2: ABCEB CBCD  
Passage 3: EBAED ABB

Passage 4: DBCBA BA  
Passage 5: EDBCB AEDA  
Passage 6: ADBAE CDBA

Passage 7: ECDBB DC  
Passage 8: ACADE AEDC  
Passage 9: EACCB EDAB

Passage 10: DDDAD EBBA  
Passage 11: BEECA CB  
Passage 12: ADCCC BBED

Passage 13: DDCDC DEB  
Passage 14: EEDEA BCDD  
Passage 15: DCADC DCA

Passage 16: ACBBC DB  
Passage 17: AEEBC DCAE  
Passage 18: DDBCB CEAB

Passage 19: EDBCB DAD  
Passage 20: CADAA CB  
Passage 21: DDBAD ECA

Passage 22: BDEDD BCA  
Passage 23: DCAEC BCA  
Passage 24: BDAEE CA

Passage 25: BEBCA CAC  
Passage 26: ECEEB DDA  
Passage 27: BCECB ED

Passage 28: BBDDD CD  
Passage 29: ECCA□ EDB  
Passage 30: BADBA CED

Passage 31: DEECC DBD  
Passage 32: BCCCA BBD  
Passage 33: BABDB CB

Passage 34: CDDBA CC  
Passage 35: BECDE ADE  
Passage 36: BACAA EBD

Passage 37: CBECA CD  
Passage 38: CBACE ED  
Passage 39: CDEB

Passage 40: DEADC BAA  
Passage 41: EAECB CDAA  
Passage 42: CDCEB E

Passage 43: ABDBC CDE  
Passage 44: BCEDA CEA  
Passage 45: CBBEA AC

Passage 46: DEDDC A  
Passage 47: DCACE B  
Passage 48: CDBCA B

Passage 49: BCECE CCA  
Passage 50: BACBD ACD  
Passage 51: DAEEB EA

Passage 52: BABBD E  
Passage 53: CBECD A  
Passage 54: DDCEB E

Passage 55: CBEEE AA  
Passage 56: EDADB C  
Passage 57: CDDAE

Passage 58: CDEDB  
Passage 59: ADBEB C  
Passage 60: CBBBE AC

Passage 61: BAAEC  
Passage 62: BDBDD CA  
Passage 63: BCADE B

# ANSWERS

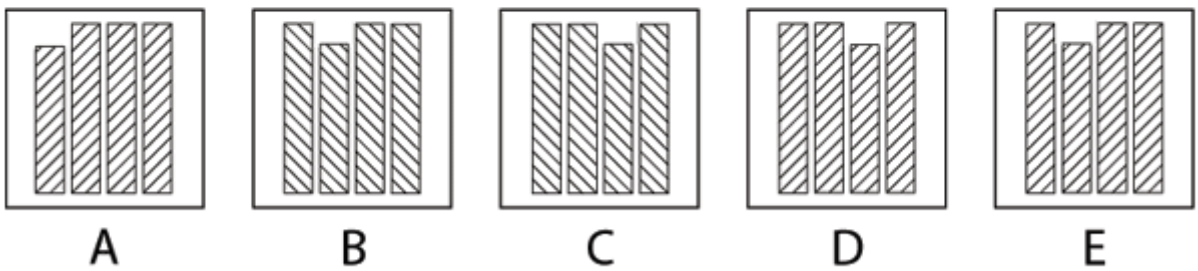
## QUANTITATIVE TEST

Section 1:	DBCAE	BBACA	EEDCB	CCADA
Section 2:	CADBA	ABEDC	DCCAD	EBEAD
Section 3:	ACDBE	CDBDA	ECBEA	DACBB
Section 4:	CADAC	BEDAB	EEBCB	DDCBD
Section 5:	CEACD	BECCD	DBDAE	EAEBB
Section 6:	CAEDB	CAEEB	DADBB	CCDCD
Section 7:	EACDB	BDCEB	CADCE	ADBEC
Section 8:	ACBEA	DDEBD	BACEA	CBDCA

**\*9-20 Missing**

Section 21:	CDBDC	EEDAC	AAEDA	ECBEC
Section 22:	DDCDB	ABCAC	DCE E	AECEB
Section 23:	CEDAB	□DAEC	BABDE	BCDAC
Section 24:	DDEBC	ABDBE	DCAEC	EBDAE
Section 25:	CDCDB	AECED	EEBCB	CACDA
Section 26:	BCCA E	CAEDD	DEABD	ECCE
Section 27:	ACECB	CACEB	DBEBC	E
Section 28:	BEBED	CDDDD	BEEBA	E
Section 29:	CCDAE	ECECA	ABBAD	D
Section 30:	CDCCB	CEBCC	DBBAE	B
Section 31:	DBECD	ACEAB	CADDB	B
Section 32:	AEECB	BECCE	ACDBB	D
Section 33:	CDDCE	CEEBA	EBDAC	B
Section 34:	AEBBD	CDEDA	DADEA	C
Section 35:	EBCB□	EEADB	CCCEE	C
Section 36:	BEBDE	BADDC	BDCAD	C
Section 37:	DEEDB	EACCA	ABDED	E
Section 38:	BAEEC	DEBCA	AEEBD	B
Section 39:	ABCAC	AABBD	EDECB	E
Section 40:	BDCDC	ECBBE	CAEBA	E
Section 41:	CBCDC	□ADEB	ABCEE	B
Section 42:	BEADA	DBCAB	CBD CD	E

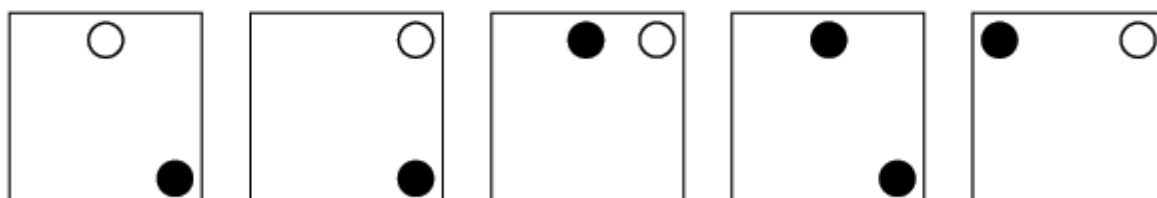
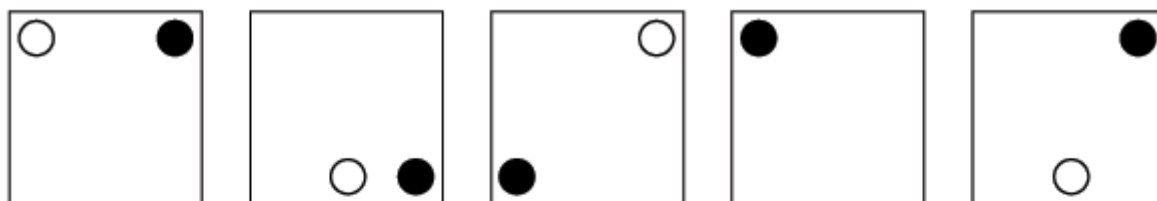
# ABSTRACT REASONING / PATTERN RECOGNITION - HCP TEST



**Q1**    What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1:    The direction of the lines alternates between NW-SE and NE-SW.  
Rule 2:    The short column moves one place to the right each time.



A

B

C

D

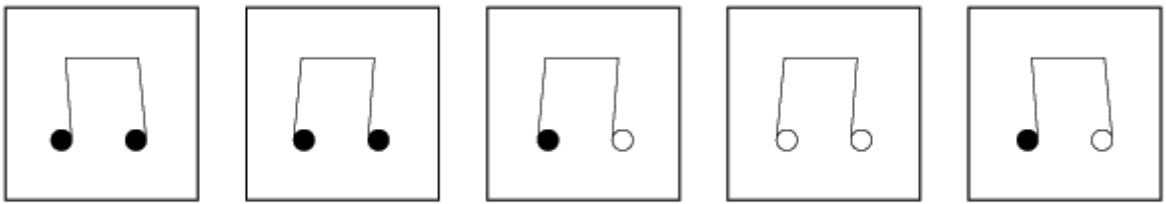
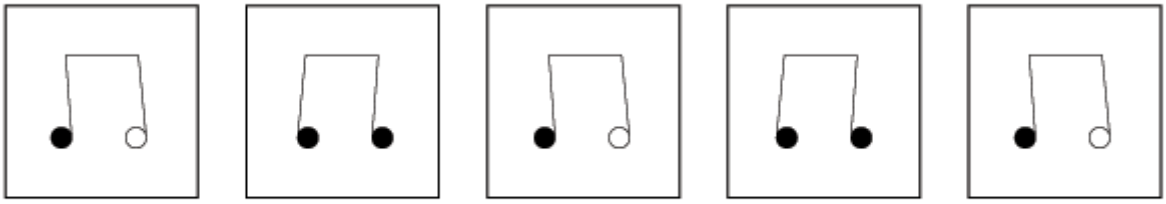
E

**Q2** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The unshaded circle moves from top left, to bottom middle, to top right, and then the pattern repeats.

Rule 2: The shaded circle moves one place clockwise each time.



A

B

C

D

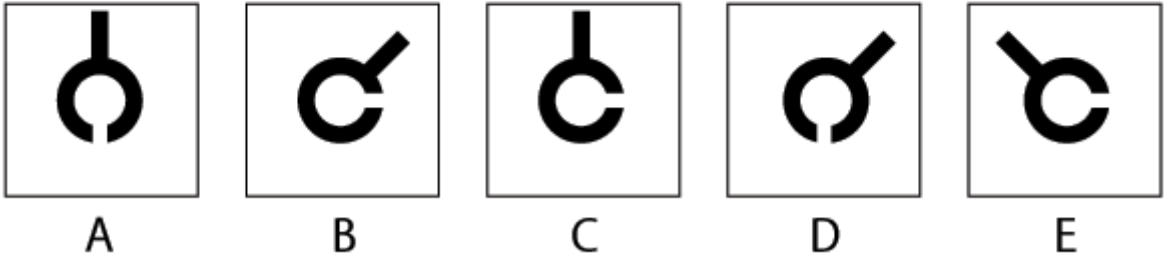
E

**Q3** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The symbol alternates between facing right and left.

Rule 2: The right sided circle alternates between shaded and unshaded.



**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The black line rotates  $135^\circ$  clockwise around the circle.

Rule 2: The missing segment moves one place counterclockwise around the circle each time.





A

B

C

D

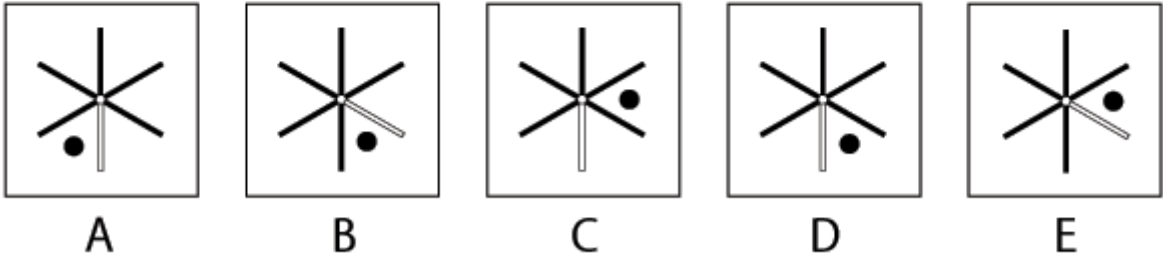
E

**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The arrow alternates between pointing North-East and South-East.

Rule 2: The number of notches on the arrow increases by one each time.

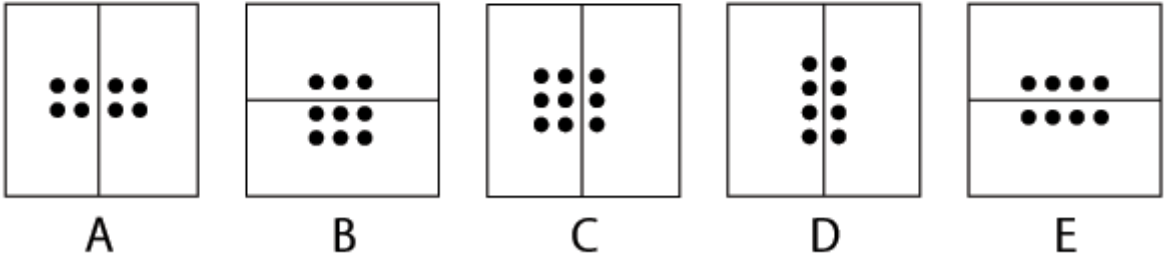
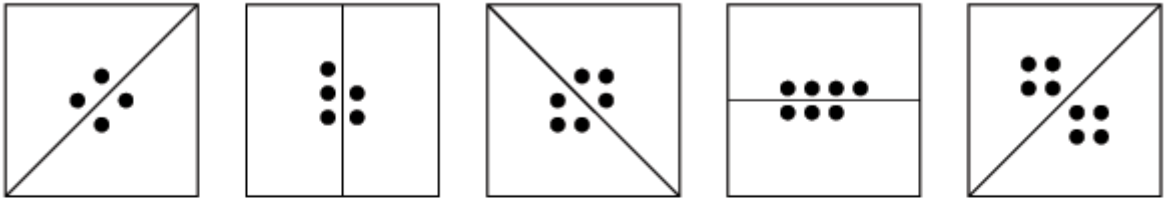


**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The unshaded bar moves one places counterclockwise each time.

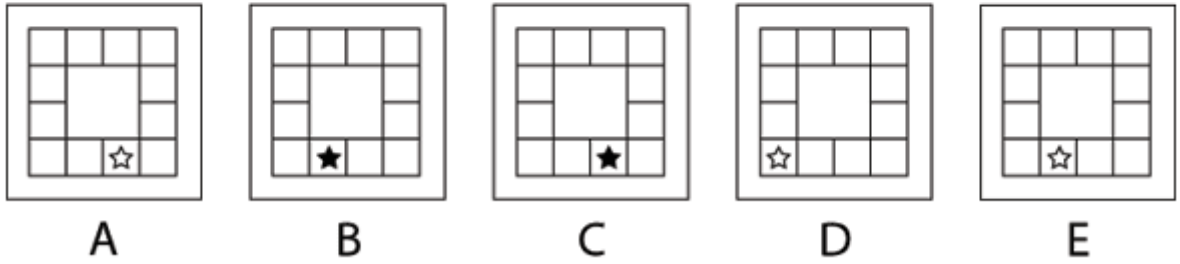
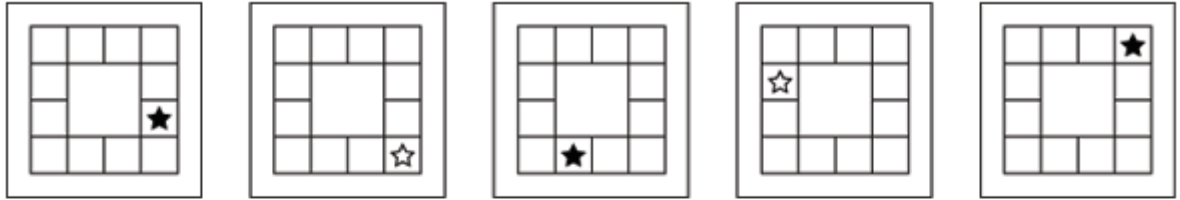
Rule 2: The circle moves two places counterclockwise each time.



**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The dividing line in the box rotates 45° counterclockwise each time.  
 Rule 2: The total number of shaded circles increases by one each time.



**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The star alternates between shaded and unshaded.

Rule 2: The star moves clockwise 1 place, then 2 places, then 3 places and so on.

£ & & ?

? @ @ %

% & & \$

\$ @ @ #

# & & %



% @ @ !

# @ @ %

% & & #

\$ @ @ #

% & & ?

A

B

C

D

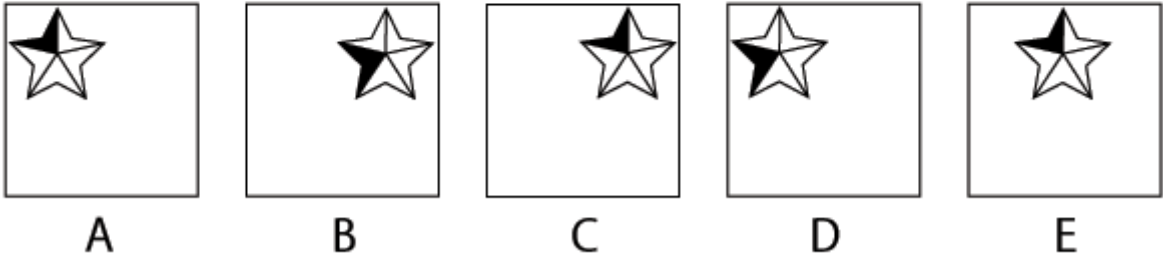
E

**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The middle two symbols alternate between “@ @” and “& &”.

Rule 2: The final symbol in the sequence is the first symbol of the next sequence.



**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The star symbol moves from top left, to bottom centre, to top right, and then the pattern repeats.

Rule 2: The shaded segment of the star moves two places counterclockwise each time.



A

B

C

D

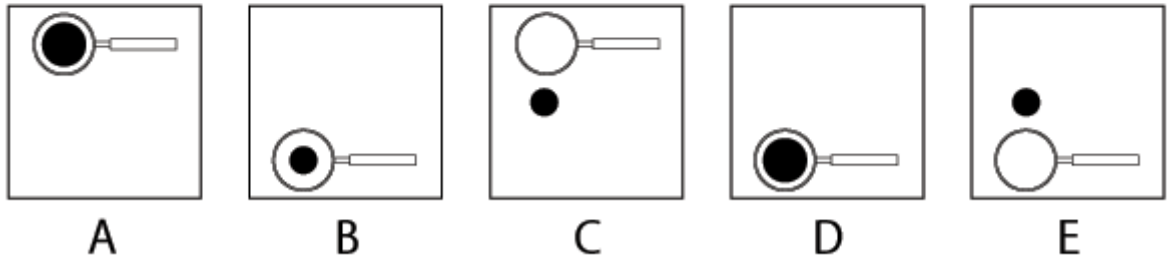
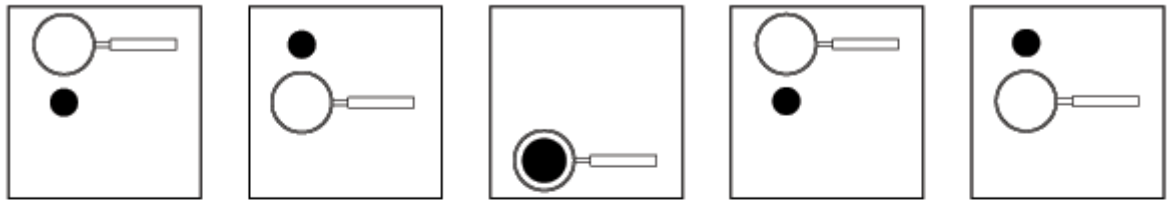
E

**Q11** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The circle moves one place to the right each time, and then begins again on the next row.

Rule 2: The circle alternates between shaded and unshaded.



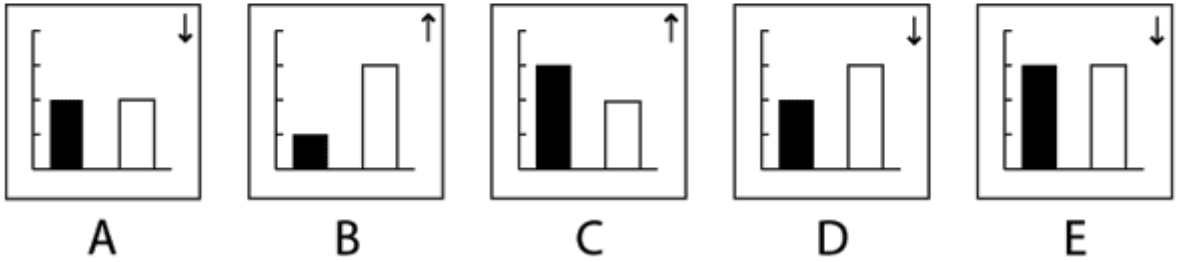
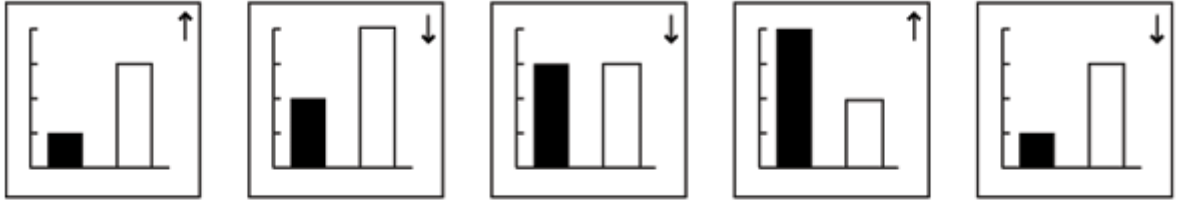
**Q12** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The black circle moves up one place each time. When it reaches the top of the box, it begins again from the bottom.

Rule 2: The magnifying glass moves down one place each time, beginning again from the top. Additionally, when the magnifying glass is placed above the circle, the circle is magnified.



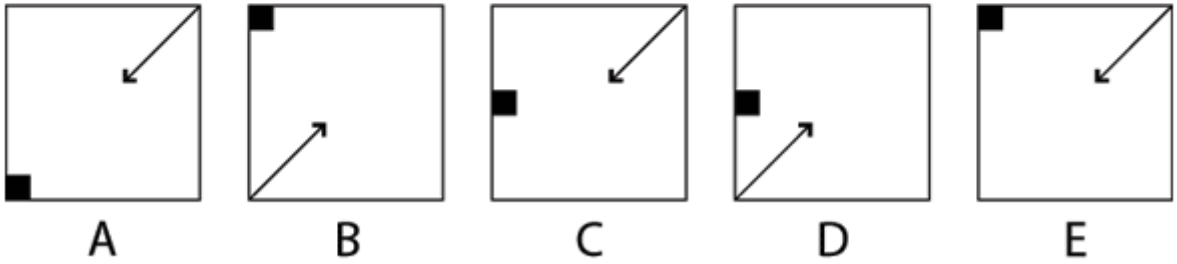
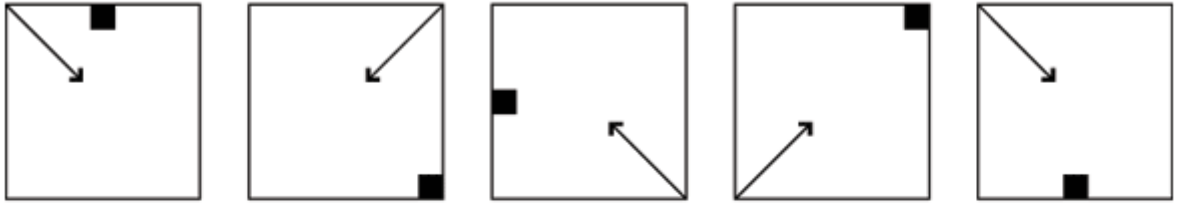


**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The shaded block increases one place each time. When it reaches the top of the graph the pattern repeats.

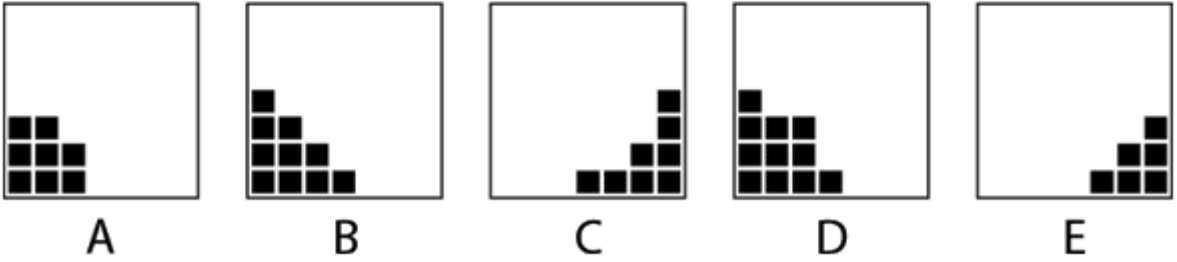
Rule 2: The arrow in the top right corner determines whether the next unshaded block will move up or down one place.



**Q14** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

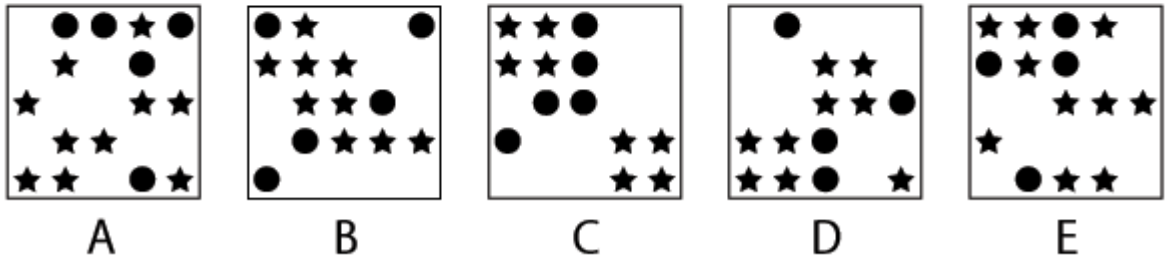
Rule 1: The black square moves three places clockwise around the box each time (including corners and middle).  
 Rule 2: The arrow moves clockwise to the next corner each time.



**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shaded squares move counterclockwise to the next corner each time.  
 Rule 2: The total number of shaded squares increases by two each time.

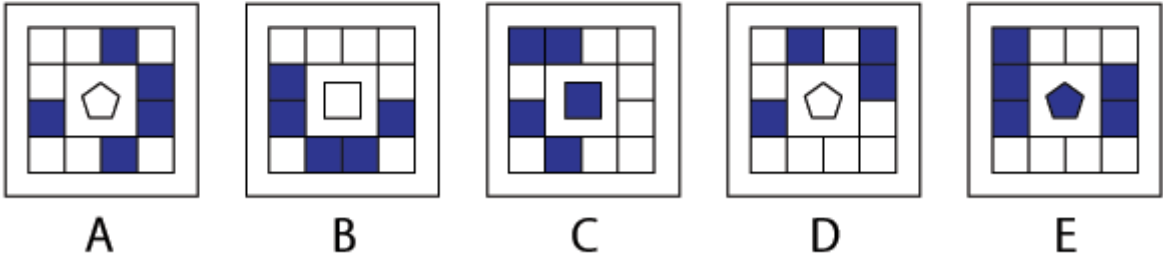


**Q16** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The total number of stars in each box increases by one each time.

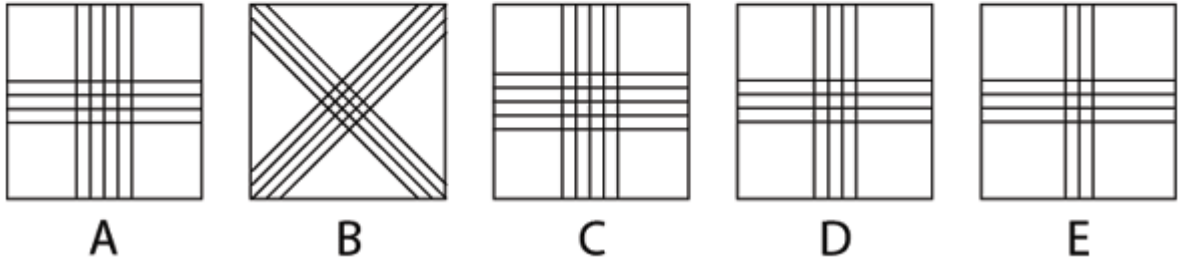
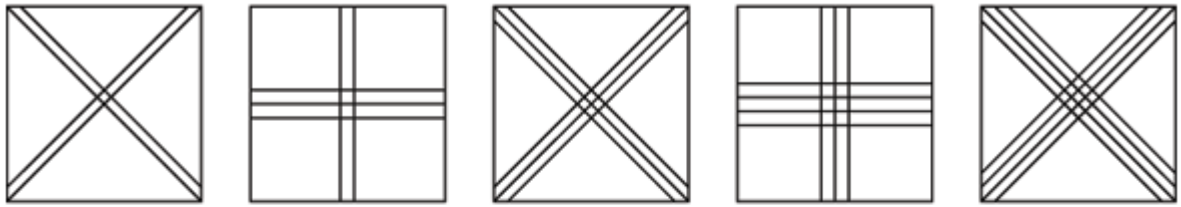
Rule 2: The total number of circles alternates between 4 and 5.



**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of edges of the centre shape is equal to the number of shaded squares in each box.  
 Rule 2: The centre shape alternates between shaded and unshaded.

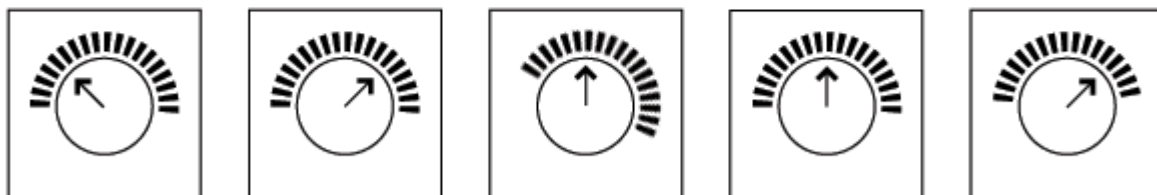
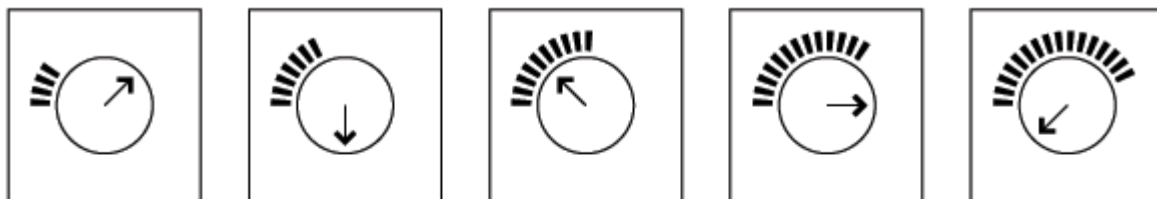


**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The lines rotate 45° each time.

Rule 2: The total number of lines increases by one each time.



A

B

C

D

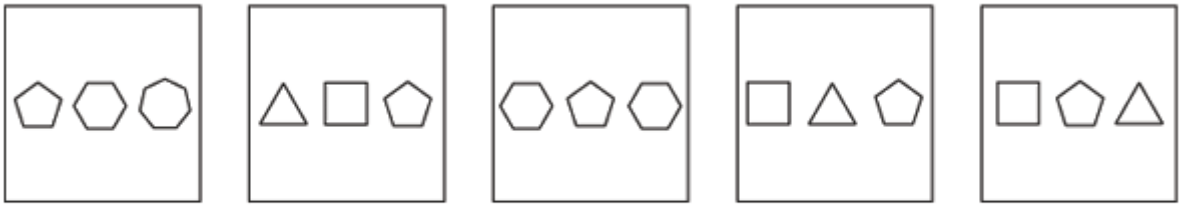
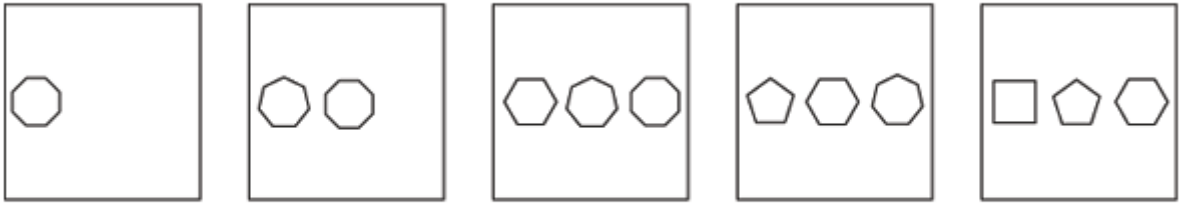
E

**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The arrow rotates 3 places ( $135^\circ$ ) clockwise each time.

Rule 2: The total number of notches around the circle increases by 3 each time, with the start point at the 9 o'clock position.



A

B

C

D

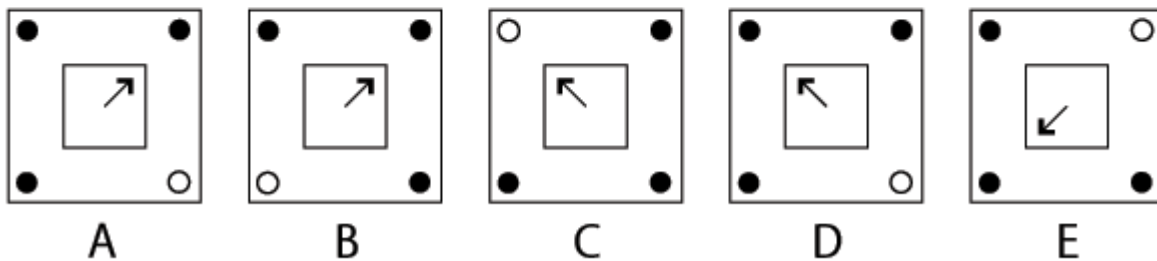
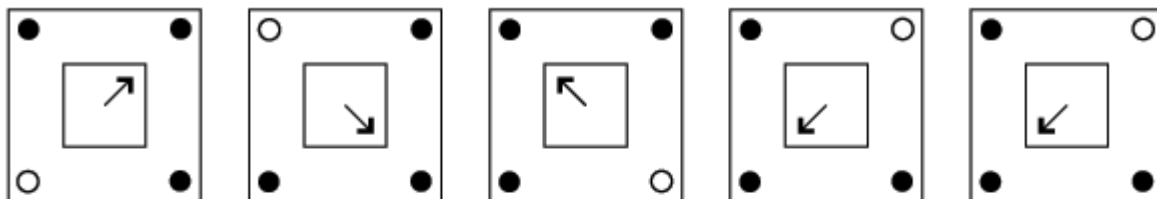
E

**Q20** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shapes move one place to the right each time.  
 Rule 2: Each shape is followed by a shape with one less edge.



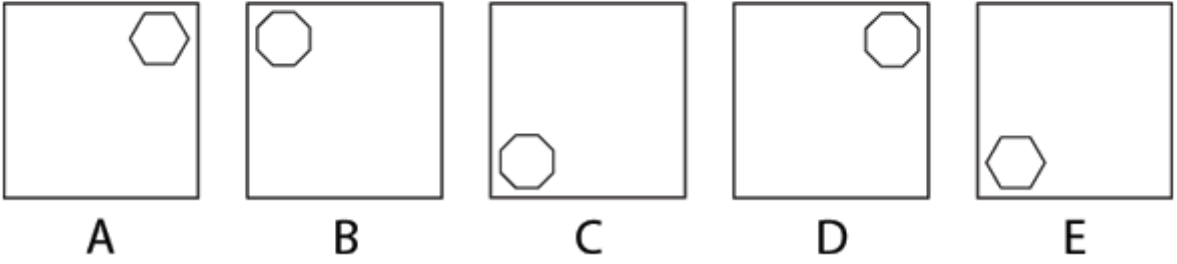
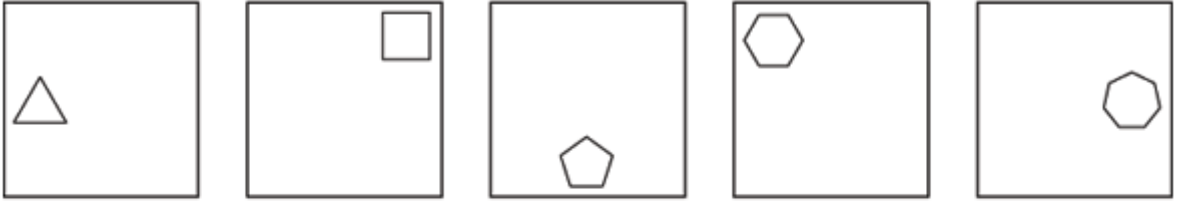


**Q21** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The arrow rotates clockwise one place, then two places, then three places and so on, each time.

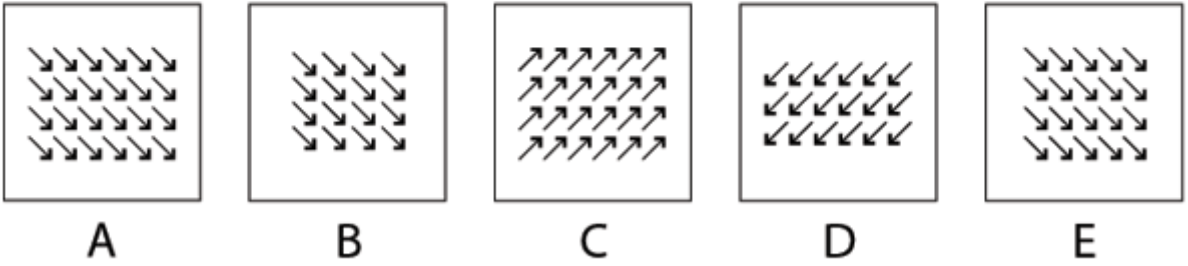
Rule 2: The circle which is in the opposite corner from where the arrow is pointing is unshaded.



**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The shape moves three places clockwise each time.  
Rule 2: The total number of sides on the shape increases by one each time.

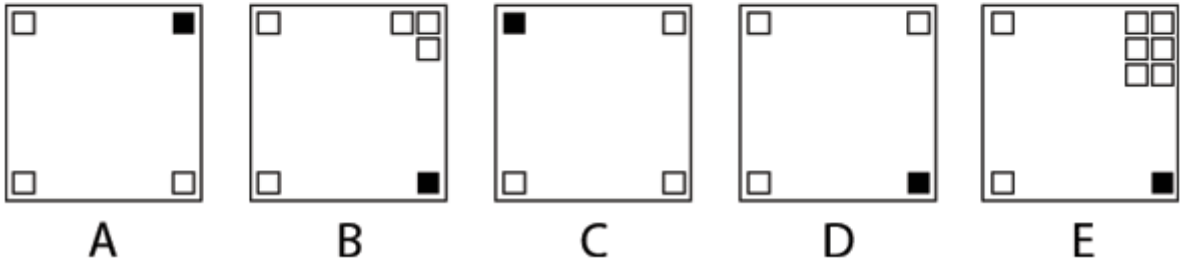
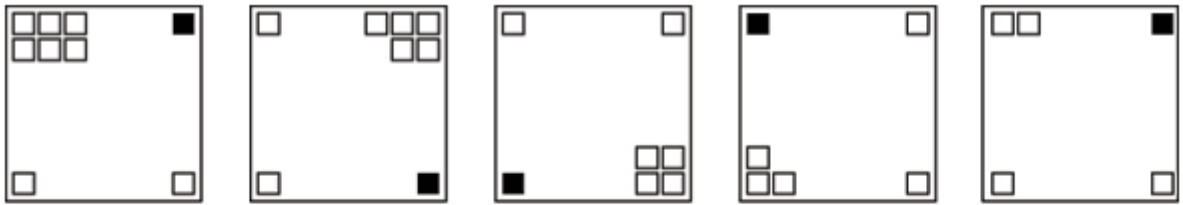


**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The arrows rotate 90° counterclockwise each time.

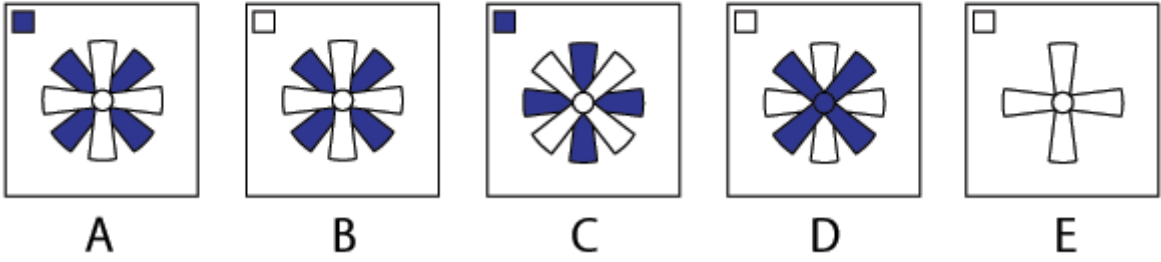
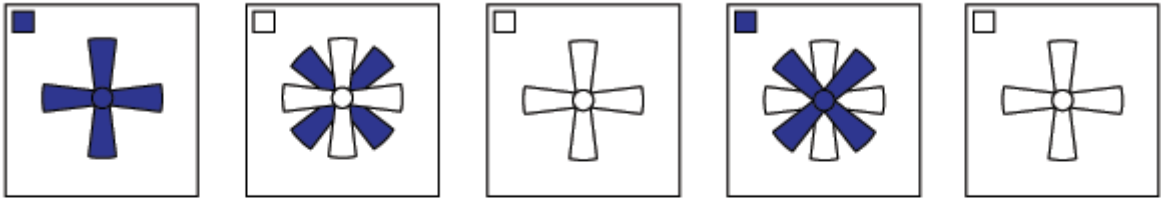
Rule 2: The number of arrows in each box is equal to the total number of arrows in the previous two boxes.



**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The block of 6 squares moves clockwise to the next corner each time, decreasing by one square each time.  
 Rule 2: The shaded square moves one place clockwise each time.



**Q25** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The blue fan rotates  $45^\circ$  each time.

Rule 2: The colour of the square at the top left corner indicates which fan is in the foreground.



A

B

C

D

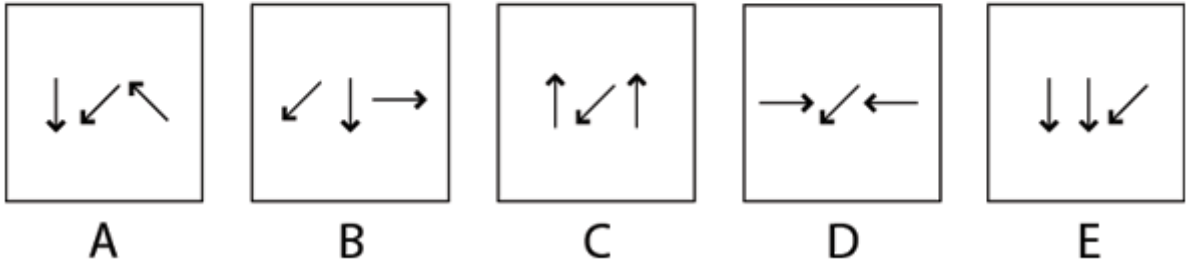
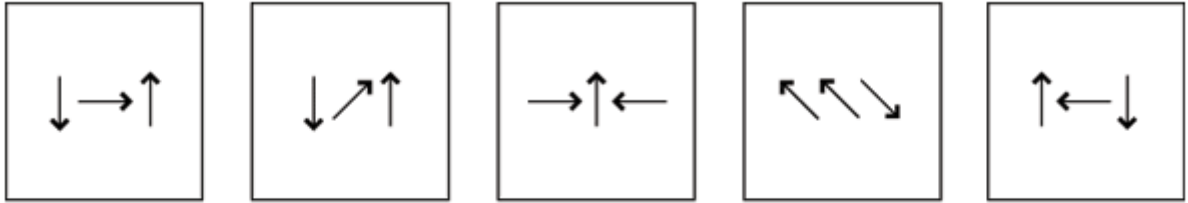
E

**Q26** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The symbol rotates  $135^\circ$  counterclockwise each time.

Rule 2: The total number of shaded halves increases by one each time. After both halves are shaded, the pattern repeats.

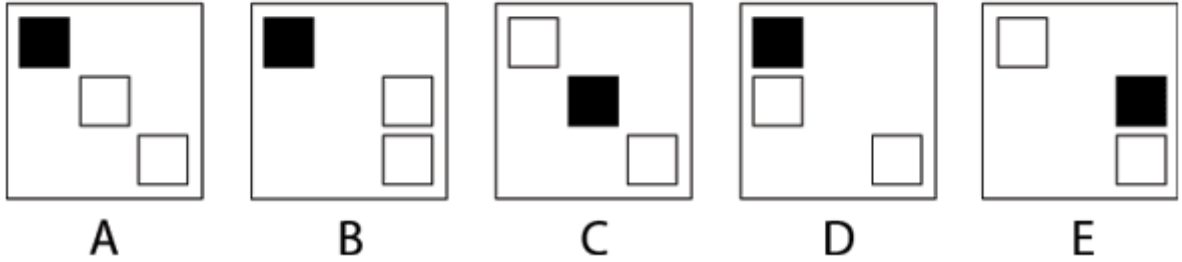
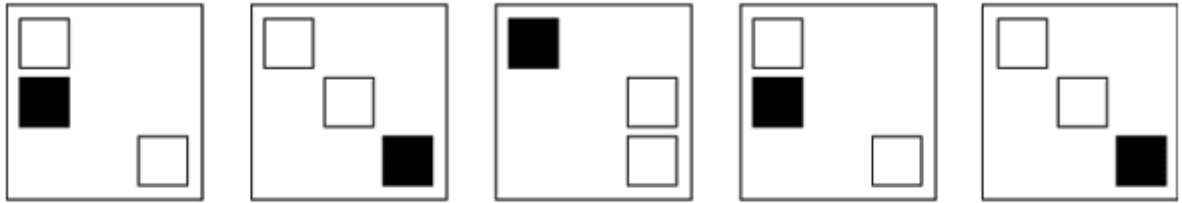


**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The centre arrow rotates 45° counterclockwise each time.

Rule 2: The left and right side arrows always point in opposite directions.



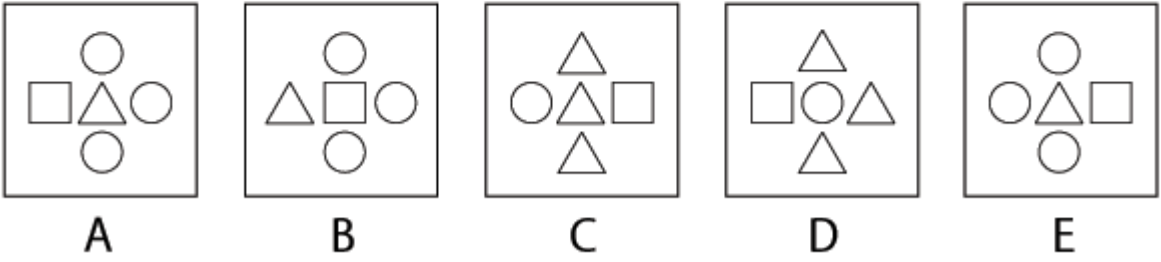
**Q28** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shaded square moves down one place each time. When it reaches the bottom, it begins again from the top.

Rule 2: The centre square moves one place to the right each time, then the pattern repeats.

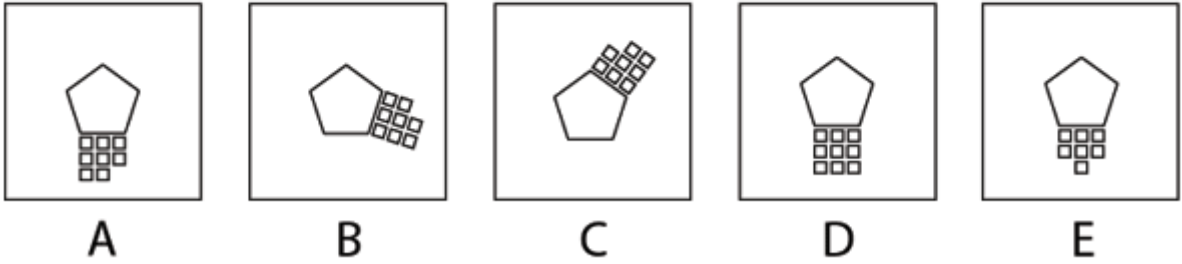




**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The top and bottom shapes alternate between triangle and circle.  
 Rule 2: Each of middle row of shapes moves one place to the left each time.

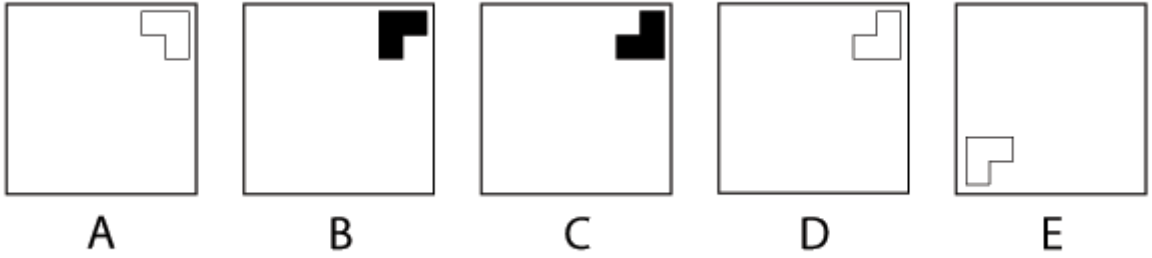


**Q30** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The squares moves two places clockwise each time.  
 Rule 2: The total number of squares increases by one each time.

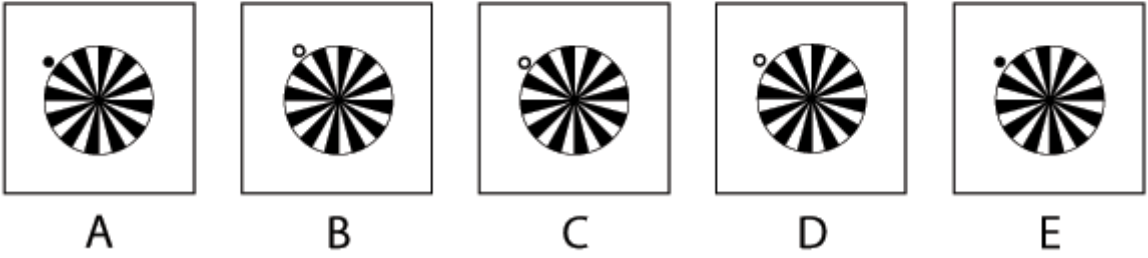




**Q1** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

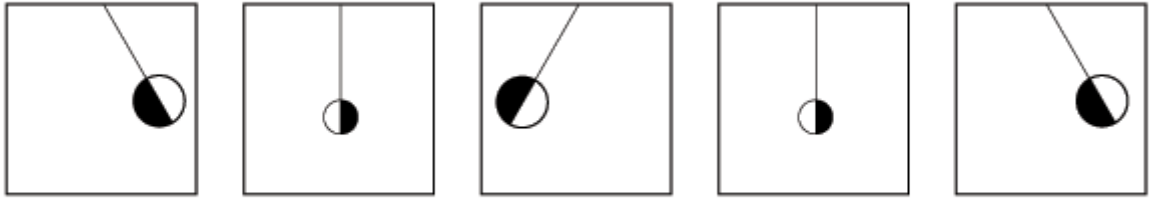
Rule 1: The shape rotates  $90^\circ$  counterclockwise each time.  
Rule 2: The shape moves clockwise to the next corner.  
Rule 3: The shape alternates between shaded and unshaded.



**Q2** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The segments of the symbol alternate between black and white.  
Rule 2: The small circle moves clockwise 4 segments each time ( $60^\circ$ ).  
Rule 3: The small circle alternates between shaded and unshaded.



A

B

C

D

E

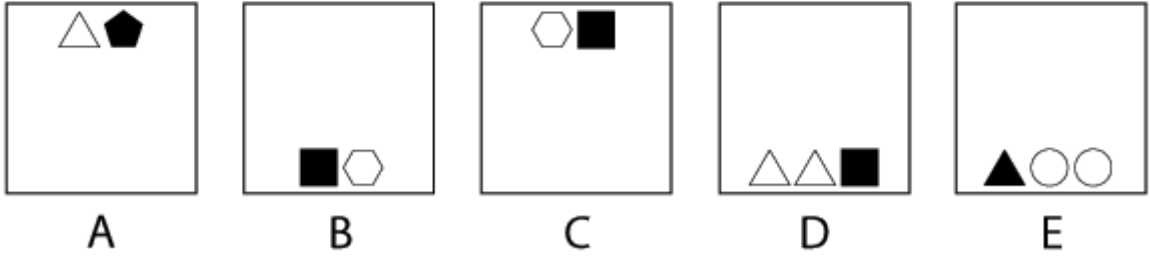
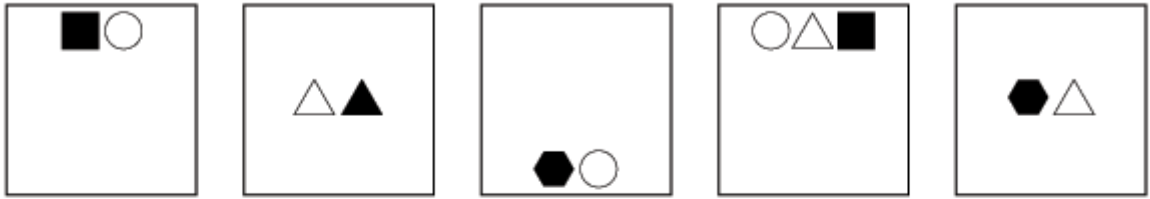
**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The pendulum swings from right to middle to left and back again.

Rule 2: The halves of the circle alternate between black and white.

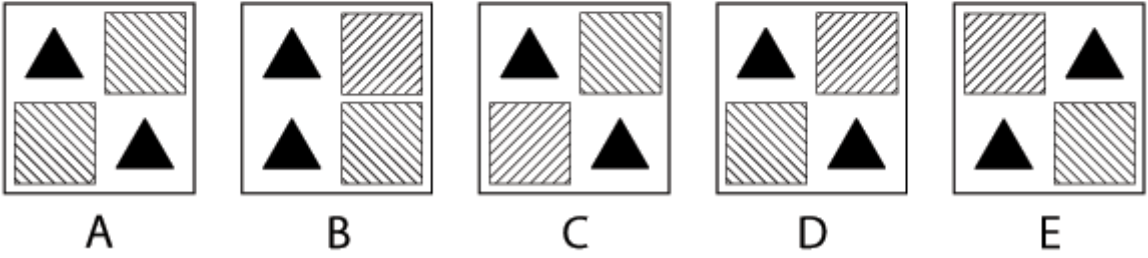
Rule 3: The pendulum alternates between large and small.



**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: In each box, the shapes' total number of edges increases by one.  
 Rule 2: The shapes move from top to middle to bottom and then start again from the top.  
 Rule 3: The shading alternates between the first and last shape of each box.

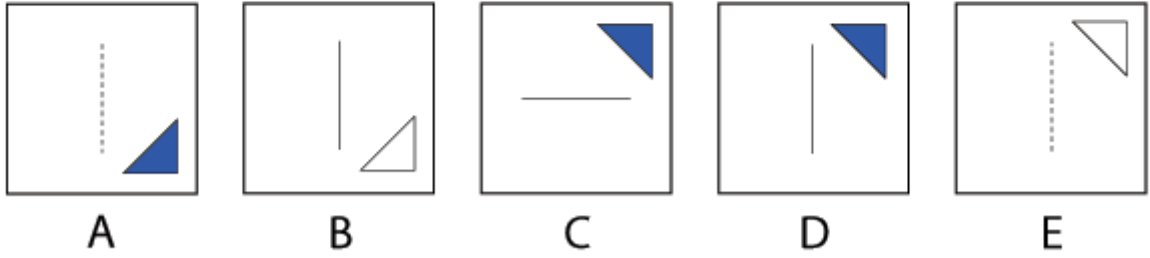


**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The NW-SE lined box moves counterclockwise to the next corner.  
 Rule 2: The NE-SW lined box alternates between bottom left corner and top right corner.  
 Rule 3: The empty quarters of every box are filled with a black triangle.





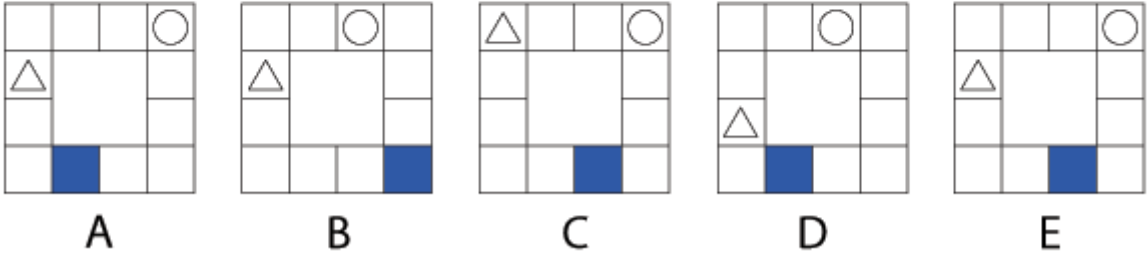
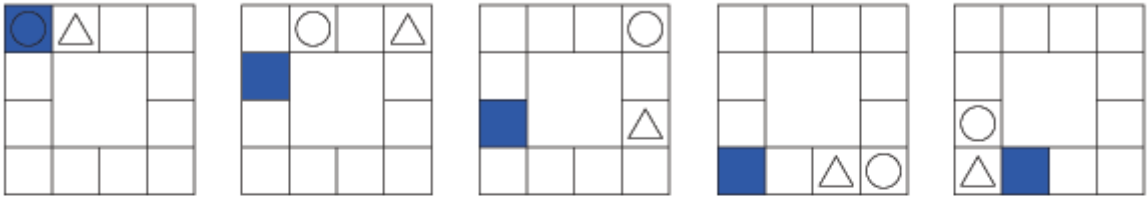
**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The middle line indicates where the next triangle will be; the triangle is mirrored in the axis of the line.

Rule 2: When the middle line is solid, the next triangle is shaded.

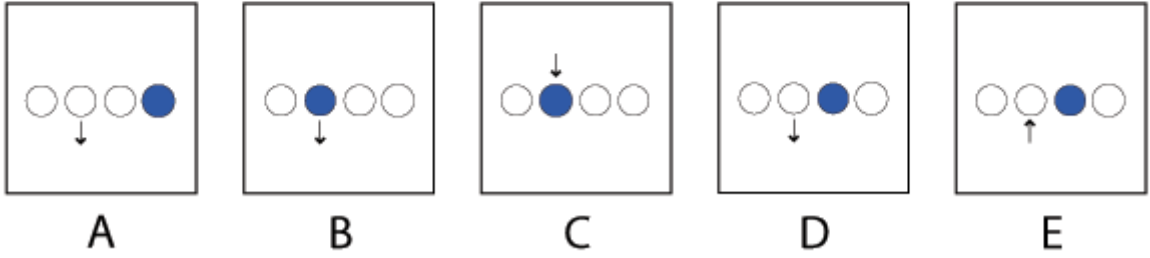
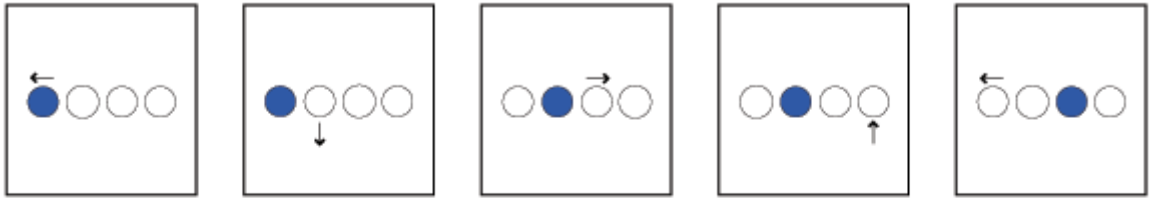
Rule 3: When the middle line is dotted, the next triangle is not shaded.



**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

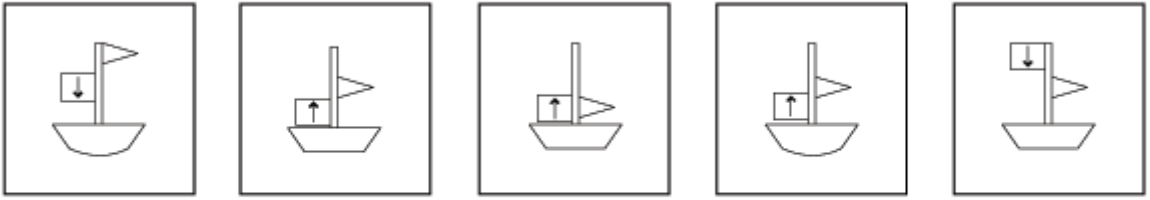
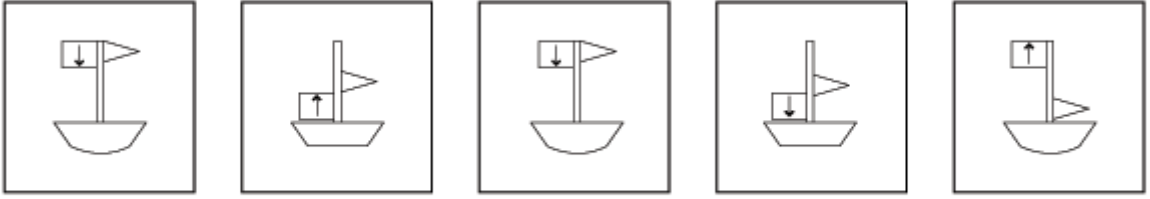
Rule 1: The circle moves 1, then 2, then 3, and so on, places clockwise.  
 Rule 2: The triangle moves clockwise two places.  
 Rule 3: The shaded box moves counterclockwise one place.



**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shaded circle moves one place to the right every two boxes.  
 Rule 2: The arrow rotates 90° counterclockwise.  
 Rule 3: The arrow alternates between being above and below the circles.



A

B

C

D

E

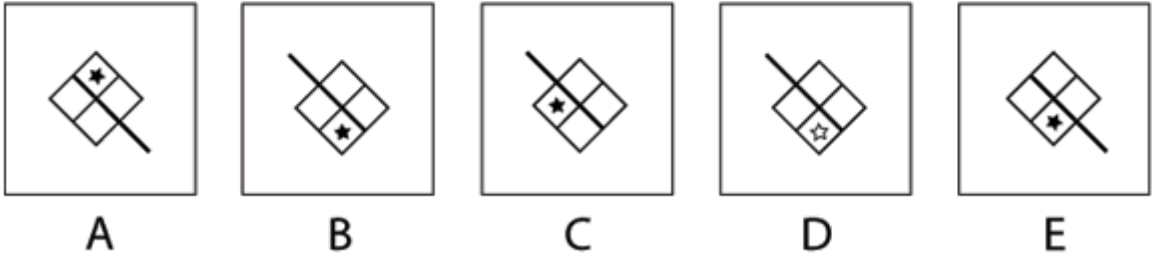
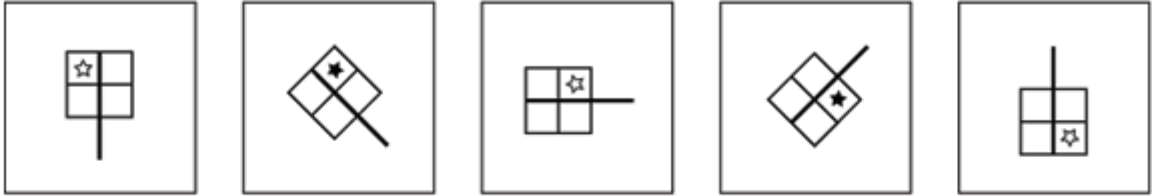
**Q9** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The bottom of the boat alternates between flat and rounded.

Rule 2: The square flag alternates between being raised to the top and raised to the bottom.

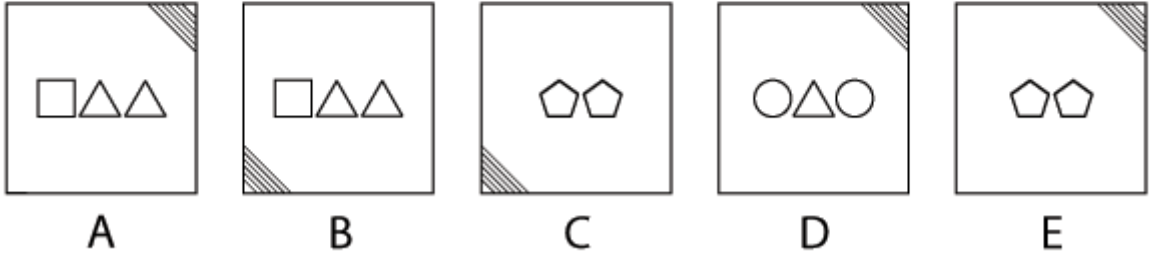
Rule 3: The arrow in the square flag indicates where the next triangular flag should be moved to.



**Q10** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The symbol rotates 45° counterclockwise each time.  
 Rule 2: The star moves one box clockwise each time.  
 Rule 3: The star alternates between shaded and unshaded.



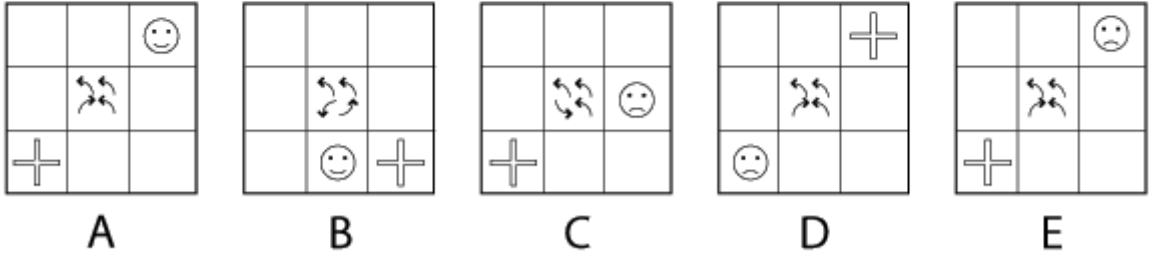
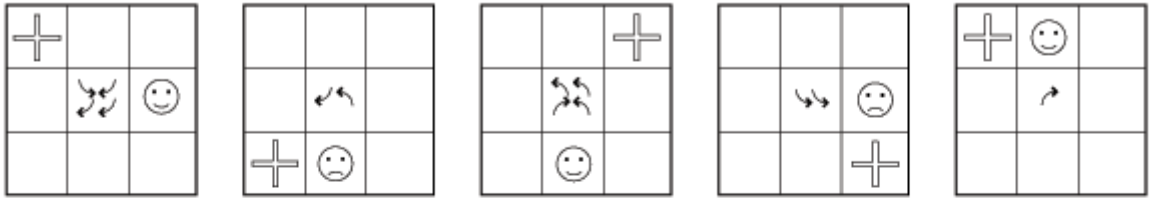
**Q11** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The number of notches in the corner increases by one each time, and the location alternates between top right and bottom left.

Rule 2: The total number of shape edges increases by one each time.

Rule 3: The final shape is the first shape of the next box.



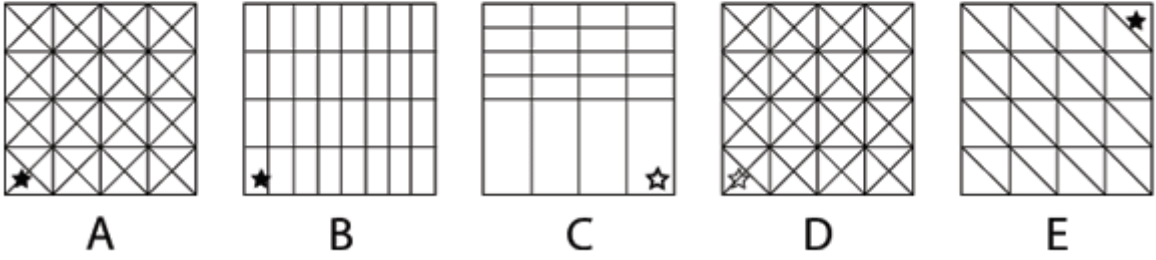
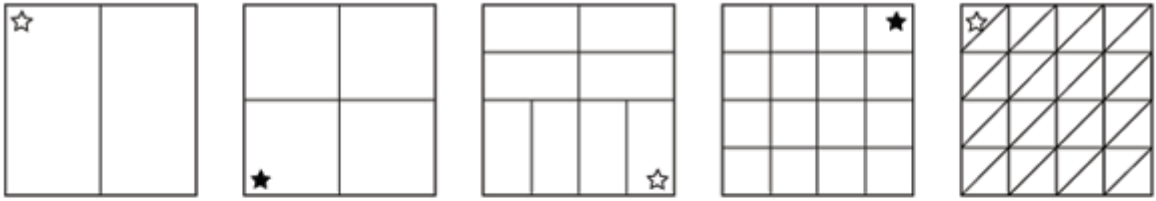
**Q12** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The Cross moves from top left, to bottom left, to top right, to bottom right, then begins again

Rule 2: The face alternates between happy and sad.

Rule 3: The arrows in the centre dictate the movement of the face in the next box (i.e. 3 places clockwise, 1 place counterclockwise and so on).

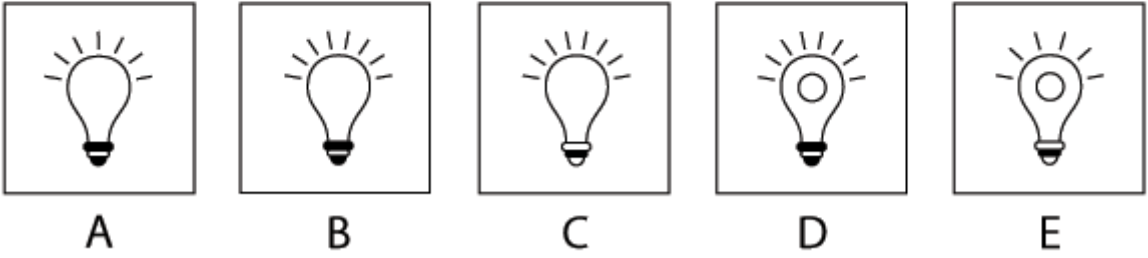


**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of segments is halved each time.  
 Rule 2: The star moves counterclockwise to the next corner.  
 Rule 3: The star alternates between black and white.

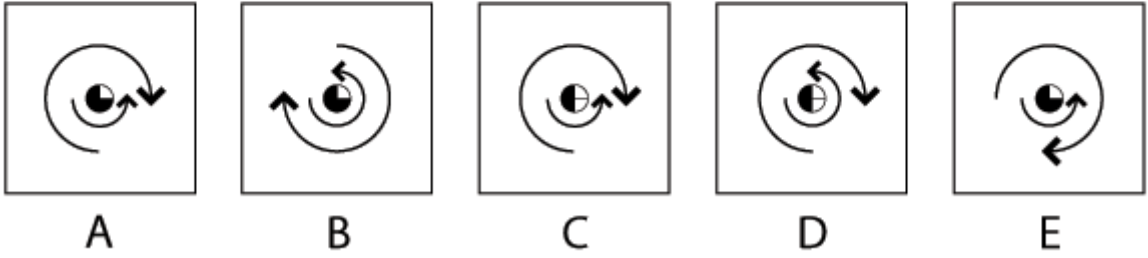




**Q14** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The number of lines emanating from the bulb increases by one each time.  
Rule 2: The rings at the base of the bulb alternate between black and white.  
Rule 3: The circle in the bulb appears every two boxes.



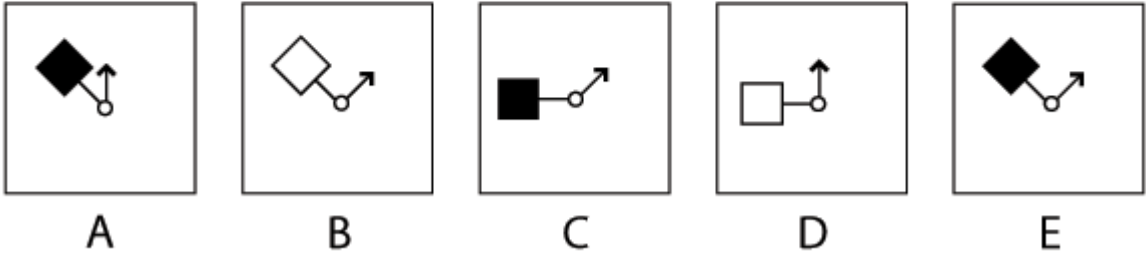
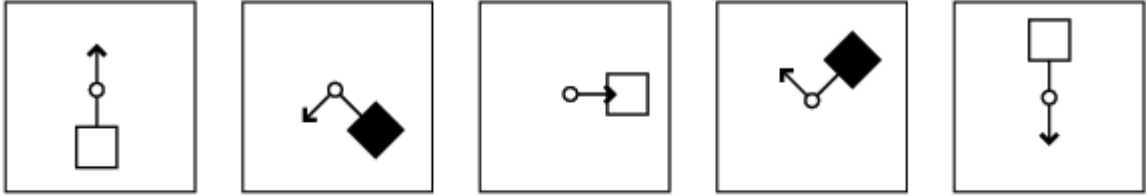
**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The outer ring rotates  $90^\circ$  clockwise each time.

Rule 2: The inner arrow rotates  $90^\circ$  counterclockwise in a circle each time, filling in the circle. When the inner circle is complete, the pattern begins again.

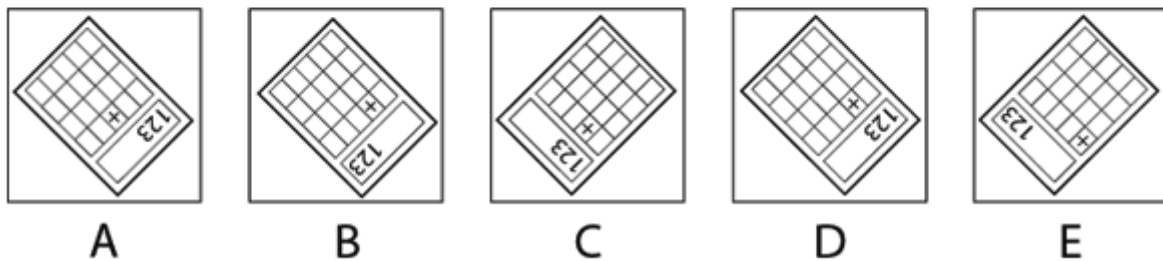
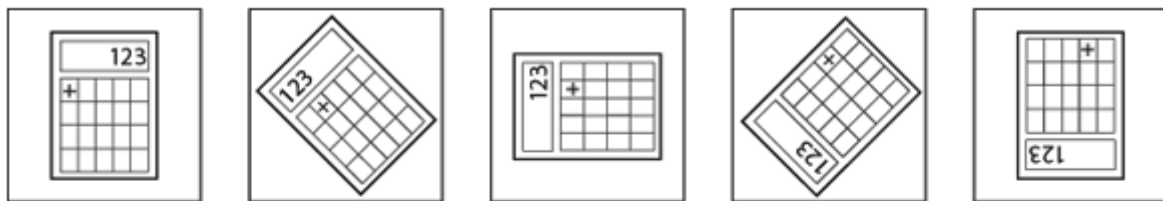
Rule 3: The number shaded quarters in the centre circle decreases by one each time. When the number of shaded quarters is equal to zero, this pattern repeats.



**Q16** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The box rotates 45° counterclockwise around the centre circle.  
 Rule 2: The box alternates between black and white.  
 Rule 3: The arrow rotates 135° counterclockwise around the centre circle.



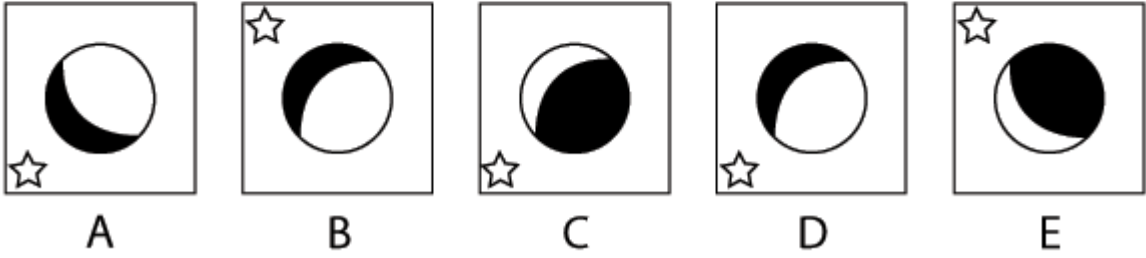
**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The calculator rotates 45° counterclockwise each time.

Rule 2: The numbers alternate between the left and right hand sides of the screen.

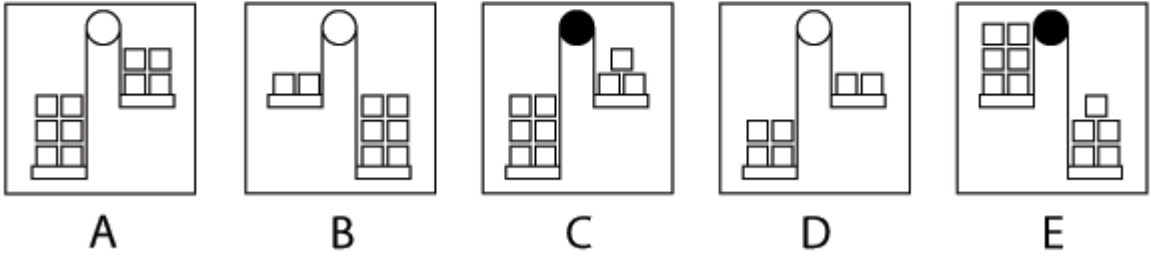
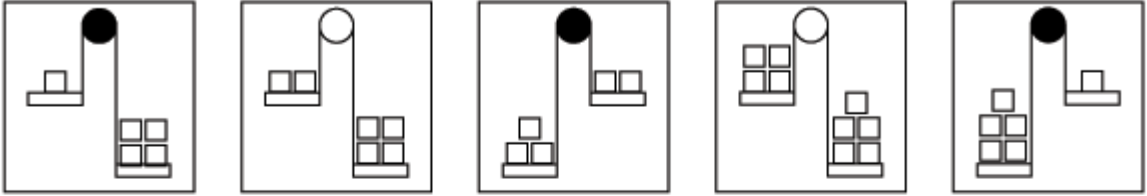
Rule 3: The “+” symbol moves clockwise 1 place, then 2 places, then 3 places and so on.



**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

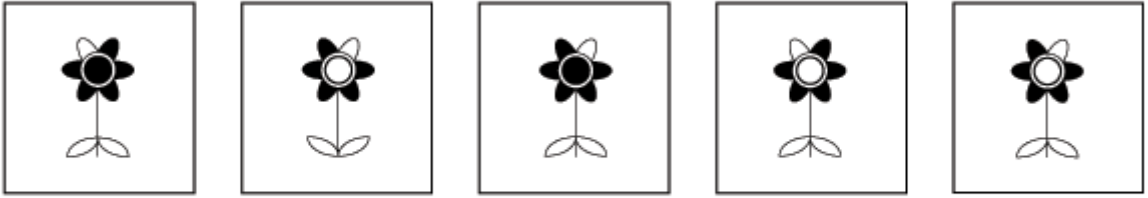
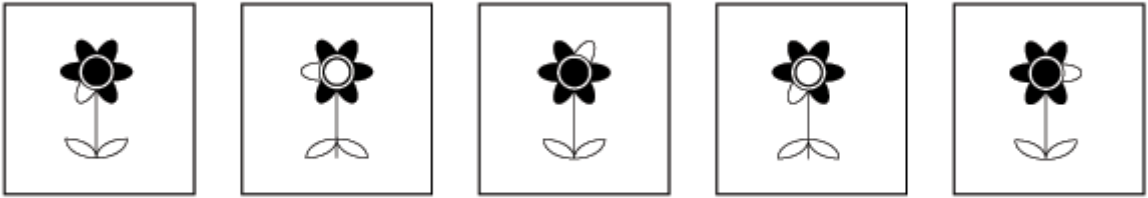
Rule 1: The star moves counterclockwise to the next corner each time.  
 Rule 2: The symbol in the centre rotates 135° counterclockwise each time.  
 Rule 3: The shading on the symbol alternates.



**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The circle alternates between shaded and unshaded.  
 Rule 2: The number of squares on the left hand scale increases by one each time.  
 Rule 3: The scale with the most boxes is always weighed down.



A

B

C

D

E

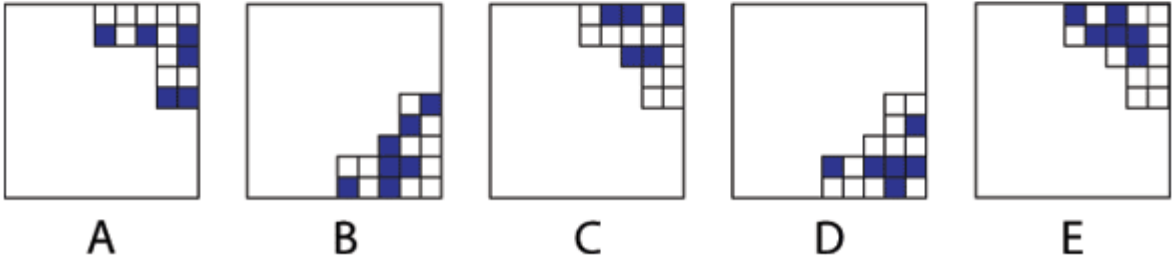
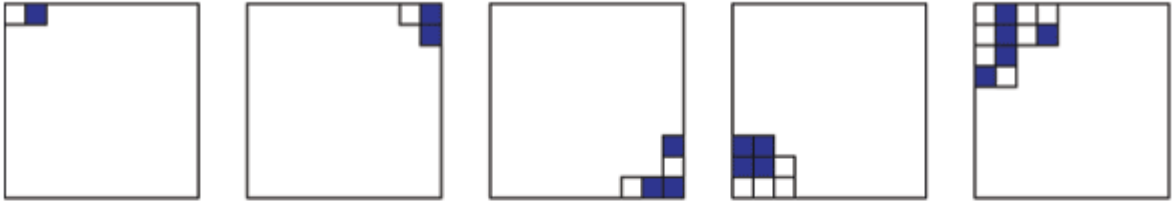
**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The unshaded petal moves clockwise 1 place, then 2 places, then 3 places and so on.

Rule 2: The leaves at the bottom of the flower alternate between pointing up and down.

Rule 3: The centre of the flower alternates between shaded and unshaded.

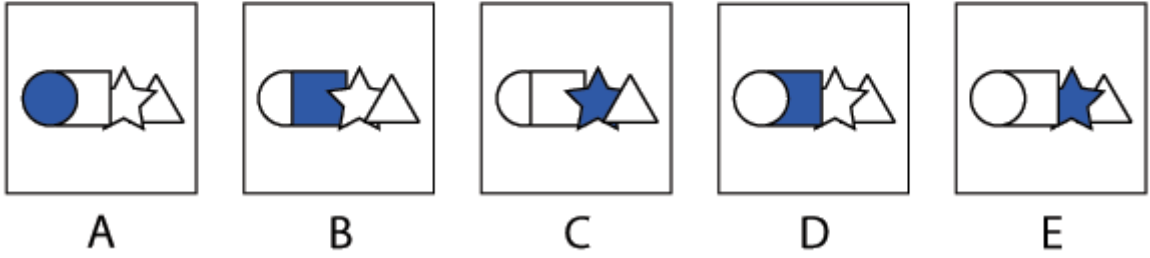


**Q21** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: Each time, 1 square is added, then 2 squares, then 3 squares and so on.  
 Rule 2: The squares moves clockwise to the next corner each time.  
 Rule 3: Each time 1 square is shaded, then 2 squares, then 3 squares and so on.





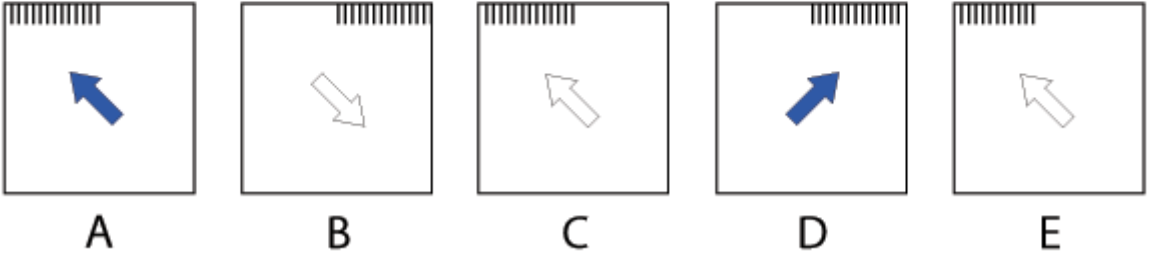
**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shapes moves one place to the left each time.

Rule 2: The shapes alternate between moving from background to foreground, and then vice versa.

Rule 3: The shaded shape moves one place to the right each time.



**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

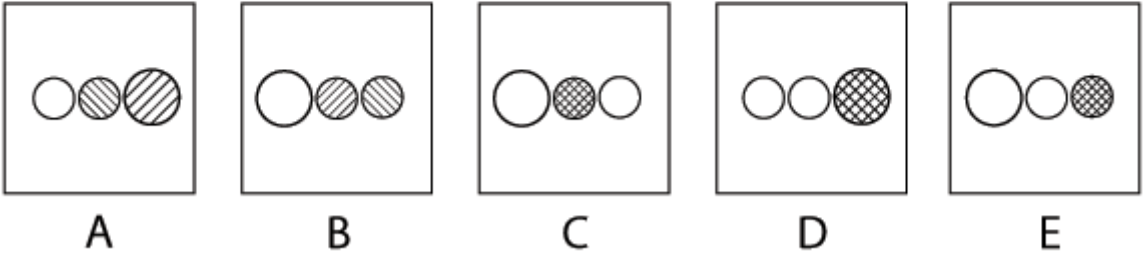
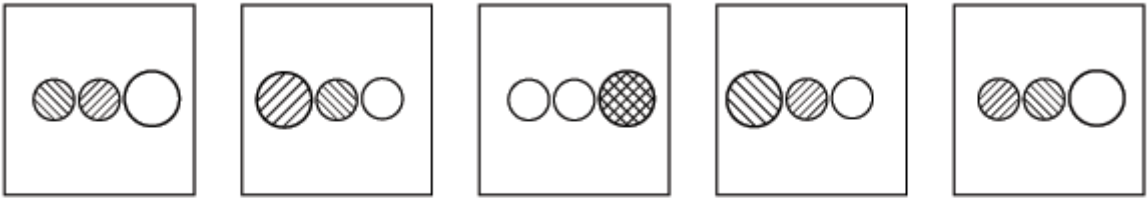
Rule 1: The arrow always points to the notches.  
Rule 2: The arrow alternates between shaded and unshaded.  
Rule 3: The number of notches increases by 2 each time.



**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

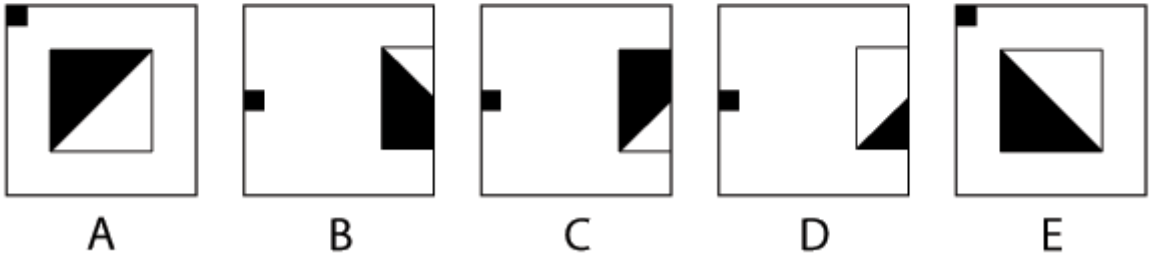
Rule 1: The sun moves from left to right, and then begins again from the left.  
Rule 2: The cloud is mirrored in the vertical axis each time.  
Rule 3: The number of raindrops alternates between 5 and 6.



**Q25** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The NW-SE lined circle moves one place to the right each time.  
 Rule 2: The NE-SW lined circle moves one place to the left each time.  
 Rule 3: The enlarged circle alternates between the leftmost and rightmost circle.



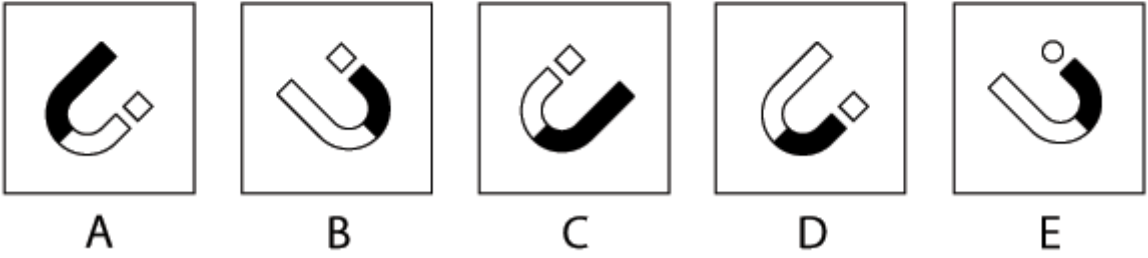
**Q26** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The large square rotates 45° clockwise each time.

Rule 2: The large square moves one place to the right each time. When it reaches the right hand side of the box, the pattern repeats.

Rule 3: The small square moves 3 places clockwise around the box.



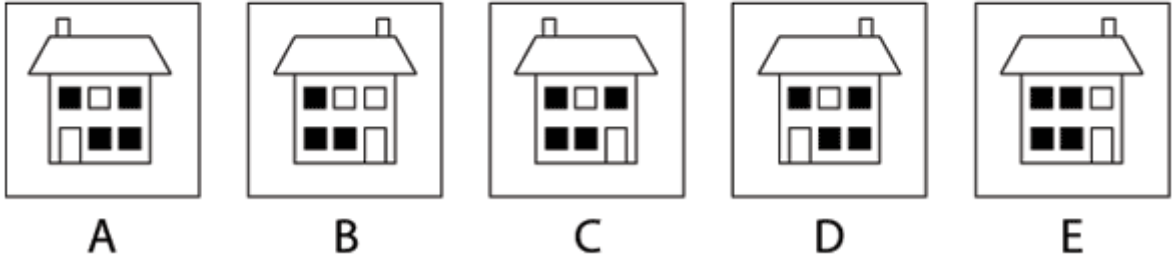
**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The symbol rotates 135° counterclockwise each time.

Rule 2: The small shape goes from circle to triangle to square, and then repeats.

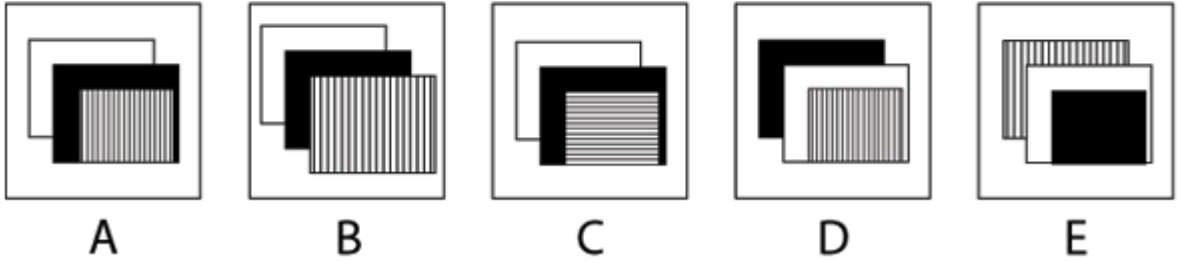
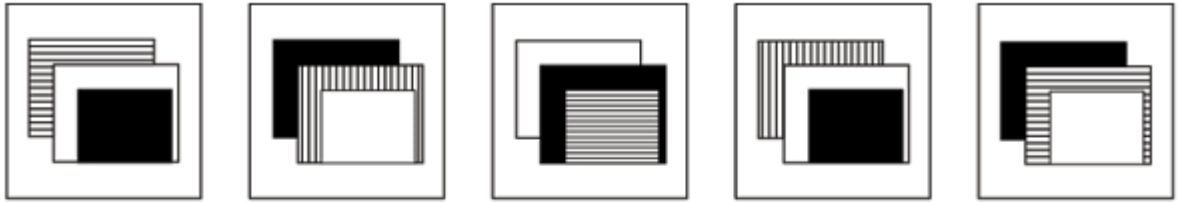
Rule 3: Both segments of the symbol alternate between shaded and unshaded.



**Q28** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The chimney alternates between the left and right hand side of the roof.  
 Rule 2: The number of shaded windows alternates between 3 and 4.  
 Rule 3: The door moves one place to the right each time. When it reaches the end, the pattern repeats.



**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: Each rectangle move one place forward each time, and then begins again from the back.

Rule 2: The foreground rectangle is always smaller.

Rule 3: The lines on the lined rectangle alternate between horizontal and vertical.





A

B

C

D

E

**Q30** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The hexagon alternates between shaded and unshaded.

Rule 2: The large outer shape moves one place counterclockwise around the hexagon each time.

Rule 3: The small shape inside the hexagon indicated what the next large outer shape will be.





A

B

C

D

E

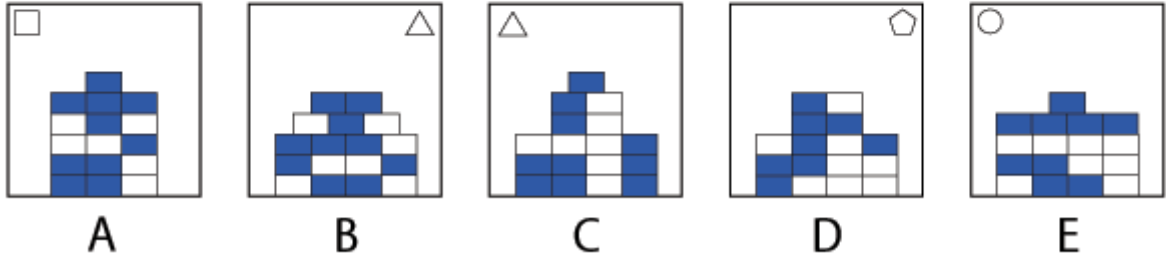
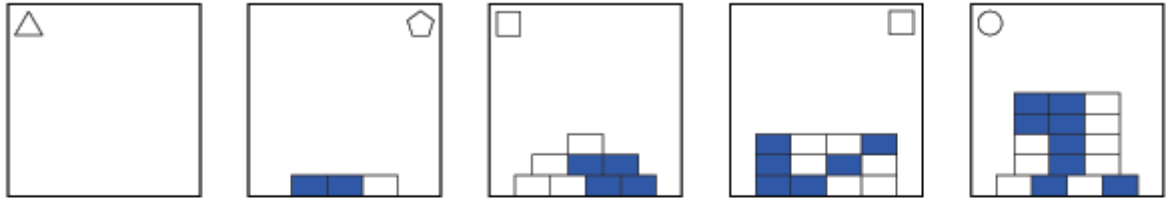
**Q1** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The triangle moves clockwise 1 place, then 2 places, then 3 place and so on, around the circle.

Rule 2: The triangle alternates between shaded and unshaded.

Rule 3: The number of shaded segments in the circle increases by one each time.



**Q2** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shape at the top alternates between the top left and top right hand corners.

Rule 2: The number of edges of the shape indicated how many bricks should be added to the next box.

Rule 3: The number of shaded bricks per box increases by two each time.



A

B

C

D

E

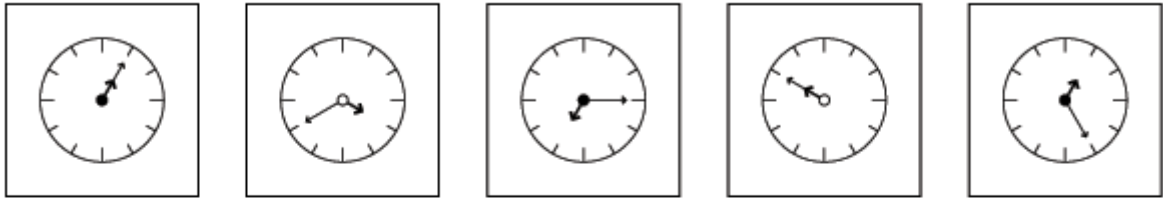
**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of edges in each box is equal to ten.

Rule 2: The last shape in each box is the first shape of the next box.

Rule 3: The shading moves one place to the right each time and then begins again from the left.



A

B

C

D

E

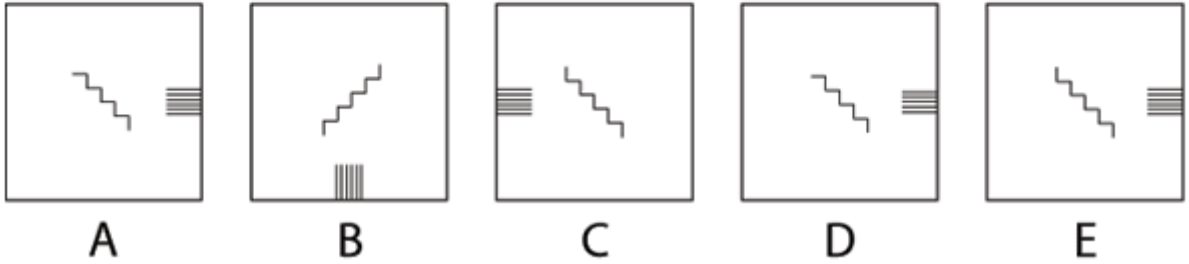
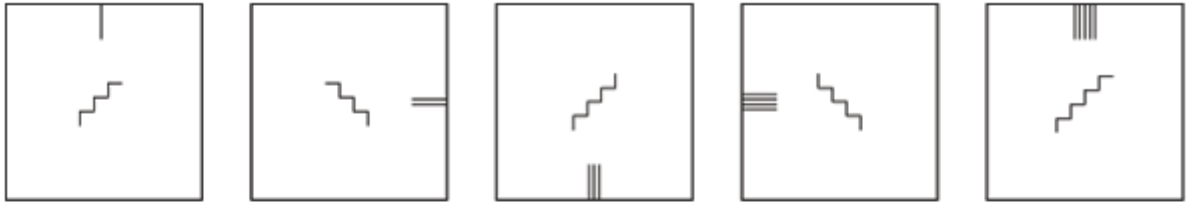
**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The minutes (long) hand rotates 5 hours counterclockwise each time.

Rule 2: The hour (short) hand rotates 3 places clockwise each time.

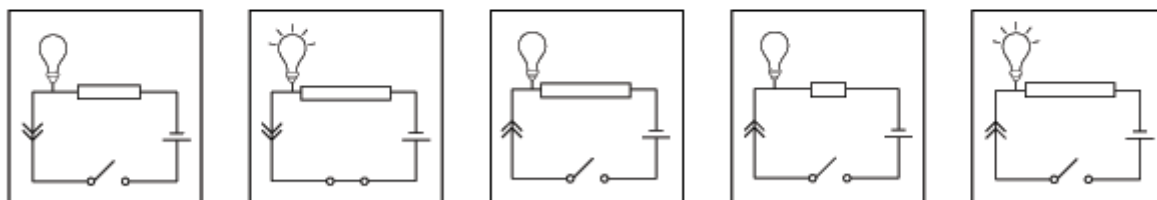
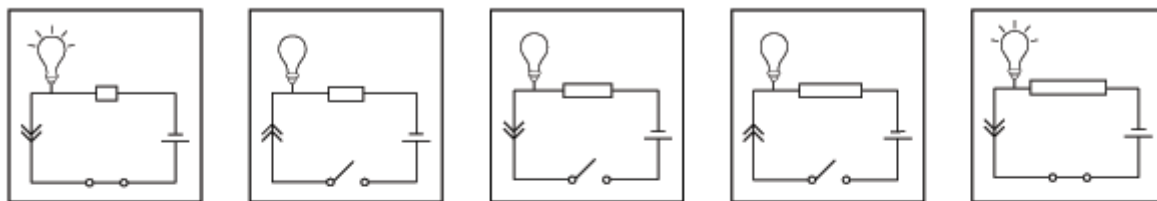
Rule 3: The circle at the centre of the clock alternates between black and white.



**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The notches move 1 place clockwise around the edge of the box and each time increases by one.  
 Rule 2: The centre symbol is mirrored horizontally each time.  
 Rule 3: The number of lines in the centre symbol increases by one every two boxes.



A

B

C

D

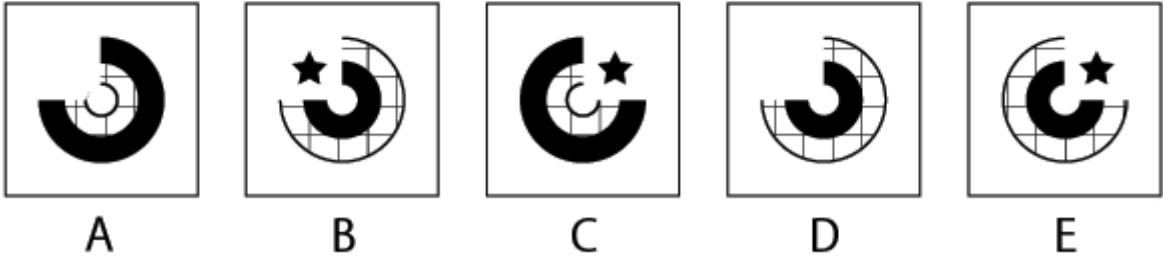
E

**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

- Rule 1: When the circuit is complete (the bottom connection is closed) the bulb lights up. When the circuit is broken (bottom connection is open) the bulb does not light up.
- Rule 2: The arrows on the left of the circuit alternate between pointing up and down.
- Rule 3: The box at the top of the circuit increases in size each time.

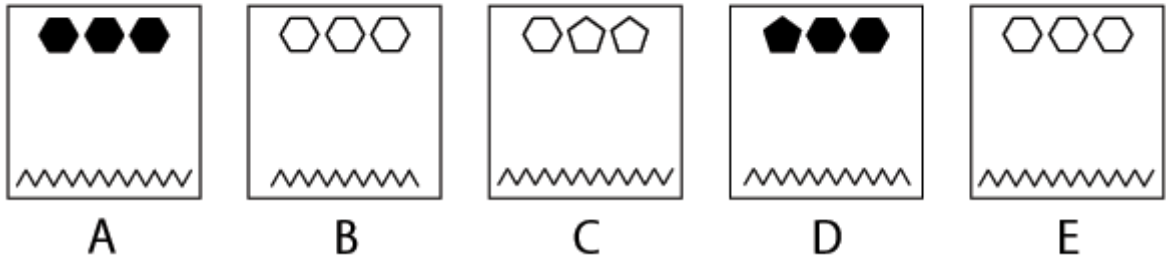
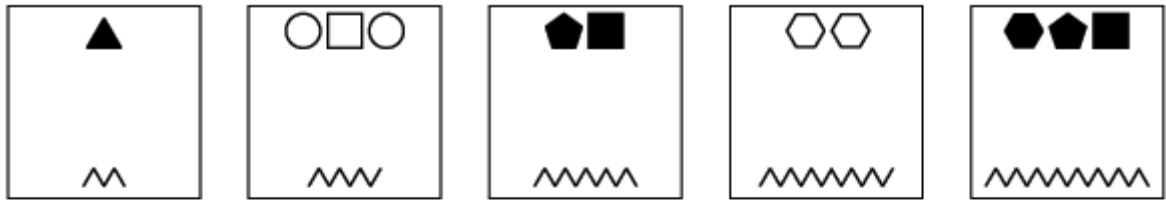




**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

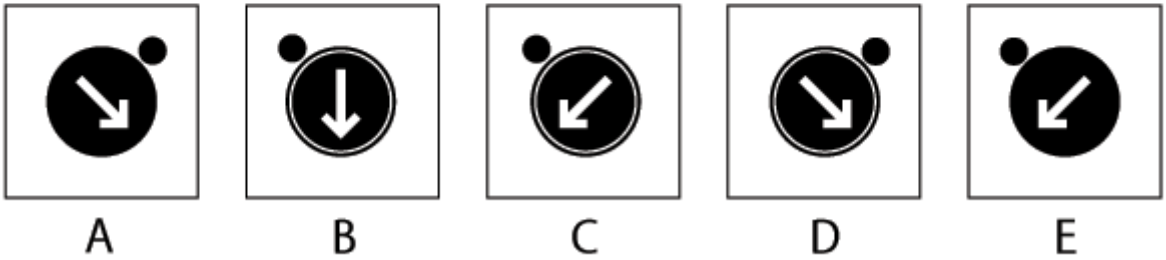
Rule 1: The rings alternate between cross hatched and black  
 Rule 2: The missing quarter moves one place counterclockwise each time.  
 Rule 3: Every second box has a star in the missing quarter.



**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

- Rule 1: The number of diagonal lines at the bottom of the box increases by three each time.
- Rule 2: The total number of edges on the shapes is equal to one less than the total number of lines.
- Rule 3: The shapes alternate between shaded and unshaded.



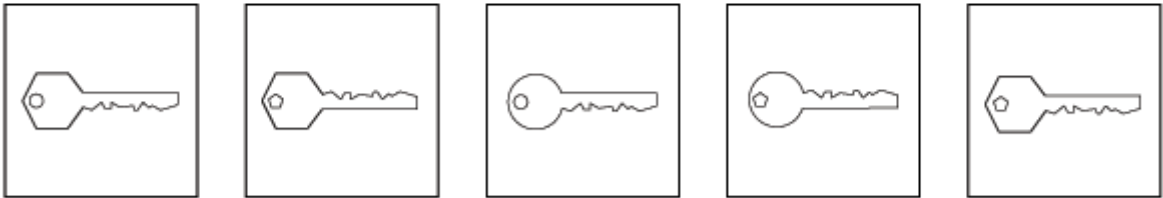
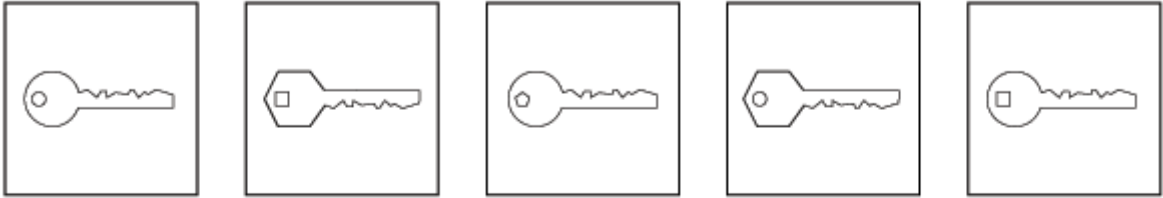
**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The small black circle rotates  $90^\circ$  counterclockwise around the large circle each time.

Rule 2: The arrow rotates  $135^\circ$  counterclockwise each time.

Rule 3: The large circle alternates between having a white trim and no trim.



A

B

C

D

E

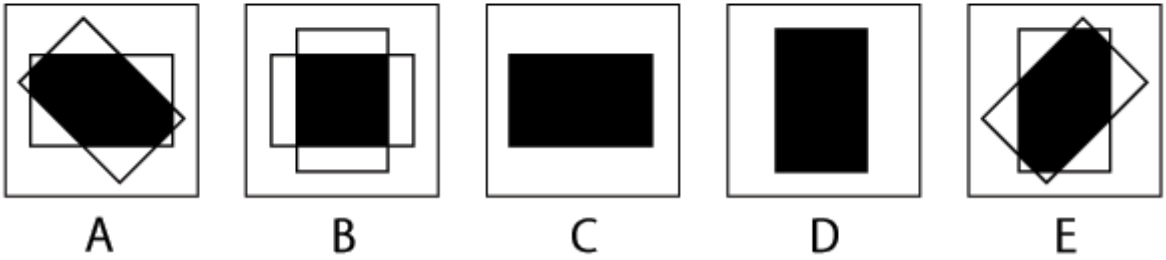
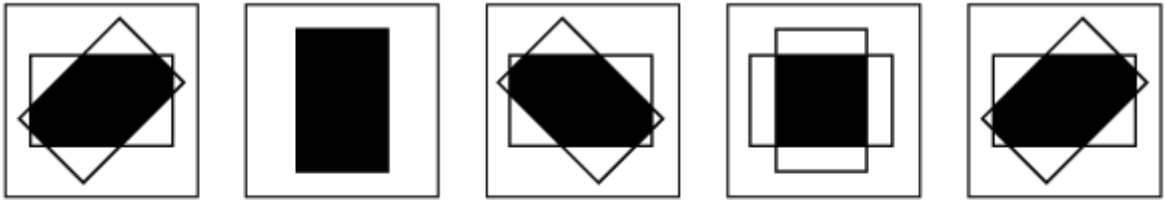
**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The key base alternates between circular and hexagonal.

Rule 2: The hole in the key is circular, square then hexagonal. The pattern then begins again.

Rule 3: The key flips horizontally each time.



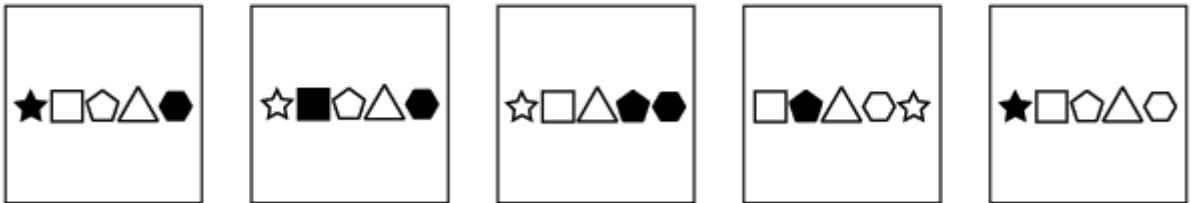
**Q11** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: One box rotates  $45^\circ$  counterclockwise each time.

Rule 2: The other box rotates  $90^\circ$  each time.

Rule 3: When both boxes overlap, the overlapping area is shaded.



A

B

C

D

E

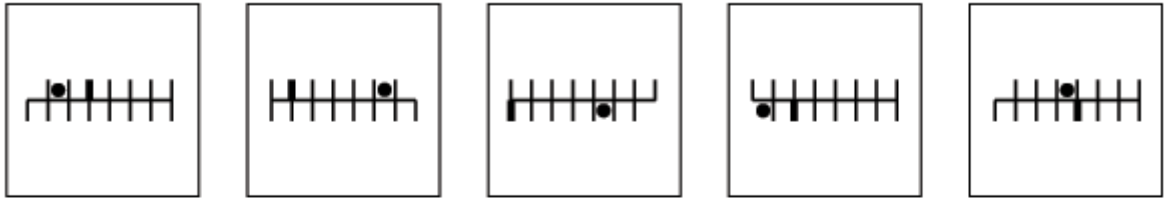
**Q12** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: Each shape moves two places to the right each time. When they reach the right end of the line, they begin again from the left hand side.

Rule 2: The final shape in each sequence is always shaded.

Rule 3: The shading moves one place to the left each time.



A

B

C

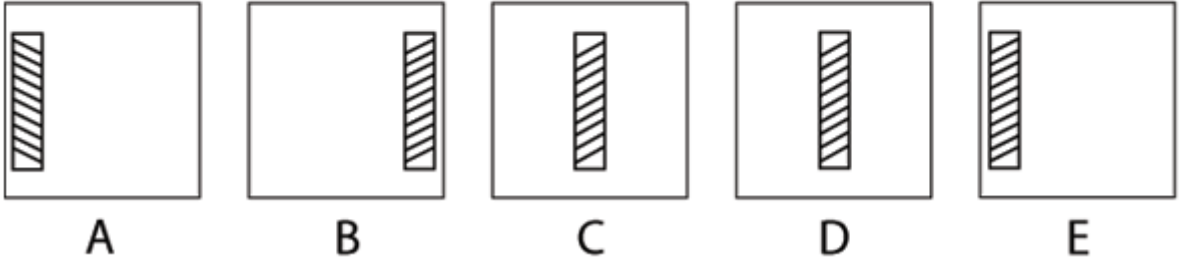
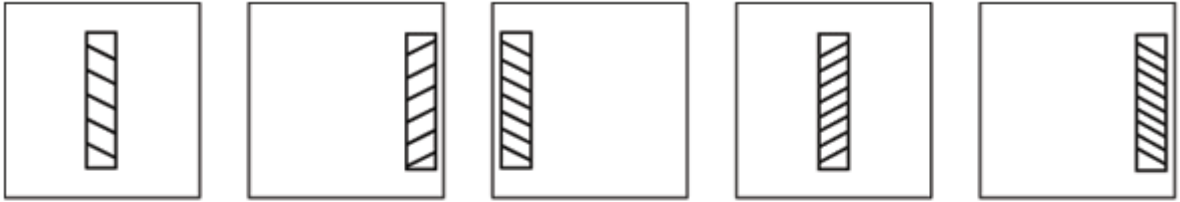
D

E

**Q13** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The black circle moves 4 places clockwise each time.  
 Rule 2: The missing line moves one corner clockwise each time.  
 Rule 3: The thick line moves two places counterclockwise each time.



**Q14** What comes next in the sequence?

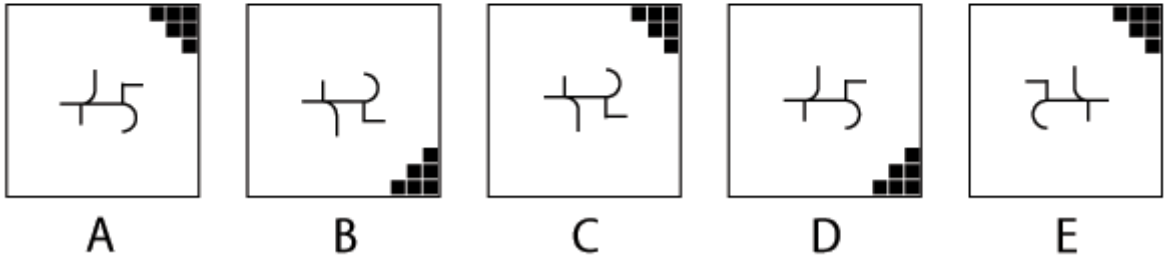
- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The symbol moves from left to right. When it reaches the right of the box, it then begins again from the left.

Rule 2: The number of diagonal lines in the rectangle increases by one each time.

Rule 3: The orientation of the diagonal lines alternates each time.





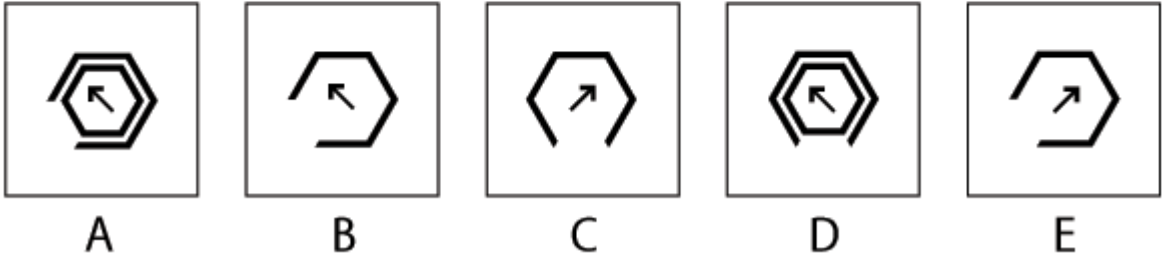
**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The symbol rotates 90° clockwise each time.

Rule 2: The black boxes move clockwise to the next corner each time.

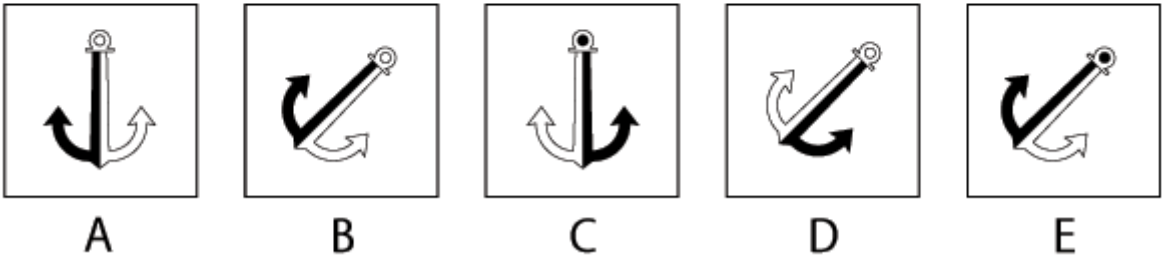
Rule 3: The number of black boxes increases by one each time.



**Q16** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

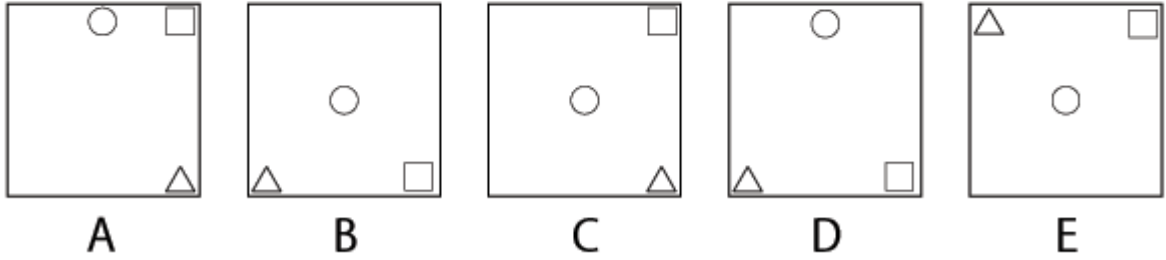
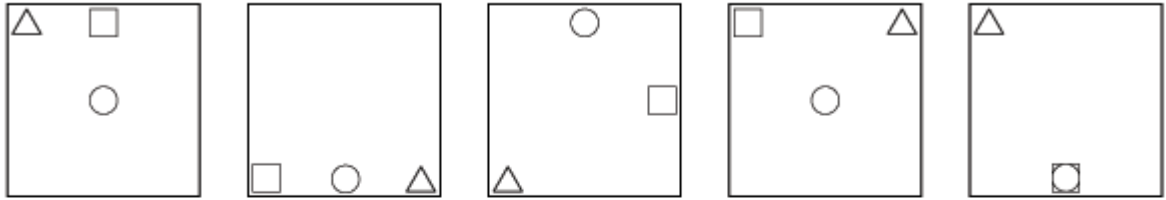
Rule 1: The arrow rotates 45° counterclockwise each time.  
 Rule 2: The missing segment on the outer hexagon moves one place counterclockwise, then two place, then three and so on.  
 Rule 3: The inner hexagon alternates between black and white.



**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

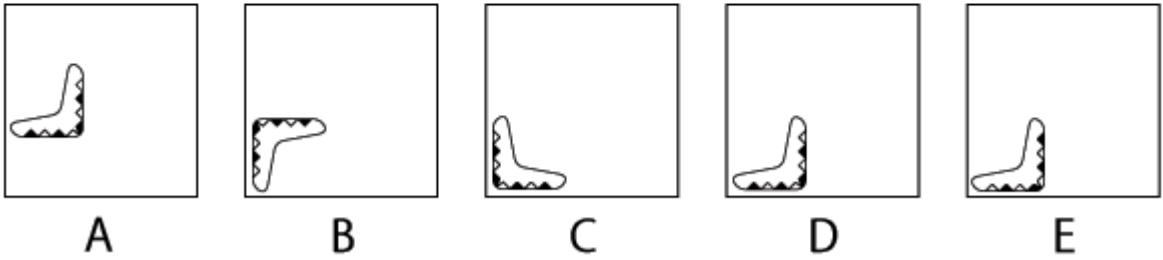
Rule 1: The anchor rotates 135° counterclockwise each time.  
 Rule 2: The two main shaded halves of the anchor alternate between black and white.  
 Rule 3: The circle at the top of the anchor alternates between black and white.



**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

- Rule 1: The triangle moves from top left, to bottom right, to bottom left, to top right and then begins again.
- Rule 2: The square moves 5 places clockwise around the edge of the box(including centre and corner positions).
- Rule 3: The circle moves down one place each time, beginning again at the top of the box.



**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The boomerang moves from top left, to middle right, to bottom left, then begins again.

Rule 2: The boomerang rotates 90° clockwise each time.

Rule 3: The triangles on the boomerang alternate between black and white.



A

B

C

D

E

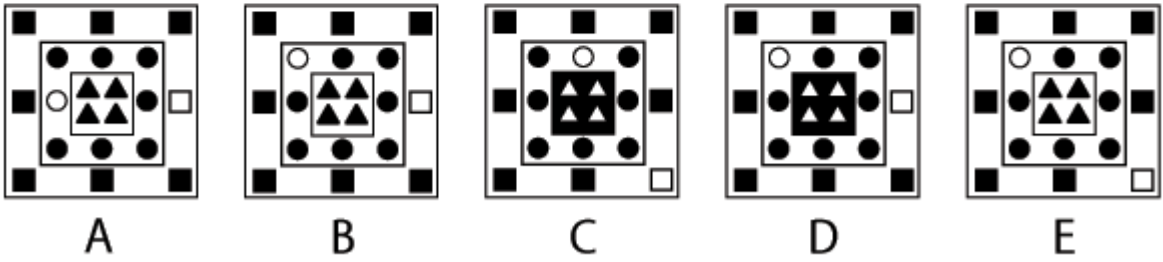
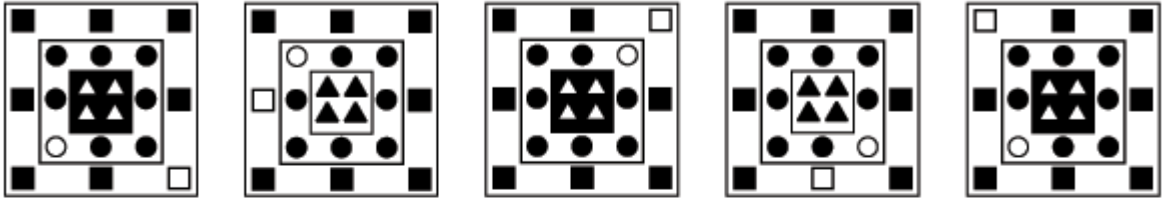
**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The lines' orientation alternates between horizontal and vertical.

Rule 2: The total number of lines increases by two each time.

Rule 3: Every line is dashed, then every second line is dashed, then every third line is dashed and so on.



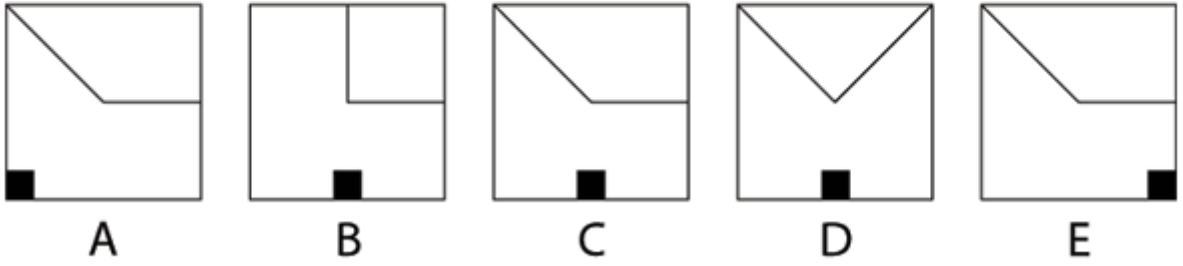
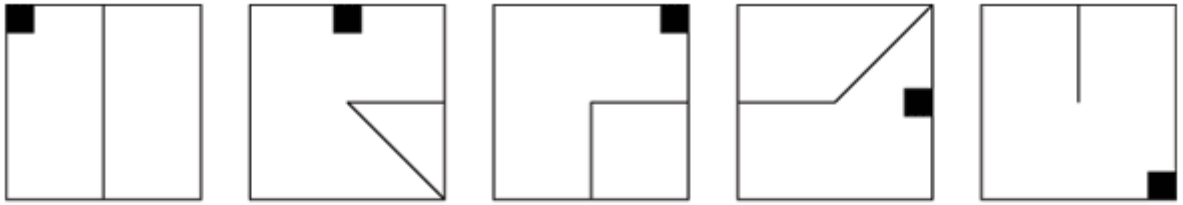
**Q21** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The central square with the triangles alternates between black and white shading.

Rule 2: The unshaded circle moves two places clockwise each time.

Rule 3: The unshaded square moves three places clockwise each time.

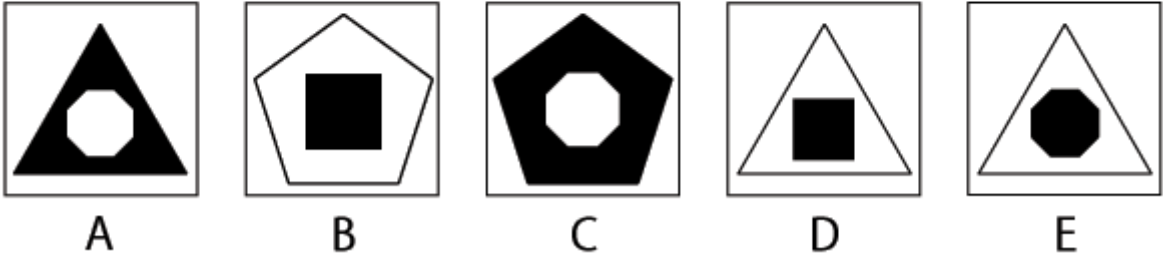


**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: One line rotates rotates 90° clockwise each time.  
 Rule 2: The other line rotates 45° counterclockwise each time.  
 Rule 3: The black square moves one place clockwise each time.

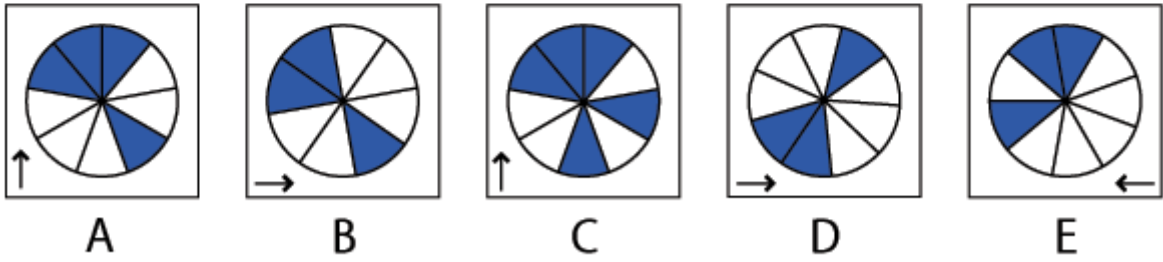
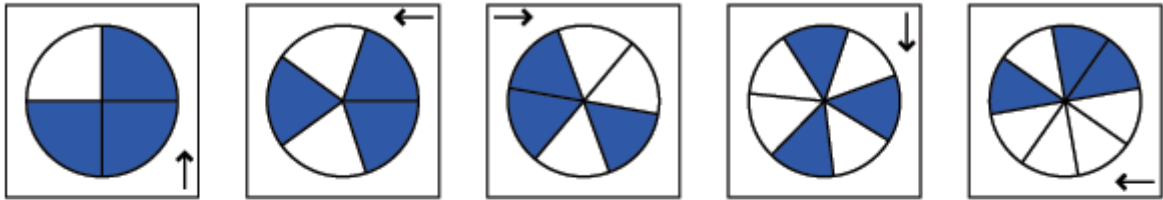




**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

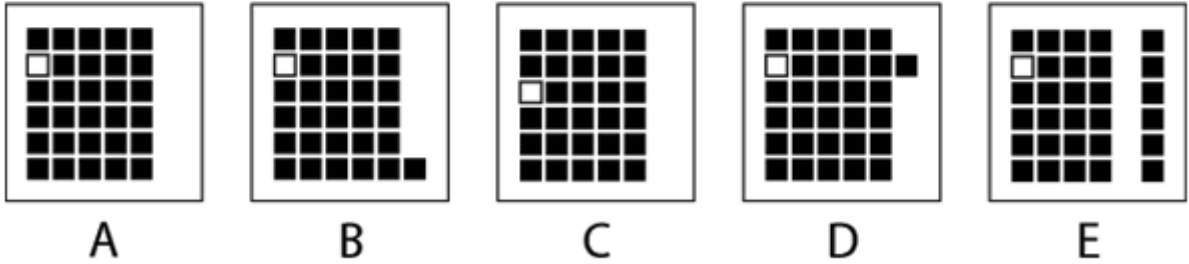
Rule 1: The number of edges on the outer shape decreases by one each time.  
 Rule 2: The number of edges on the inner shape increases by one each time.  
 Rule 3: The shapes alternate between black and white.



**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

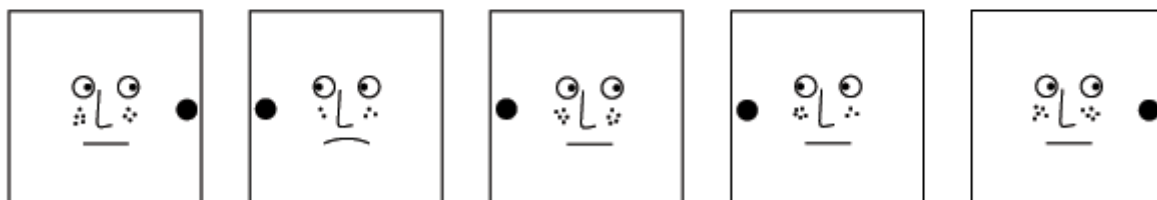
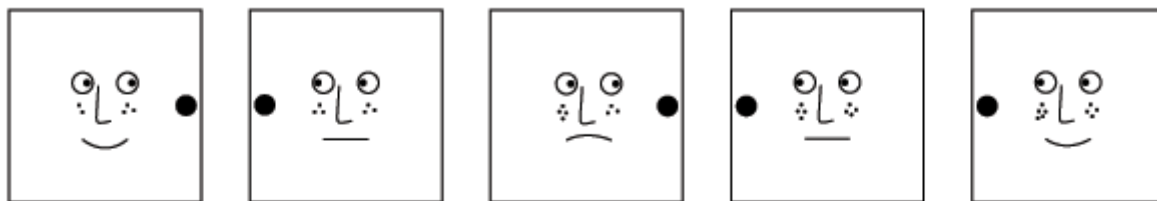
Rule 1: The number of segments in the circle increases by one each time.  
 Rule 2: The arrow points to where the next arrow will be.  
 Rule 3: There are always 3 segments shaded.



**Q25** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

- Rule 1: The white square moves down one place each time. When it reaches the bottom, it begins again from the top.
- Rule 2: The first box is missing 1 square, the second box is missing 2 squares, the third box is missing 3 squares and so on.
- Rule 3: The column with the missing squares moves one place to the right each time.



A

B

C

D

E

**Q26** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The face goes from happy, to straight, to sad, to straight then happy and begins again.

Rule 2: The total number of freckles increases by one each time.

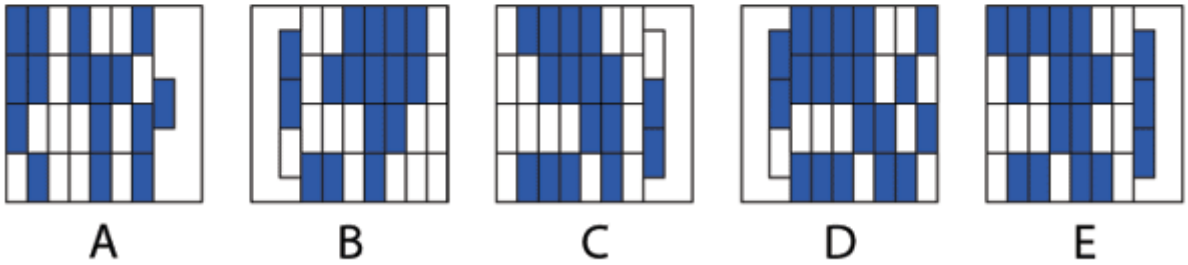
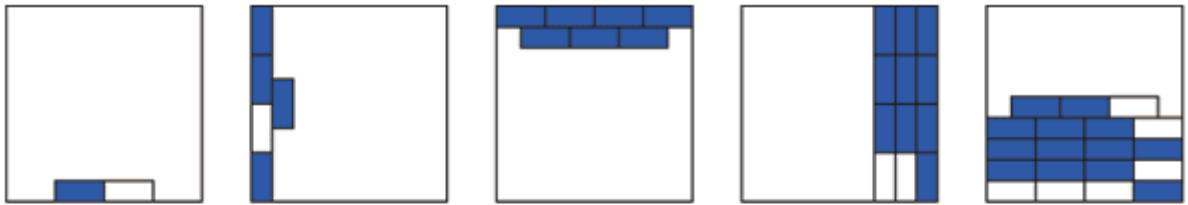
Rule 3: The eyes follow the black circle.



**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

- Rule 1: The stripes on the lighthouse alternate between black and white.
- Rule 2: The direction of the light coming from the lighthouse alternates between left and right.
- Rule 3: The total number of stars in each box alternates between four and five.



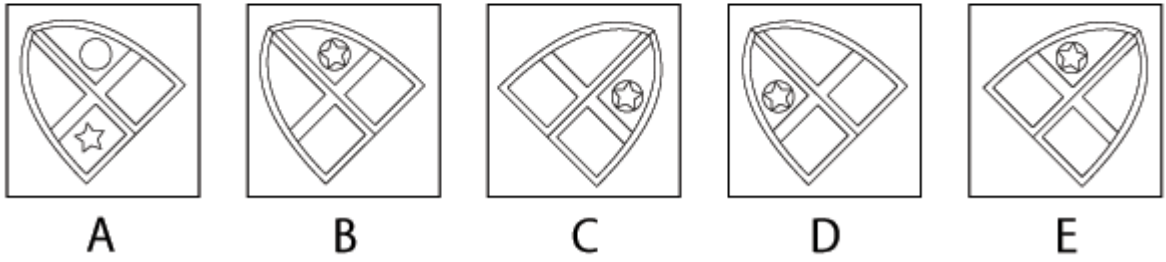
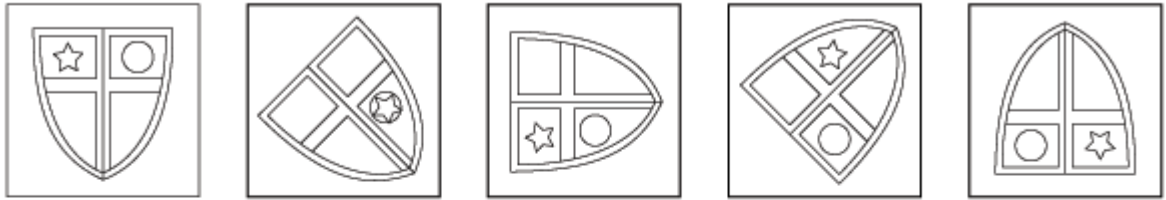
**Q28** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The box rotates 90° clockwise each time.

Rule 2: The total number of bricks in a box is equal to the sum of bricks in the previous two boxes.

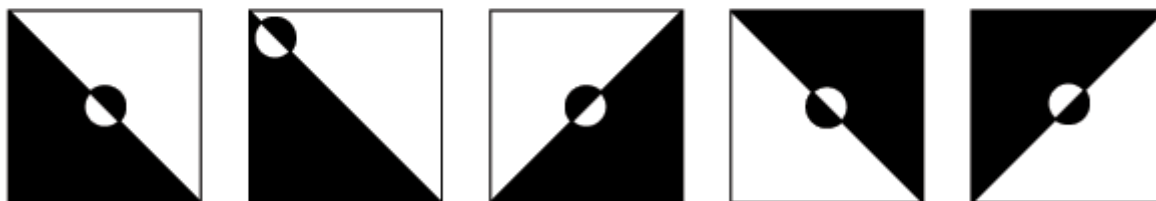
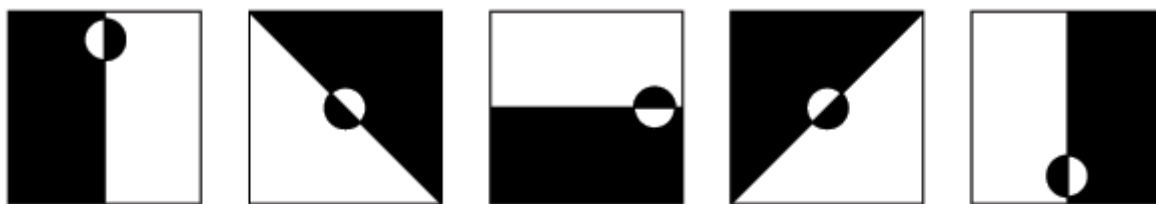
Rule 3: The number of shaded bricks increases by three each time.



**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shield rotates 45° counterclockwise each time.  
 Rule 2: The star moves two places clockwise each time.  
 Rule 3: The circle moves one place clockwise each time.



A

B

C

D

E

**Q30** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

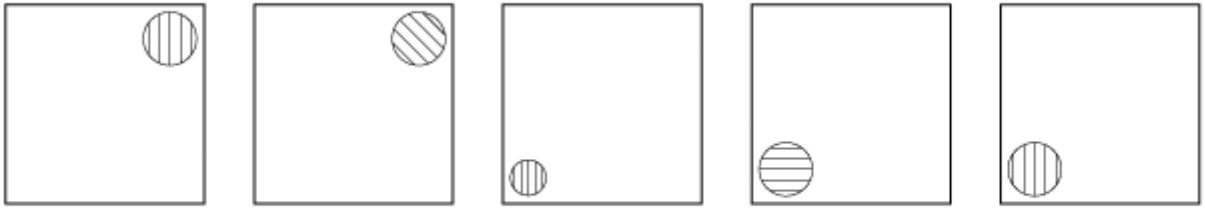
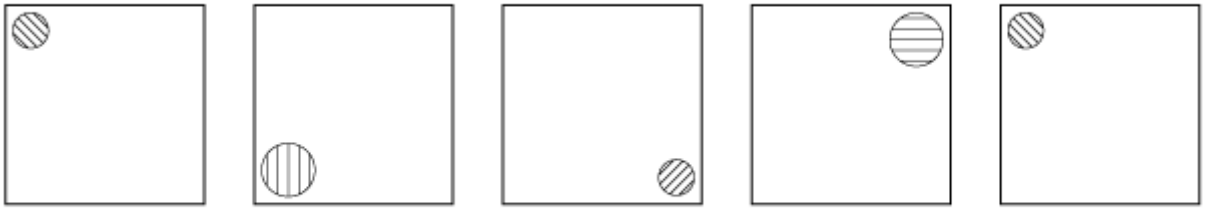
Rule 1: The dividing line between black and white rotates  $45^\circ$  counterclockwise each time.

Rule 2: The two halves of the box alternate between black and white.

Rule 3: The circle moves back and forth along the dividing line, with each half, again, alternating between black and white.







A

B

C

D

E

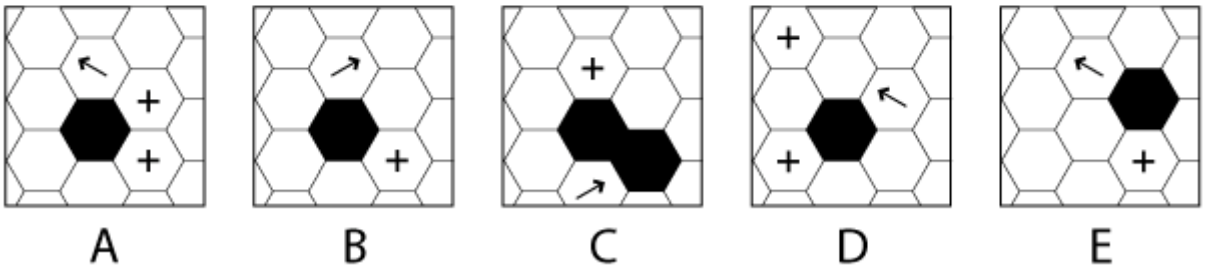
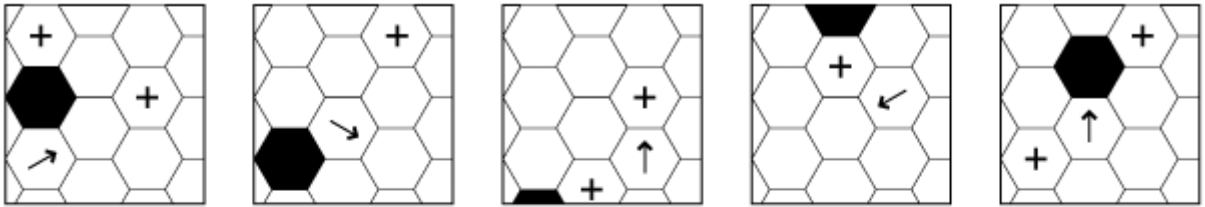
**Q1** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The circle moves counterclockwise to the next corner each time.

Rule 2: The circle rotates 45° clockwise each time.

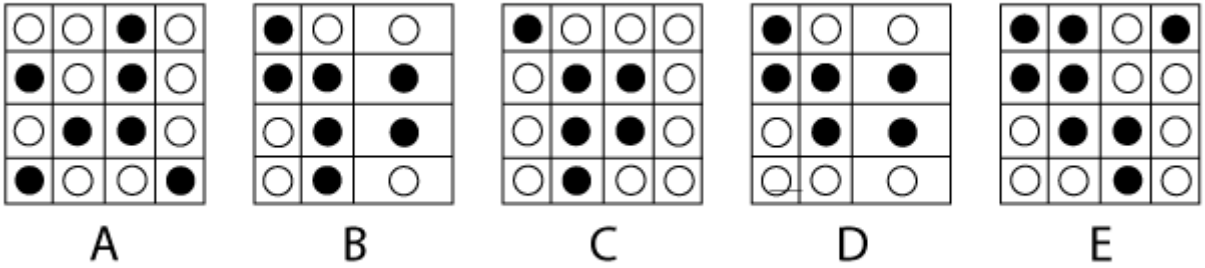
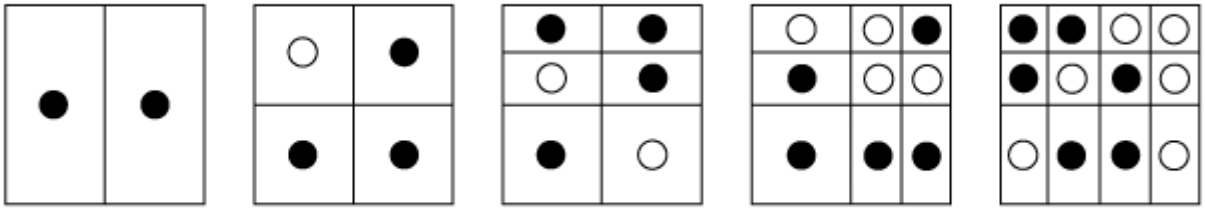
Rule 3: The circle alternates between large and small.



**Q2** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

- Rule 1: The arrow moves in the direction it points each time.
- Rule 2: The number of crossed cells alternates between one and two each time.
- Rule 3: The shaded cell moves down one place each time. When it reaches the bottom cell, it begins again on the next row.



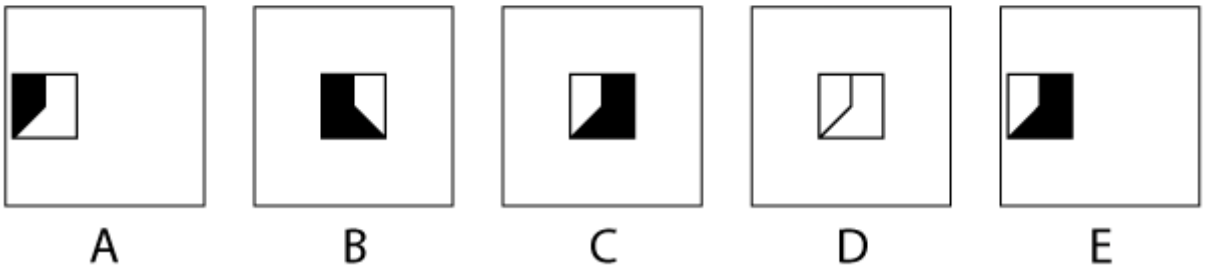
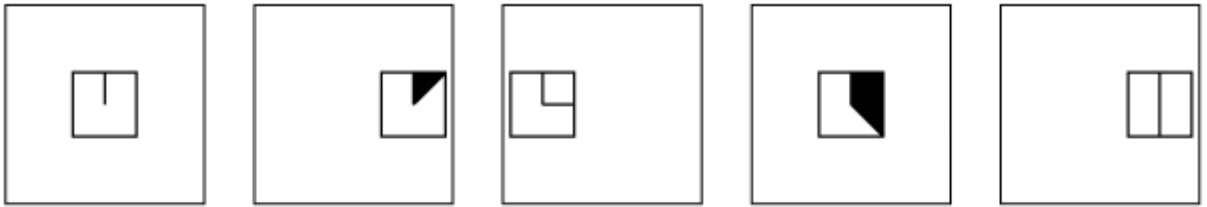
**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: A new line is added each time.

Rule 2: Every box created is filled with a circle.

Rule 3: The total number of shaded circles increases by one each time.



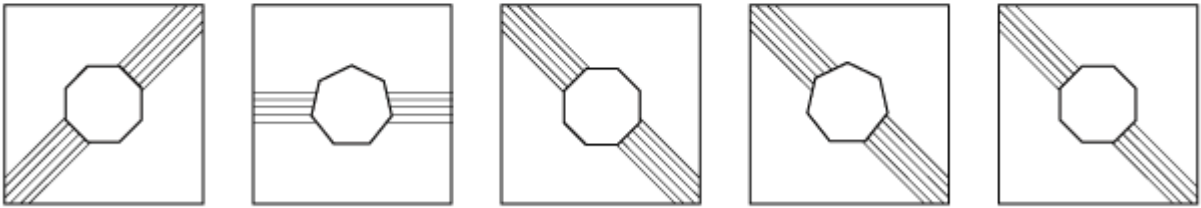
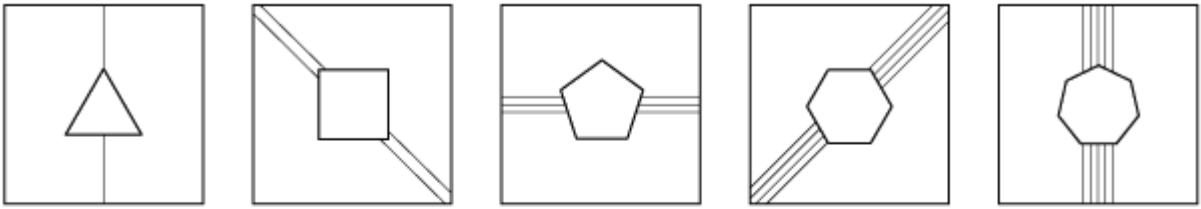
**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The square moves one place to the right each time. When it reaches the right of the box, it begins again from the left.

Rule 2: The expanding segment of the square increases by one each time.

Rule 3: The expanding segment of the square alternates between shaded and unshaded.



A

B

C

D

E

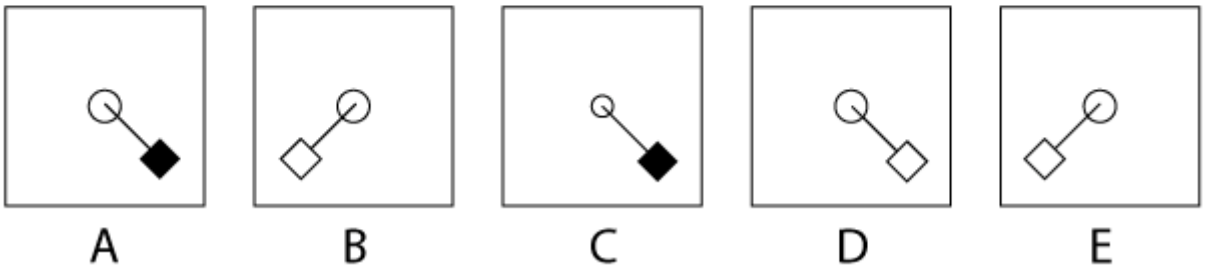
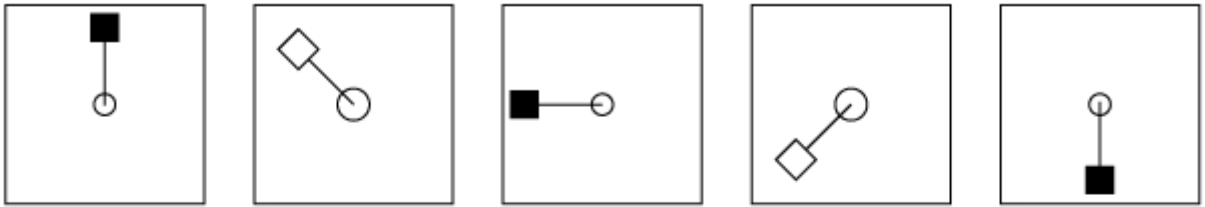
**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The total number of edges on the central shape increases by one each time.

Rule 2: The total number of lines in each box increases by one each time.

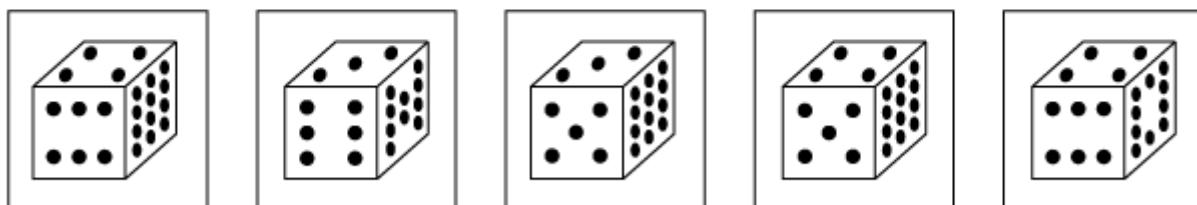
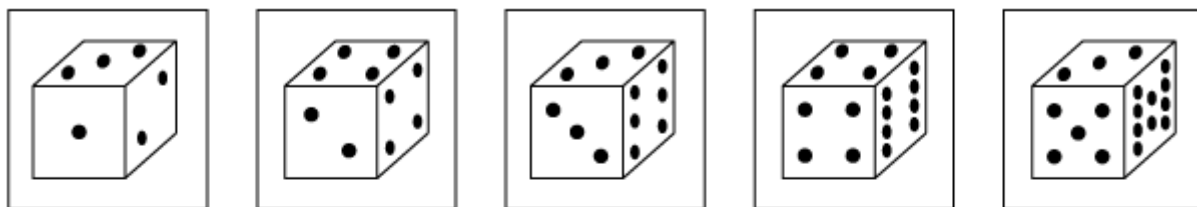
Rule 3: The lines rotate 45° counterclockwise each time.



**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The symbol rotates 45° counterclockwise each time.  
 Rule 2: The circle alternates between being large and small.  
 Rule 3: The square alternates between shaded and unshaded.



A

B

C

D

E

**Q7** What comes next in the sequence?

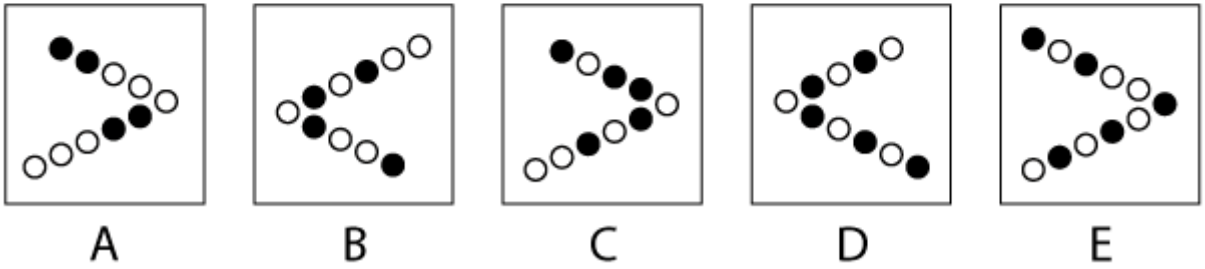
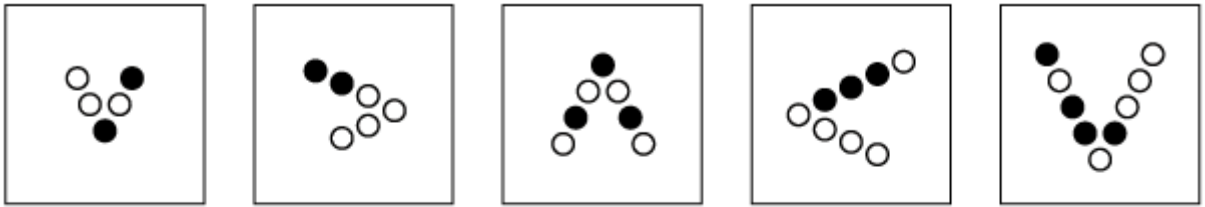
- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of dots on the right side face increases by 2 each time.

Rule 2: The total number of dots on the top side face alternates between 3 and 4.

Rule 3: The total number of dots on the front side face increases by 1 each time.

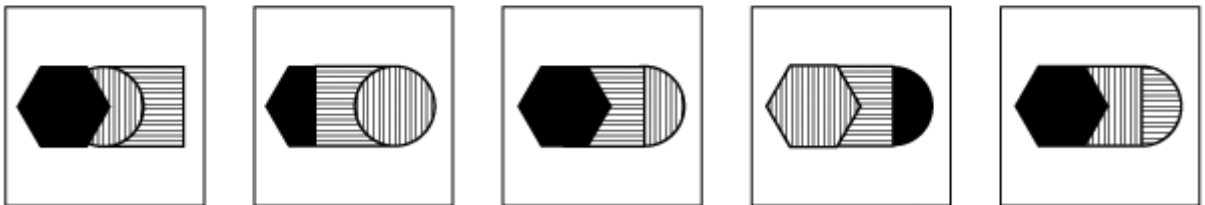
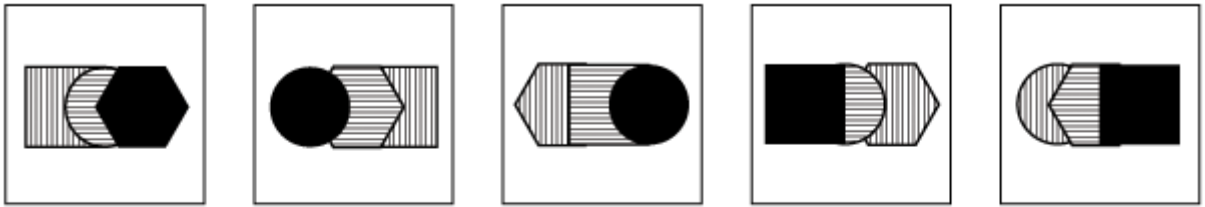




**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: Each time the 'V' shape rotates 90° counterclockwise.  
 Rule 2: Each time the total number of circles increases by one.  
 Rule 3: The total number of shaded circles increases by one every two boxes.



A

B

C

D

E

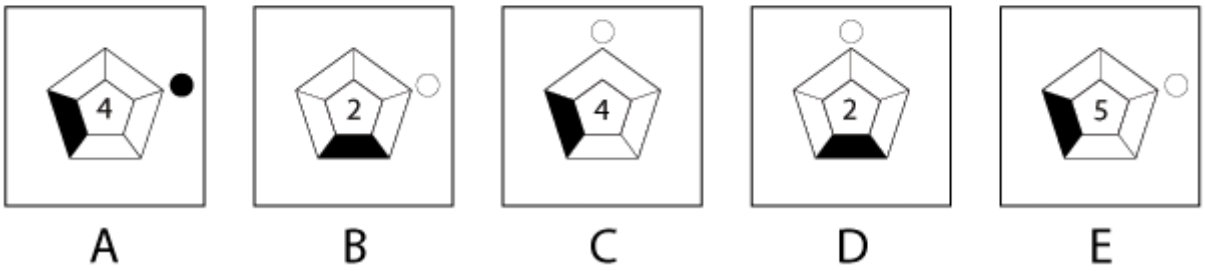
**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The shapes move one place to the left each time.

Rule 2: The shaded shape alternates between the left and right sided shape.

Rule 3: The left and right sided shapes alternate between being in the foreground and the background.



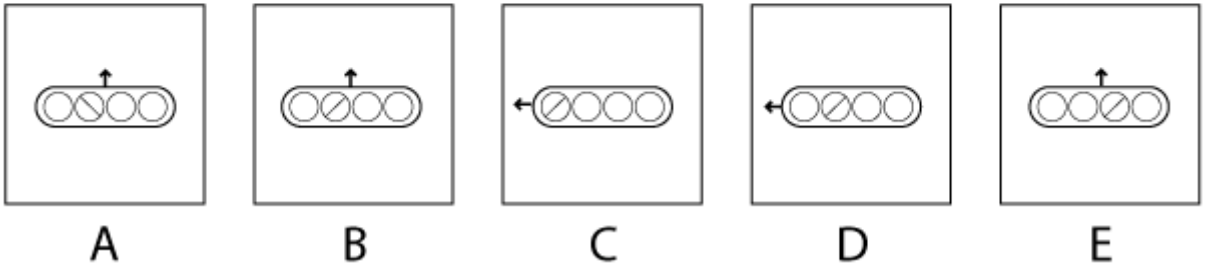
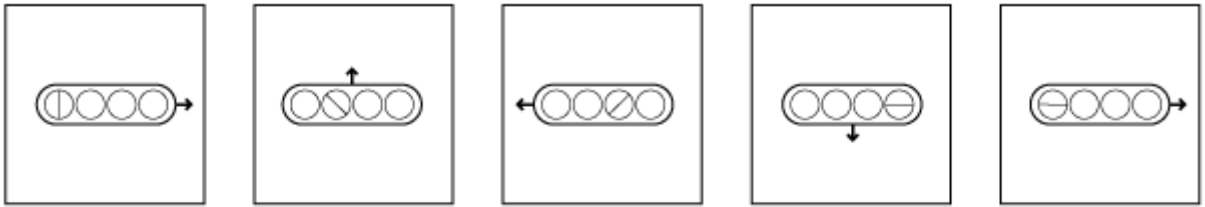
**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: Each time the circle moves counterclockwise to the next point of the pentagon.

Rule 2: The circle alternates between shaded and unshaded.

Rule 3: The number in the pentagon indicates how many places clockwise the shaded segment of the pentagon moves in the next box.



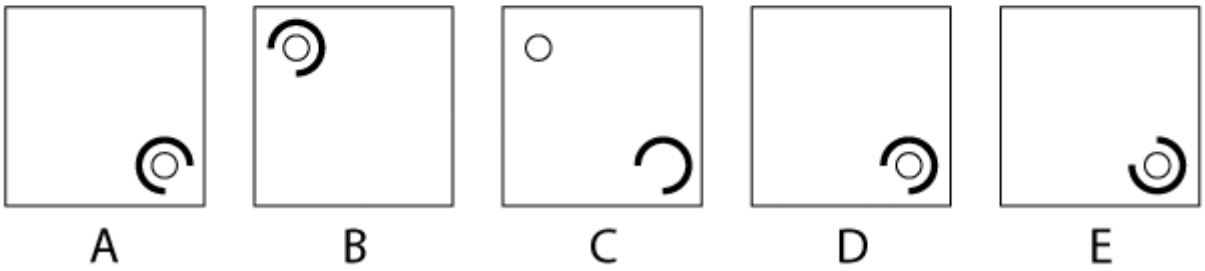
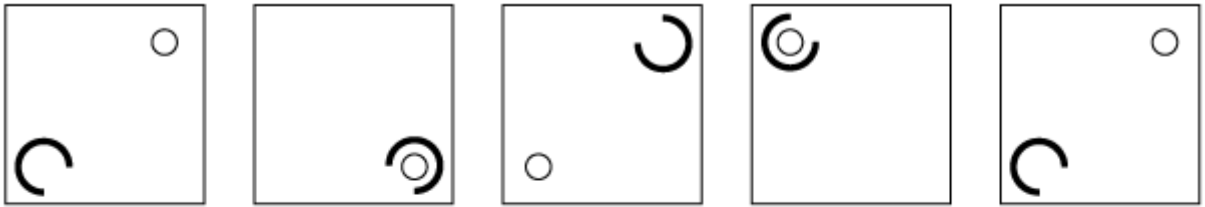
**Q11** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The arrow moves one place counterclockwise around the track each time.

Rule 2: The line in the circle rotates counterclockwise by  $45^\circ$ , then  $90^\circ$ , then  $135^\circ$  and so on.

Rule 3: The lined circle moves one place to the right each time, and then begins again from the left hand side.



**Q12** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The circle moves clockwise to the next corner each time.

Rule 2: The shaded symbol moves counterclockwise to the next corner each time.

Rule 3: The shaded symbol rotates 90° clockwise each time.

\$@?#2

3#@?5

\$?#@4

5@?#5

\$#@?6

7@?#5

7?@#5

6?#@5

\$?#@7

7?#@5

A

B

C

D

E

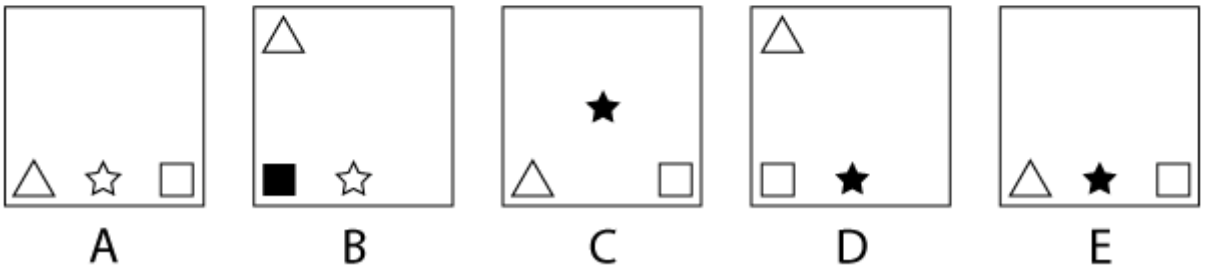
**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The number and the '\$' switch places each time.

Rule 2: Each time the number increases by one.

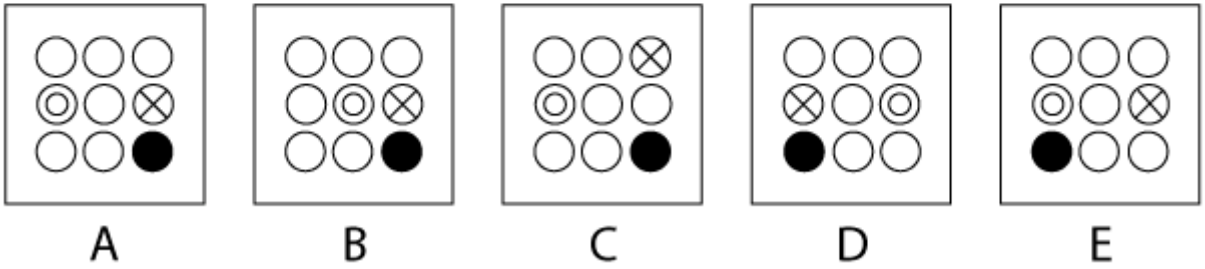
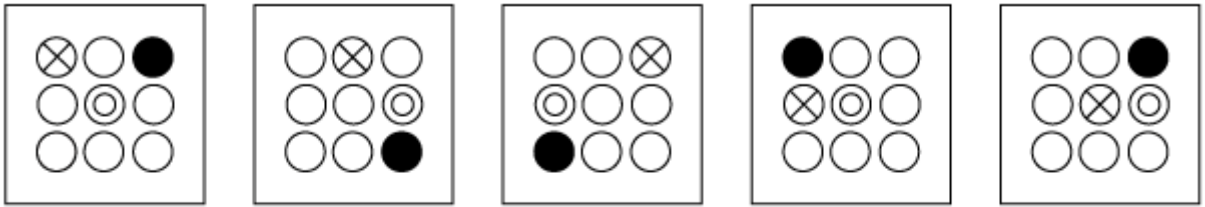
Rule 3: The three middle symbols each move one place to the right each time.



**Q14** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The square and triangle move clockwise to the next corner each time.  
 Rule 2: The star moves down one place each time, when it reaches the bottom of the box, it then begins again from the top.  
 Rule 3: The shaded shape sequence is triangle, square, star, then repeat.

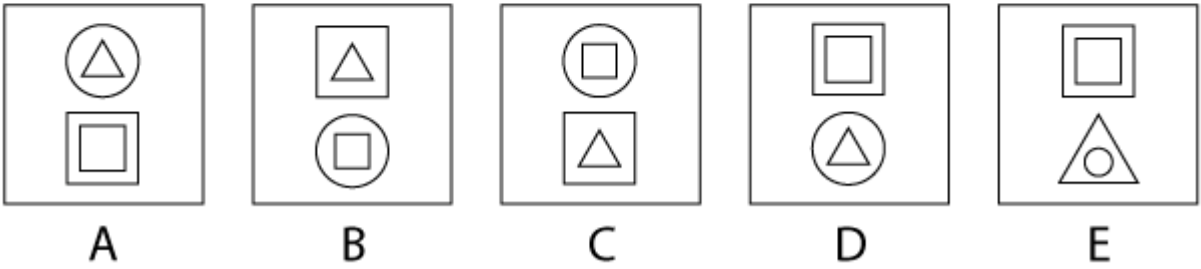


**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

- Rule 1: The crossed circle moves one place to the right each time. When it reaches the end of the row, it begins again on the next row.
- Rule 2: The shaded circle moves one place clockwise to the next corner.
- Rule 3: The double circle moves one place to the right each time, and then the pattern repeats.





**Q16** What comes next in the sequence?

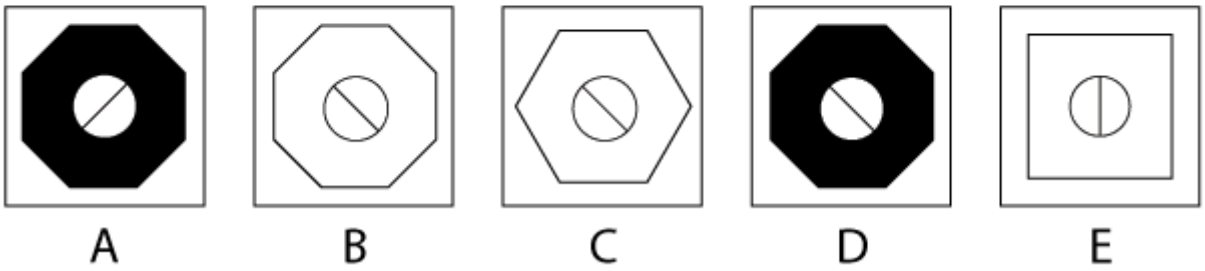
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Every two boxes are pairs, and are independent of the other boxes.

Rule 1: The large(right hand) shapes become small in the next box, whereas the small(left hand) shapes become large.

Rule 2: Both of the top shapes merge and become the bottom symbol of the next box.

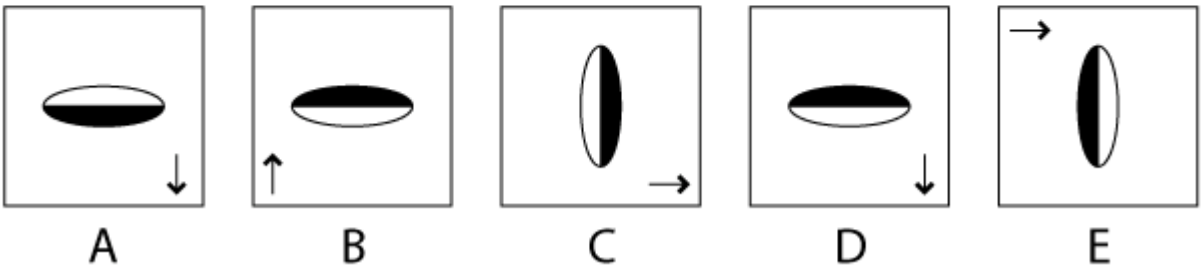
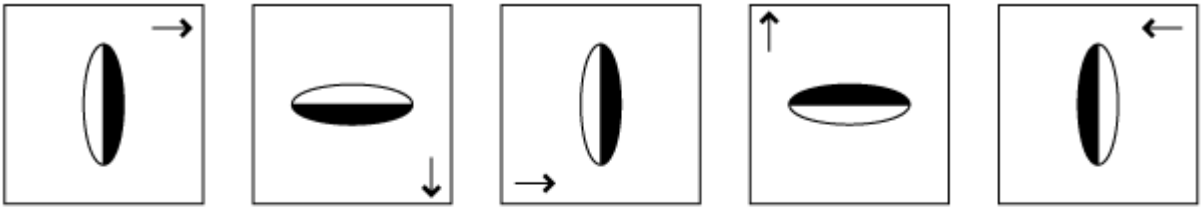
Rule 3: Both of the bottom shapes merge and become the top symbol of the next box.



**Q17** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

- Rule 1: The large, outer shape alternates between shaded and unshaded each time.
- Rule 2: The total number of edges of the large outer shape increases by one each time.
- Rule 3: The lined circle in the centre rotates 45° counterclockwise each time.



**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The oval symbol rotates 90° each time.  
 Rule 2: The arrow moves one place clockwise to the next corner each time.  
 Rule 3: The arrow indicates which side of the oval is highlighted.



A

B

C

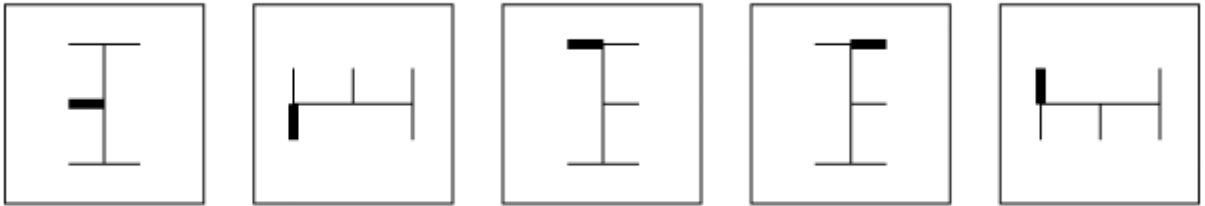
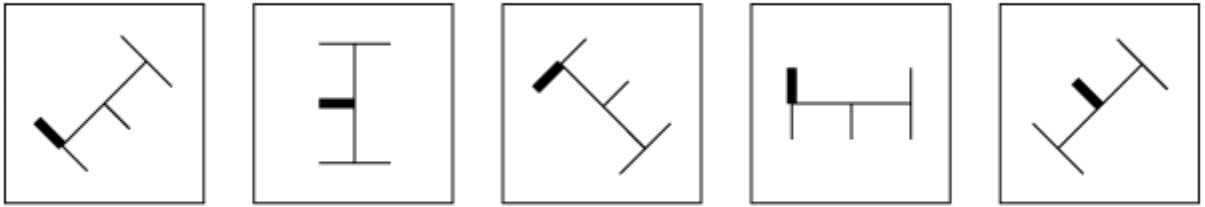
D

E

**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

- Rule 1: The cup goes from full to half full to almost empty and then the pattern repeats.
- Rule 2: The number of steam lines coming from the cup alternates between two and three.
- Rule 3: The cup handle alternates between being on the right and left side of the cup.



A

B

C

D

E

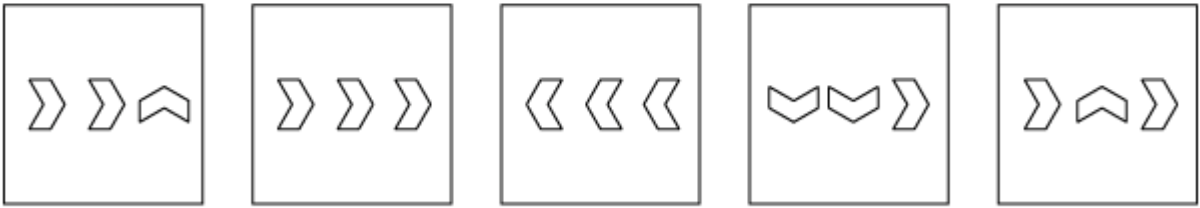
**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The symbol rotates 45° counterclockwise each time.

Rule 2: The thick branch of the symbol moves one place clockwise around the symbol each time, regardless of the orientation of the symbol.

Rule 3: The missing branch alternates between the middle two branches, regardless of the orientation of the symbol.



A

B

C

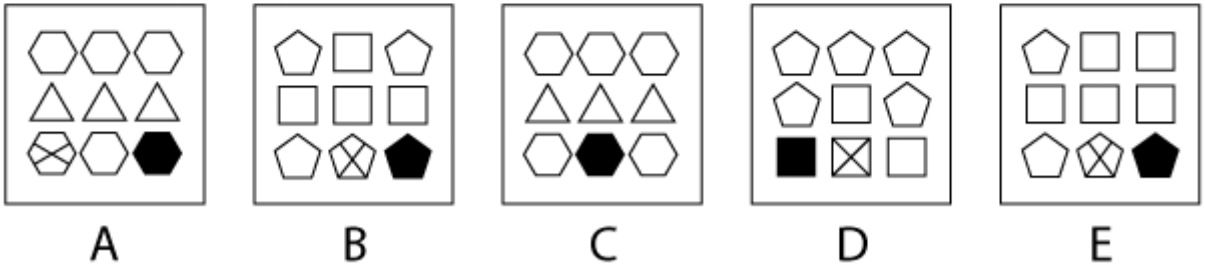
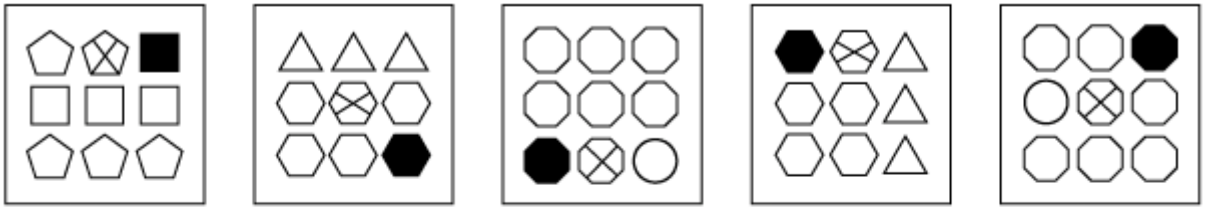
D

E

**Q21** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

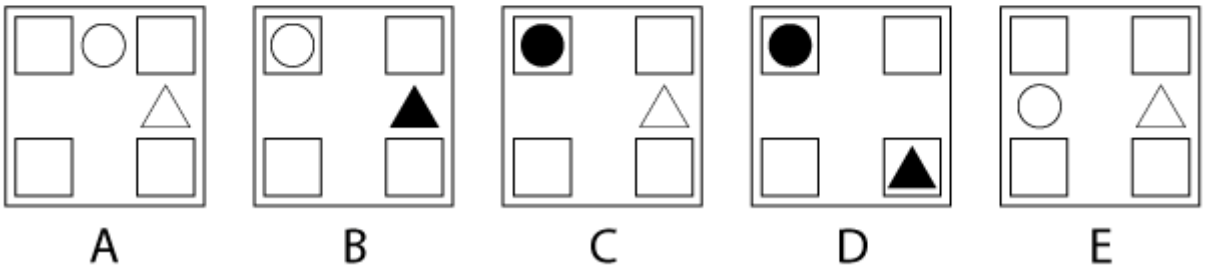
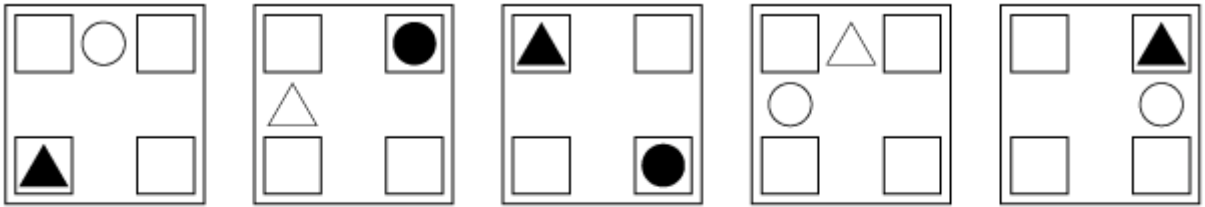
- Rule 1: The left hand symbol rotates 90° clockwise every two boxes.
- Rule 2: The middle symbol alternates between pointing left and right each time.
- Rule 3: The right hand symbol rotates 90° counterclockwise each time.



**Q22** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

- Rule 1: Each box has 9 shapes. The total number of edges on a shape is equal to the total number of that shape.
- Rule 2: The shaded shape moves one place clockwise to the next corner each time.
- Rule 3: The crossed shape moves one place down each time and then the pattern repeats.

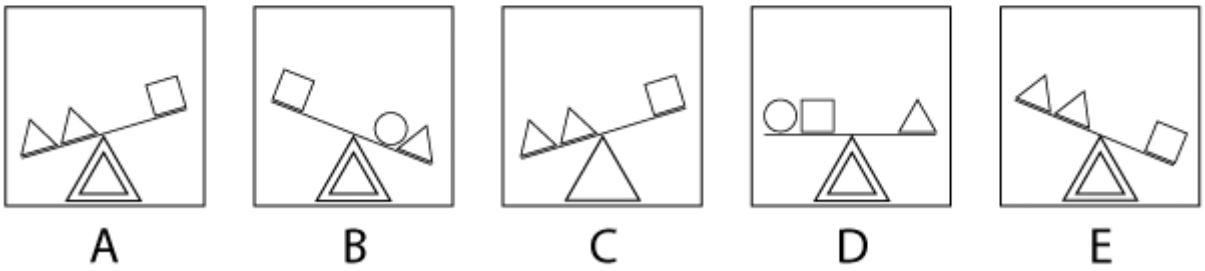
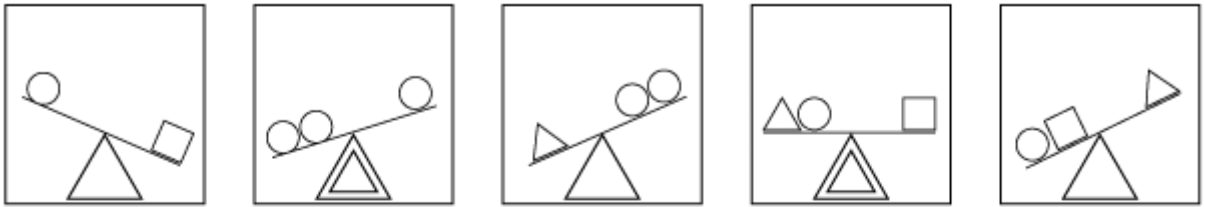


**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The circle moves clockwise one place, then two places, then three places and so on, each time.  
 Rule 2: The triangle moves one place clockwise around the box each time.  
 Rule 3: Whenever two shapes overlap, the overlapping area is shaded.

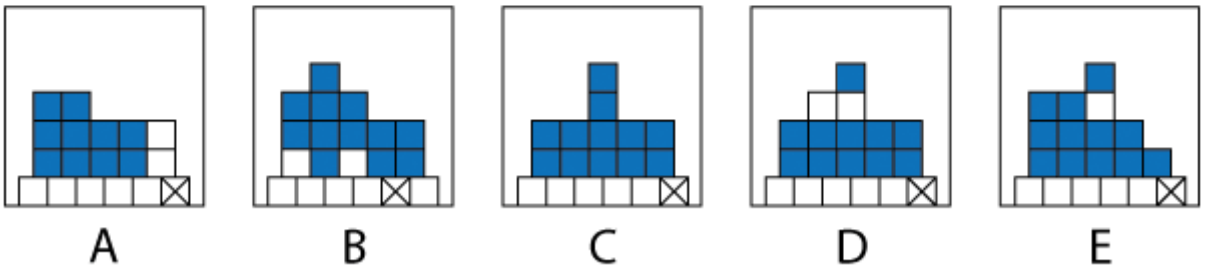
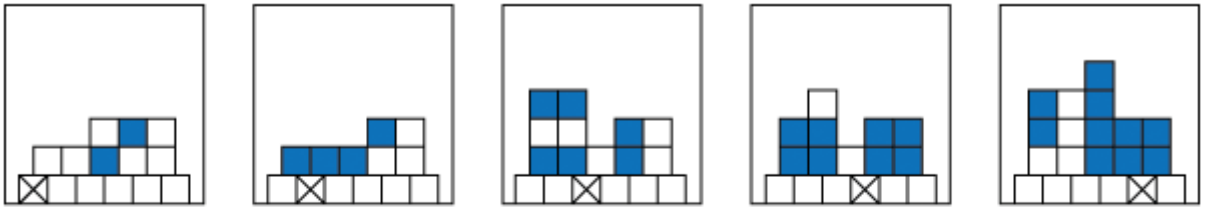




**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

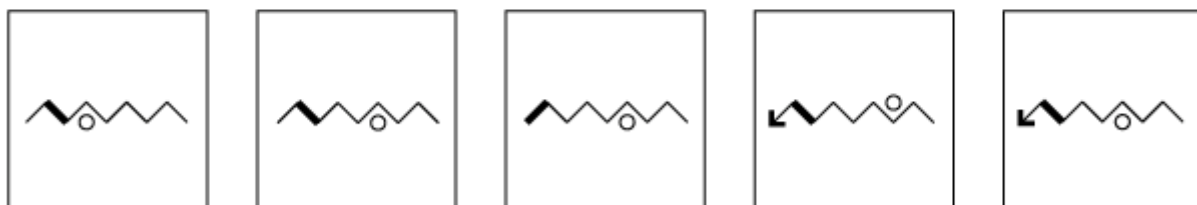
- Rule 1: Each shape's weight is equal to its total number of edges.
- Rule 2: The total number of edges on the left side of the scales increases by one each time.
- Rule 3: The pivot alternates between consisting of one triangle and two triangles each time.



**Q25** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The total number of boxes increases by four, then decreases by one, then increases by four again and so on.  
 Rule 2: The crossed box moves one place the right each time.  
 Rule 3: The total number of shaded boxes increases by two each time.



A

B

C

D

E

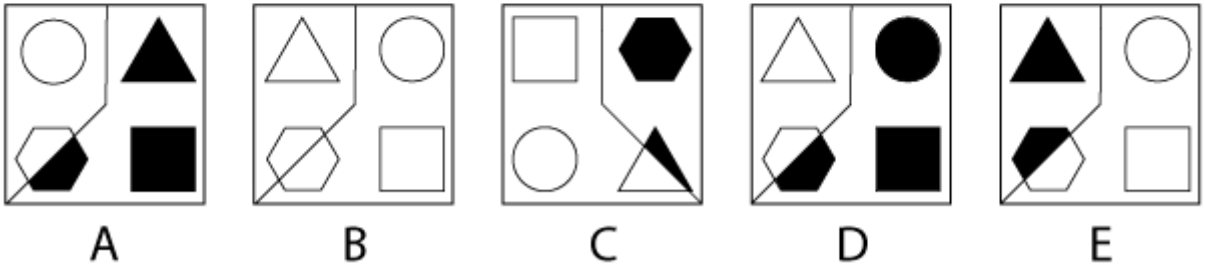
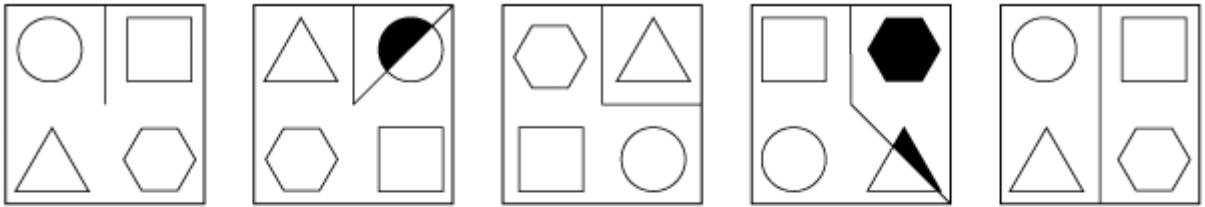
**Q26** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The circle moves one place to the right each time.

Rule 2: The thick line moves one place to the left each time.

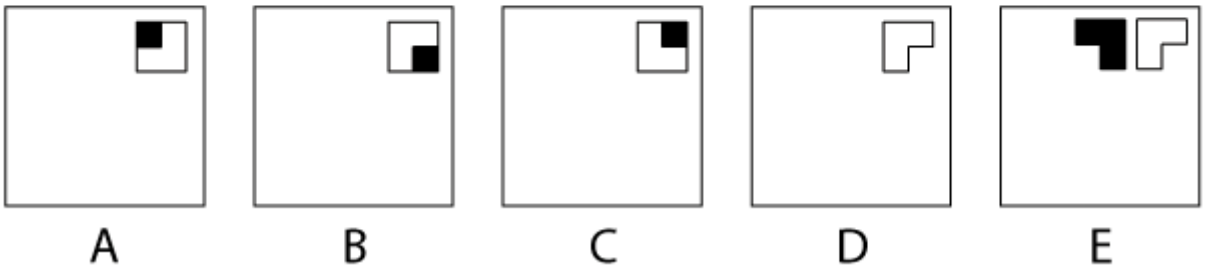
Rule 3: The symbol alternates between having a right and left pointing arrow, with a 'no arrow' box in between.



**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: Each shape moves clockwise to the next corner each time.  
 Rule 2: The segment line rotates 45° clockwise each time.  
 Rule 3: The shapes inside the segment alternates between shaded and unshaded.



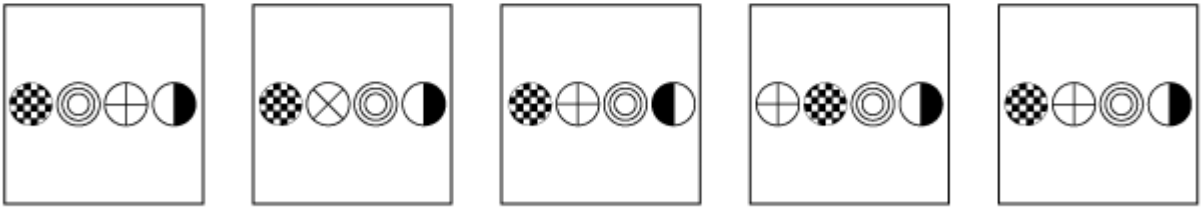
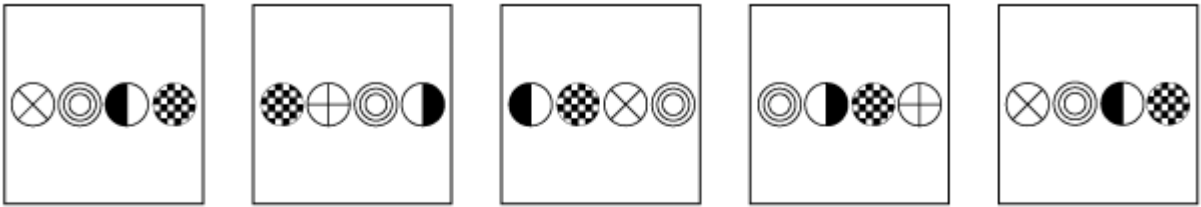
**Q28** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The unshaded symbol rotates 90° clockwise each time.

Rule 2: The unshaded symbol moves one place clockwise to the next corner each time.

Rule 3: The shaded symbol moves one place to the left each time, and then the pattern repeats from the right.



A

B

C

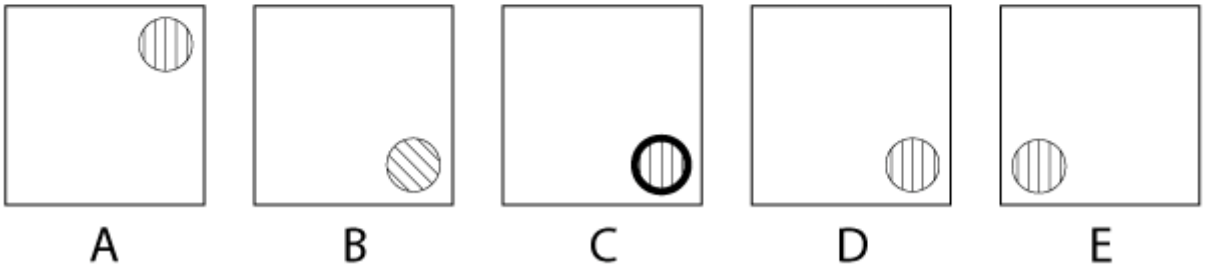
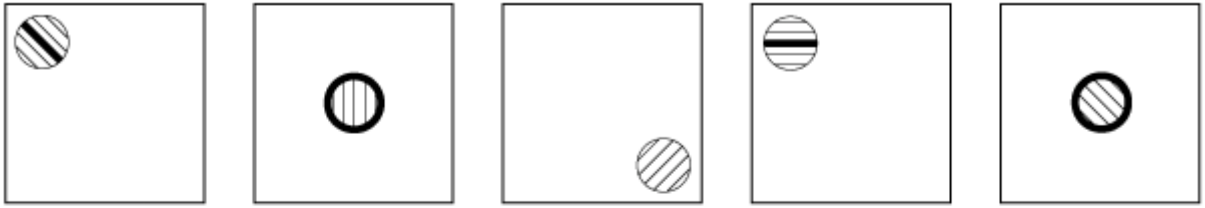
D

E

**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

- Rule 1: Each symbol moves one place to the right each time.
- Rule 2: The halved circle shading alternates each time.
- Rule 3: The quartered circle rotates 45° each time.



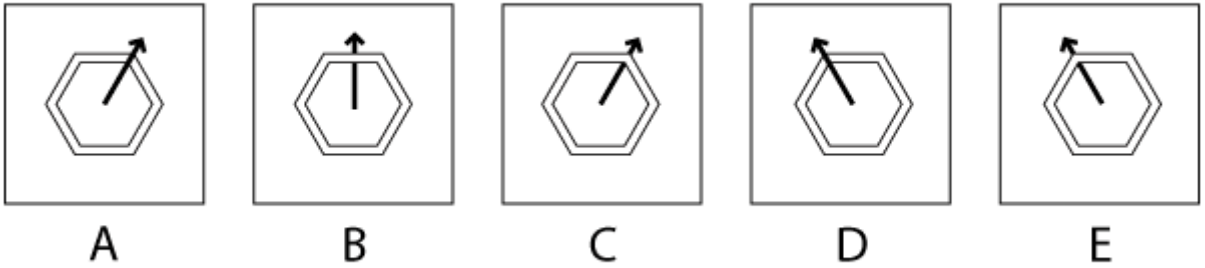
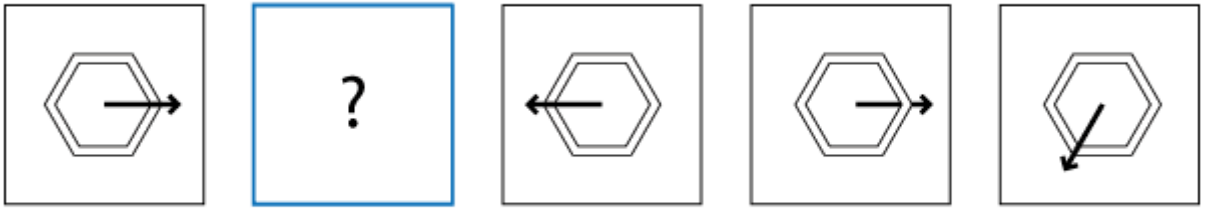
**Q30** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shape moves diagonally from top-left to middle to bottom-right, then repeats.  
 Rule 2: The heavy shading goes from inner line, to outer line, to none, then repeats.  
 Rule 3: Each time the shape rotates 45° clockwise.





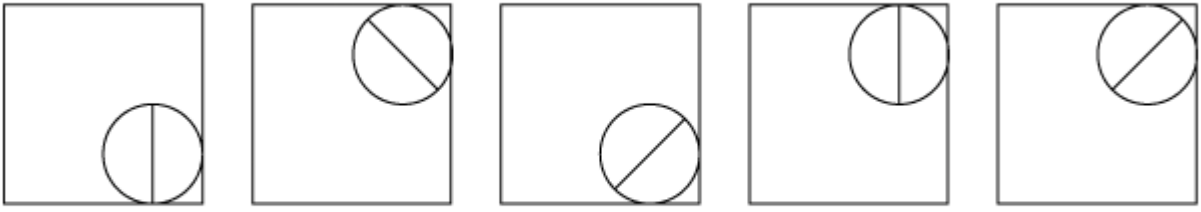
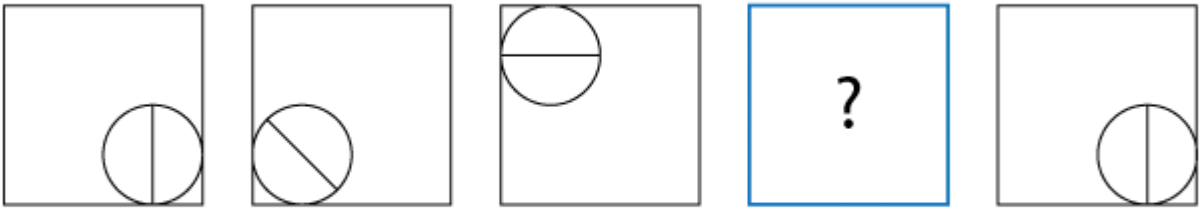


**Q1** What replaces the question mark?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The arrow rotates one place counterclockwise to the next corner, then two places, then three places and so on.

Rule 2: The arrow alternates between being behind and in front of the hexagon.



A

B

C

D

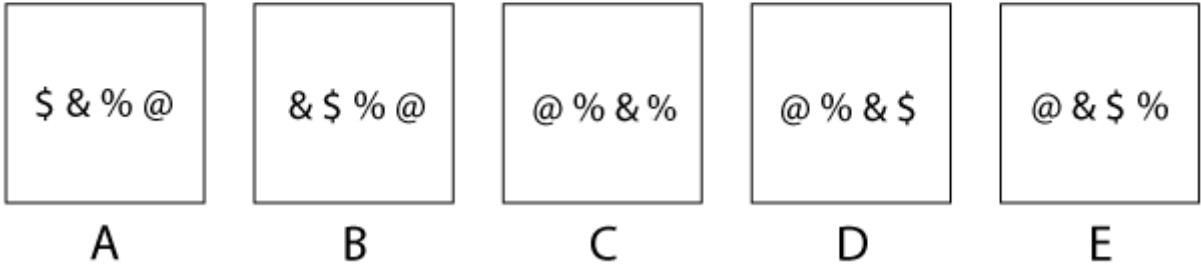
E

**Q2** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The circle moves clockwise to the next corner each time.

Rule 2: The line in the circle rotates 45° counterclockwise each time.

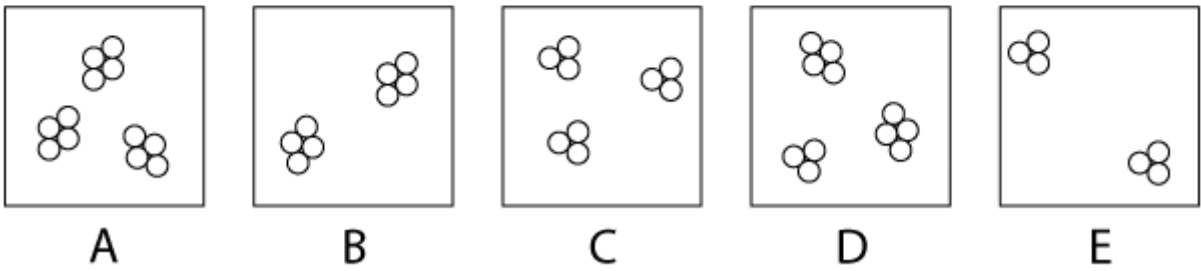


**Q3** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The symbols move one place to the right each time.

Rule 2: The fourth symbol on the right becomes the first symbol on the left in the next square.

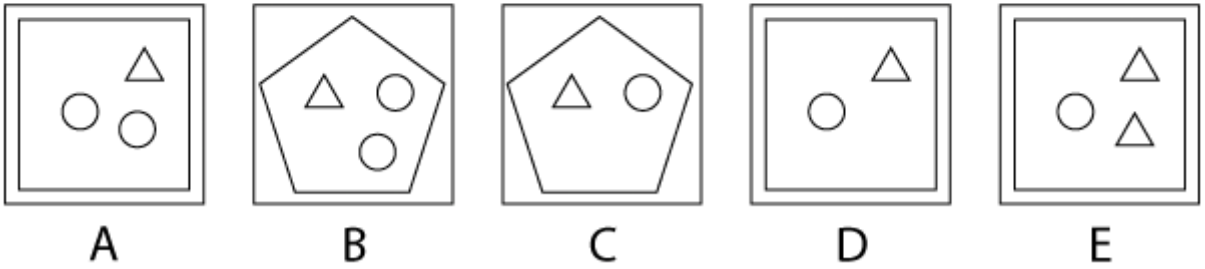


**Q4** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The number of circles in each cluster doubles each time.

Rule 2: The total number of clusters decreases by one each time.

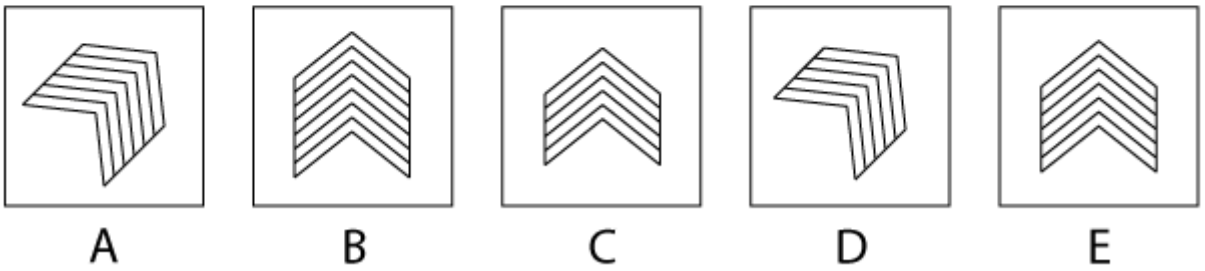


**Q5** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The total number of edges on the large outer shape increases by one each time.

Rule 2: The total number of edges on the small inner shapes is equal to the total number of edges on the large outer shape.

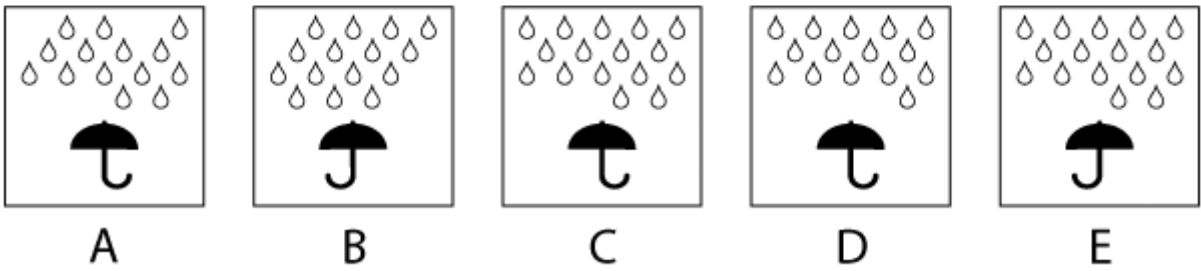


**Q6** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The symbol rotates 45° clockwise each time.

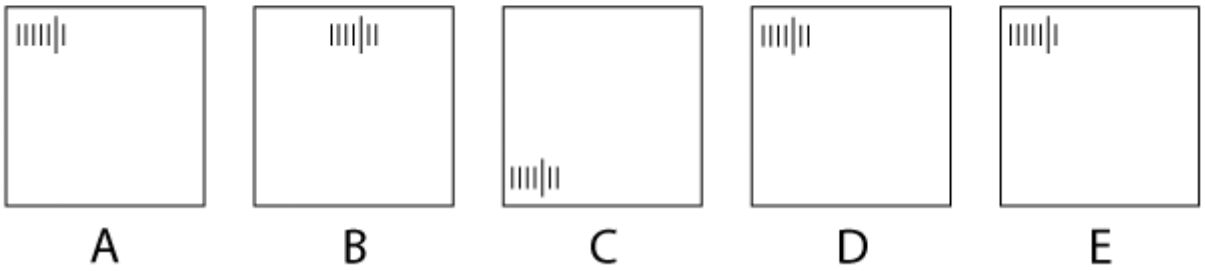
Rule 2: Each time a new arrow is added.



**Q7** What replaces the question mark?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The umbrella alternates between pointing left and right.  
Rule 2: Each time the total number of raindrops decreases by two.



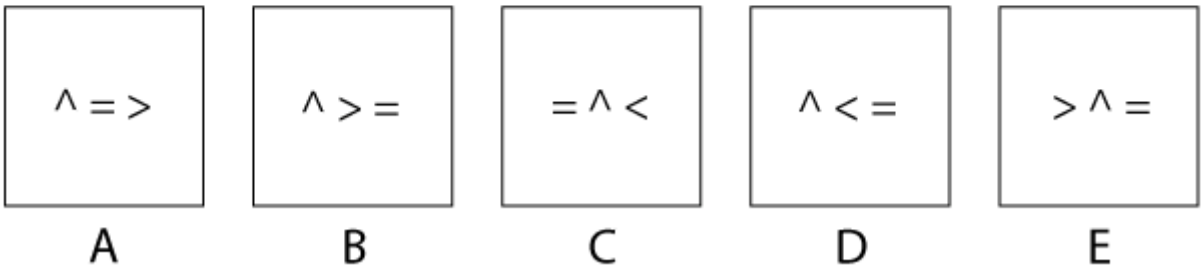
**Q8** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The notches move down one place each time, then they begin again on the next column.

Rule 2: The enlarged notch moves one place to the right each time, then once it reaches the end, begins again from the left.



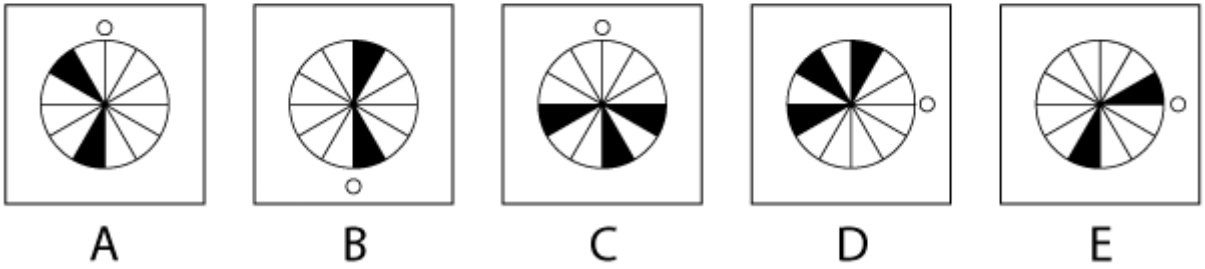
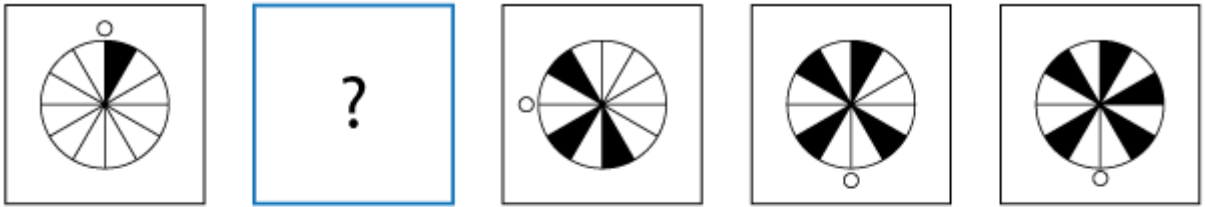


**Q9** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The symbols move one place to the right each time.

Rule 2: The horizontal arrow alternates between pointing right ( > ) and left ( < ) each time.

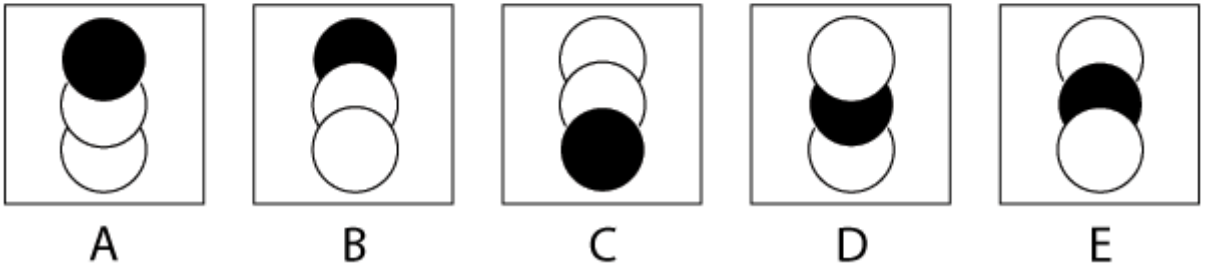


**Q10** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The total number of shaded segments increases by one each time.

Rule 2: The small circle moves clockwise one quarter of the way round the large circle, then two quarters, then three quarters and so on.

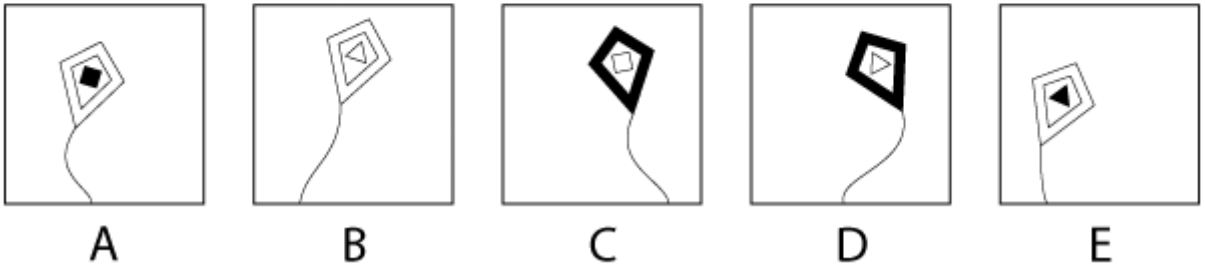


**Q11** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The circle alternate between moving from foreground to background and vice versa.

Rule 2: The shaded circle moves down one place each time.



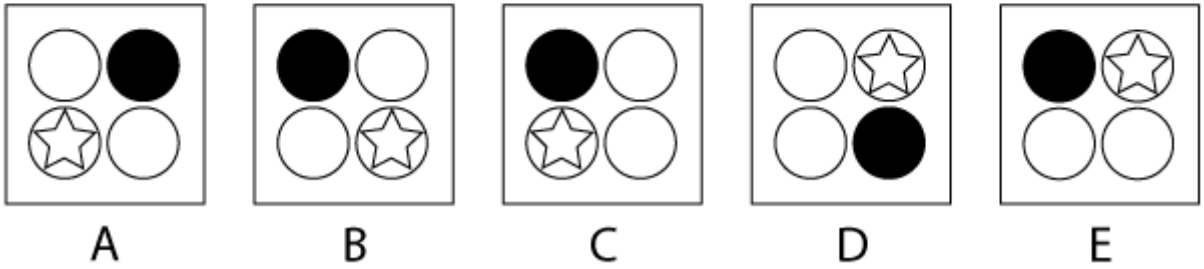
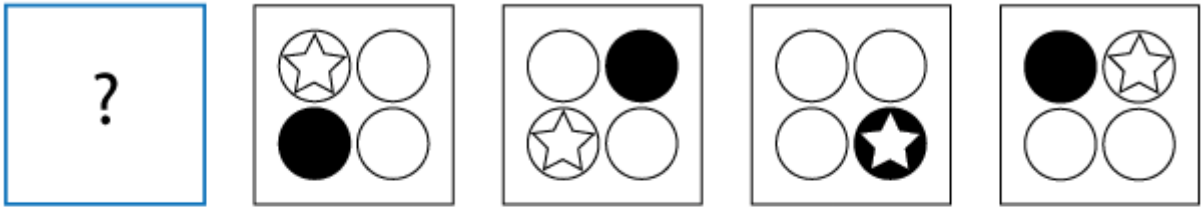
**Q12** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shape in the kite alternates between circle, then triangle, then square, in that order. The pattern then repeats.

Rule 2: The shape in the kite alternates between shaded and unshaded.

Rule 3: The kite itself remains unshaded.

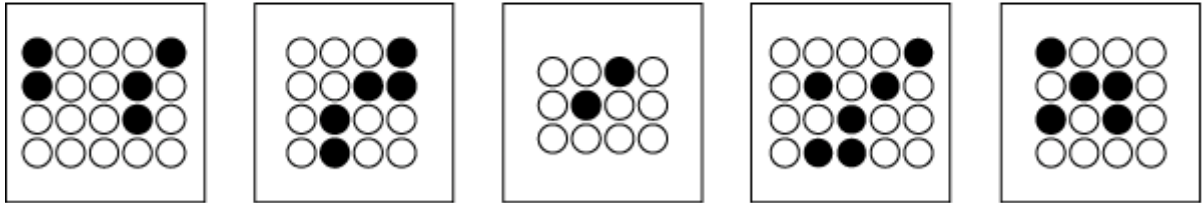
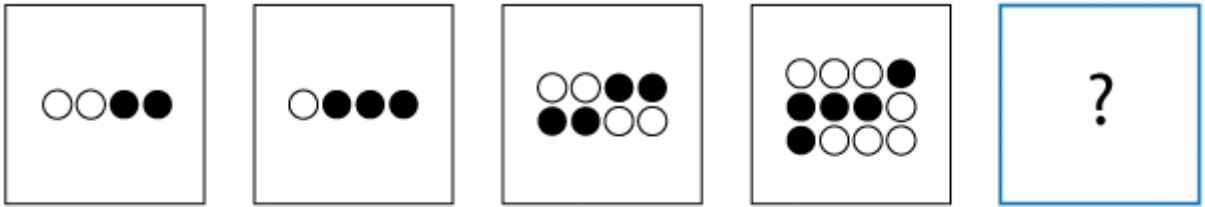


**Q13** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The star moves one place anticlockwise each time.

Rule 2: The shaded circle moves down one place each time and then begins again on the next column.



A

B

C

D

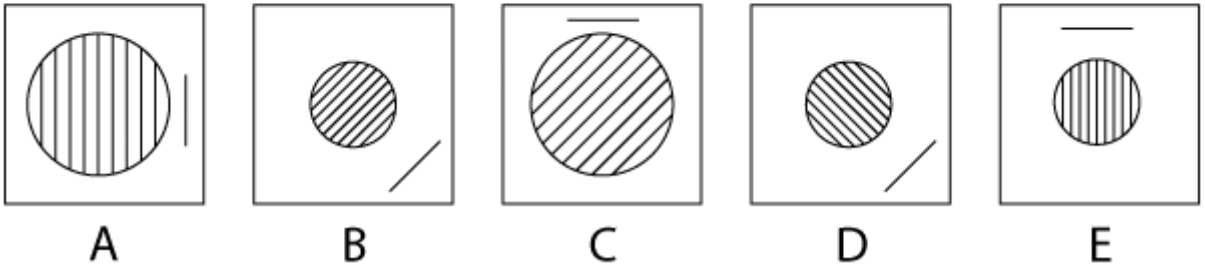
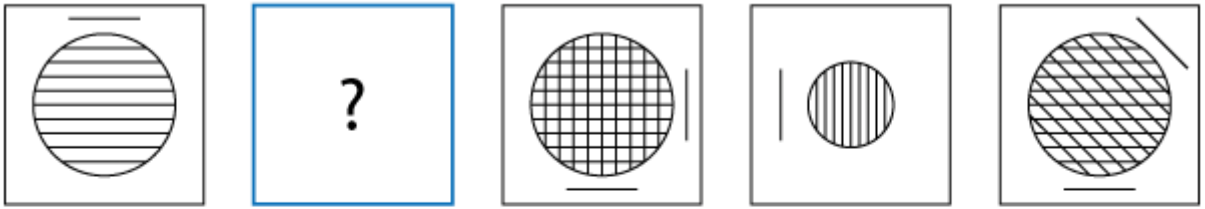
E

**Q14** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The total number of circles is equal to the total number of circles in the previous two boxes.

Rule 2: The total number of shaded circles increases by one each time.

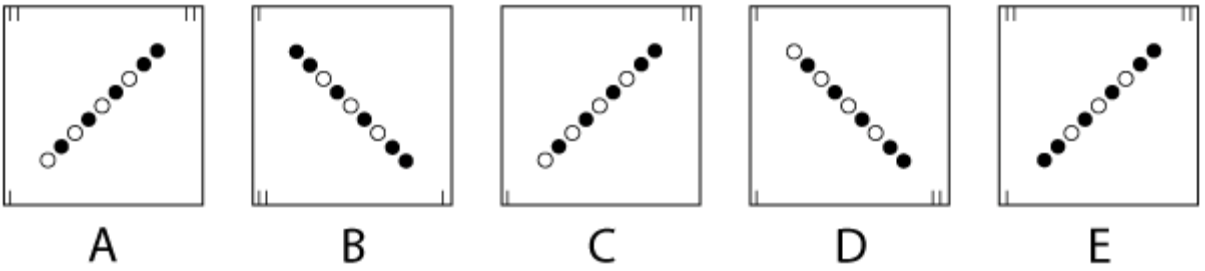
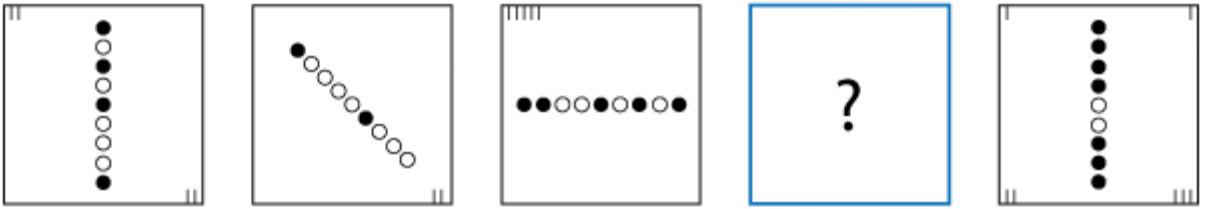


**Q15** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The circle alternates between being large and small.

Rule 2: The lines inside the circle run parallel to the line(s) outside of the circle.



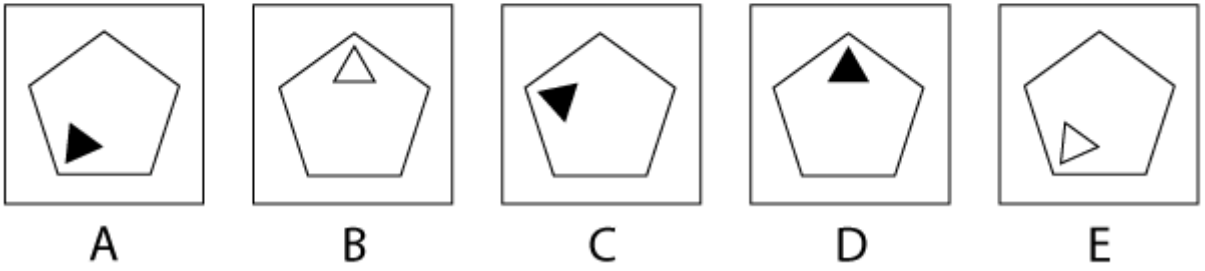
**Q16** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The pattern of circles rotates 45° counterclockwise each time.

Rule 2: The total number of shaded circles is always equal to the total number of notches in that box.



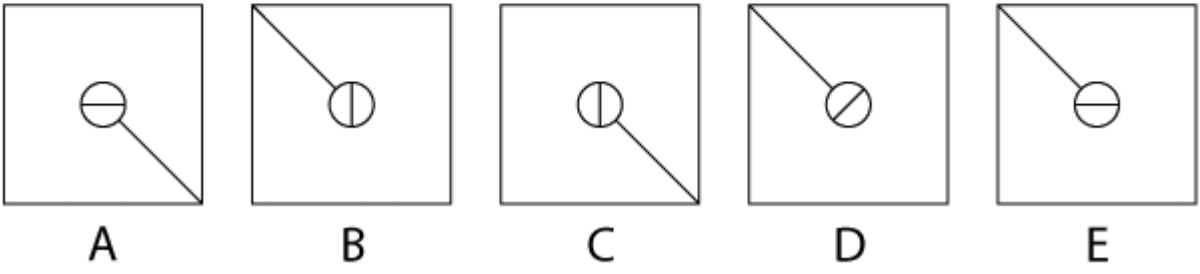
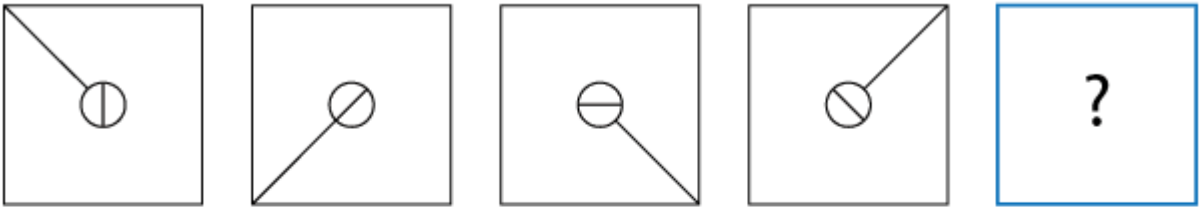


**Q17** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The triangle rotates one place counterclockwise, then two places, then three places and so on.

Rule 2: The triangle alternates between shaded and unshaded.

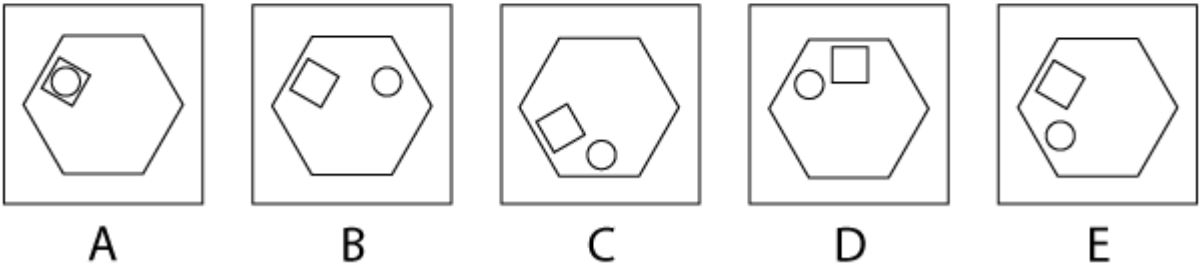
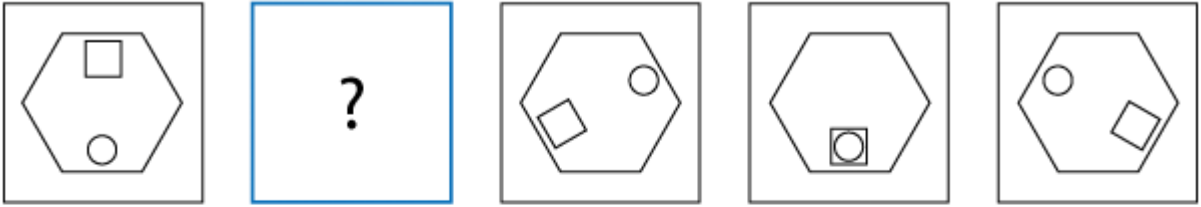


**Q18** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The circle rotates 45° clockwise each time.

Rule 2: The large line moves counterclockwise to the next corner each time.

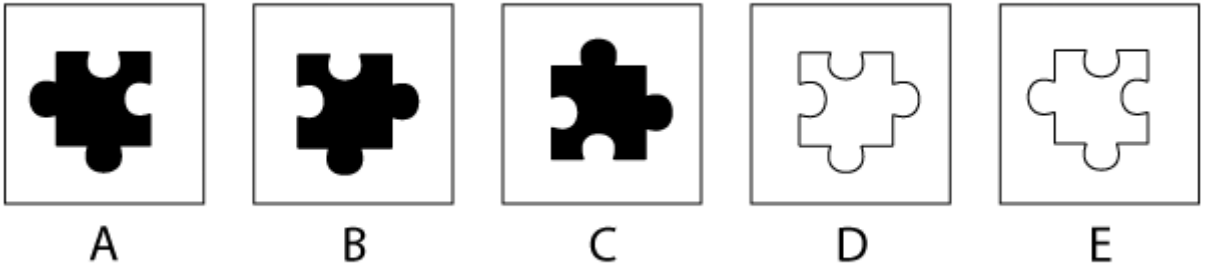


**Q19** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The circle moves two places clockwise around the hexagon each time.

Rule 2: The square moves one place counterclockwise around the hexagon each time.

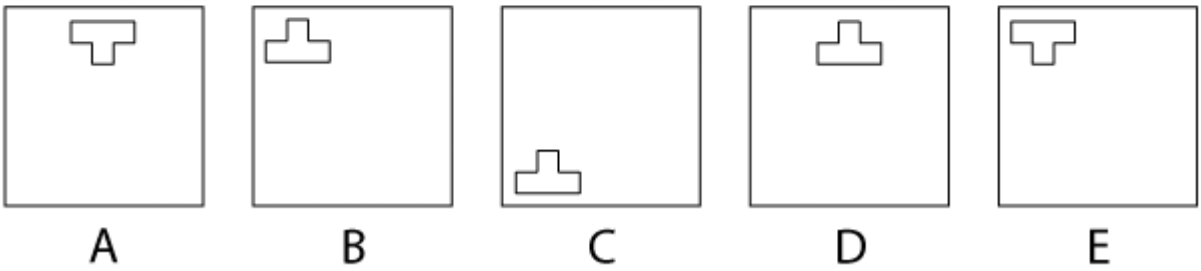
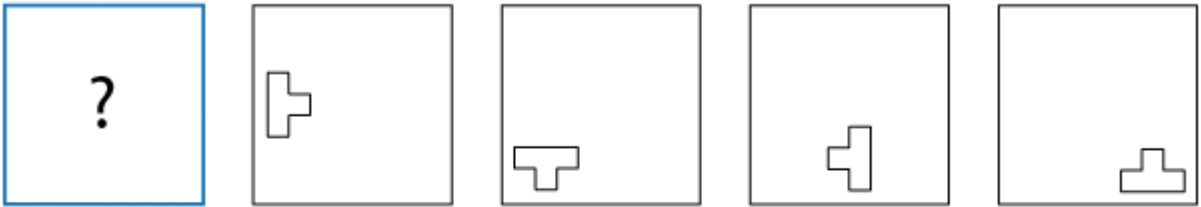


**Q20** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The jigsaw piece alternates between shaded and unshaded.

Rule 2: The jigsaw piece rotates 90° clockwise each time.

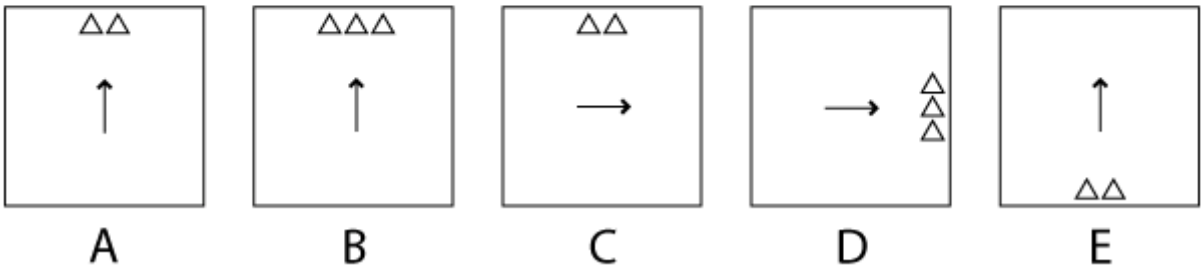
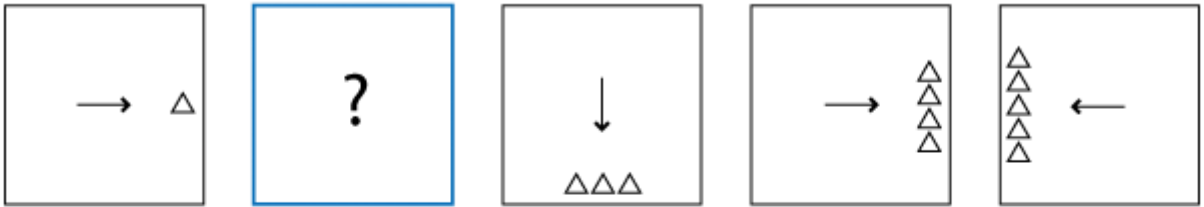


**Q21** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shape moves one place counterclockwise around the box.

Rule 2: The symbol rotates 90° clockwise each time.

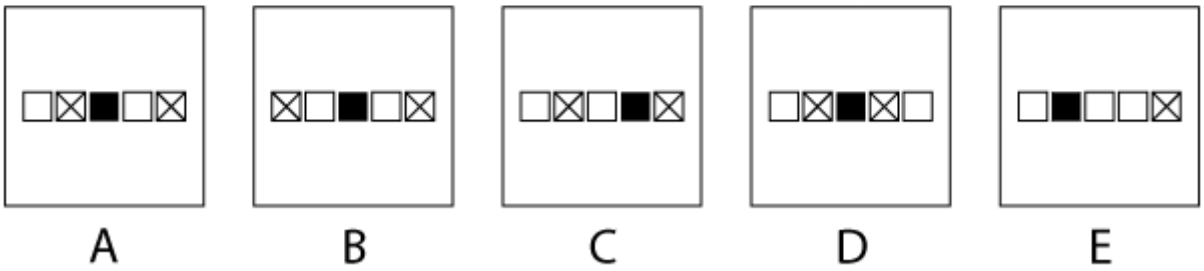
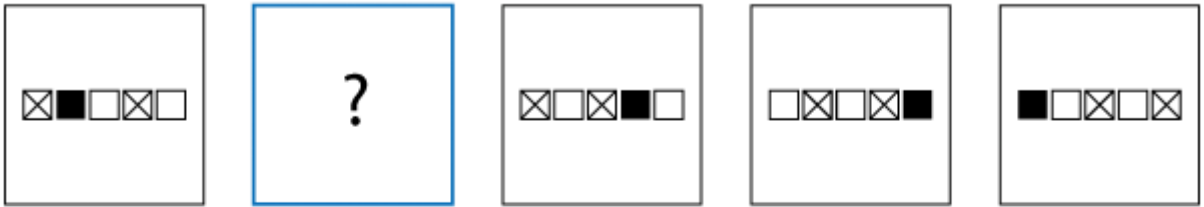


**Q22** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of triangles increases by one each time.

Rule 2: The arrow indicates which side of the box the triangles are located.

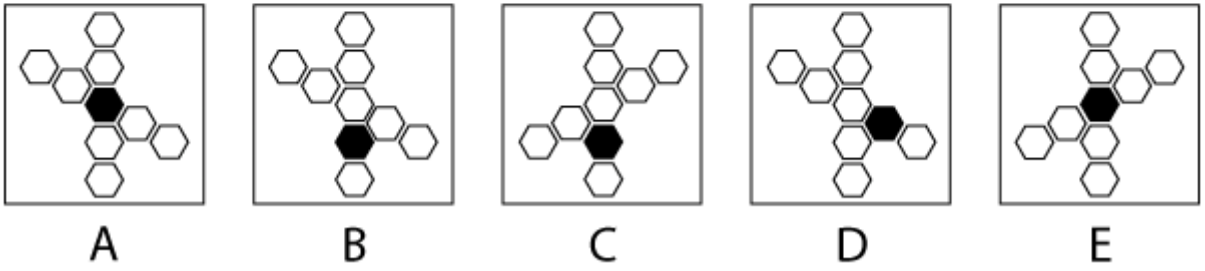
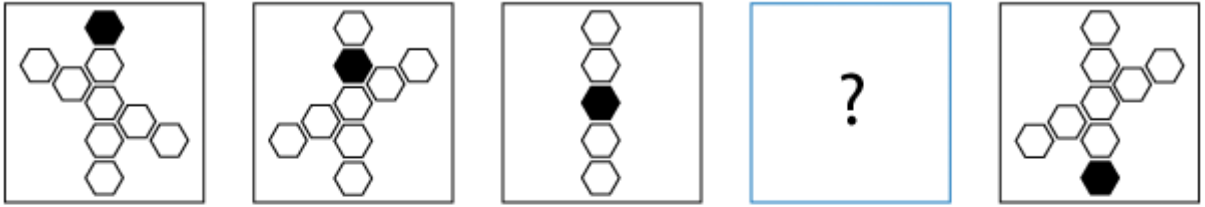


**Q23** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The shaded square moves one place to the right each time.

Rule 2: The two crossed squares move one place to the right each time.



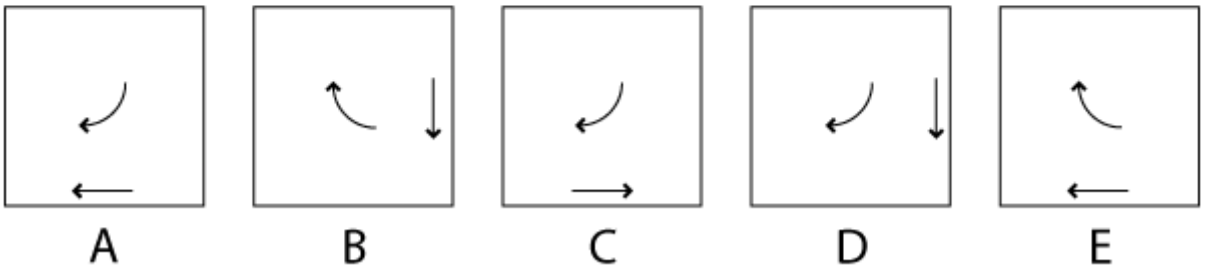
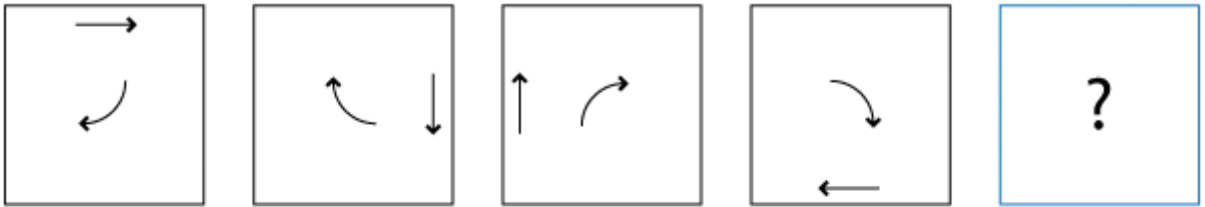
**Q24** What replaces the question mark?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The angled row of hexagons rotates one place counterclockwise around the vertical row of hexagons each time.

Rule 2: The shaded hexagon moves down one place each time.

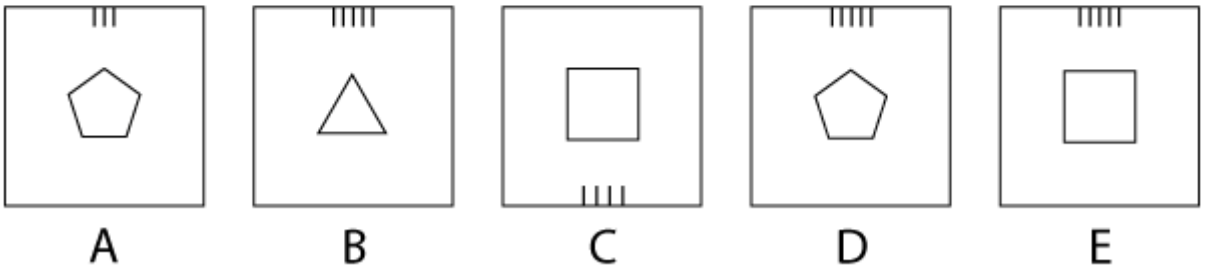




**Q25** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The central arrow rotates 90° clockwise each time.  
 Rule 2: The straight arrow moves one place, then two places, then three places clockwise and so on around the box.

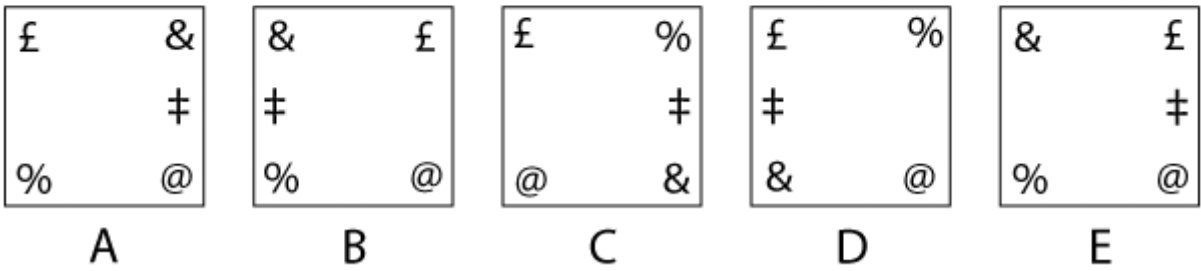
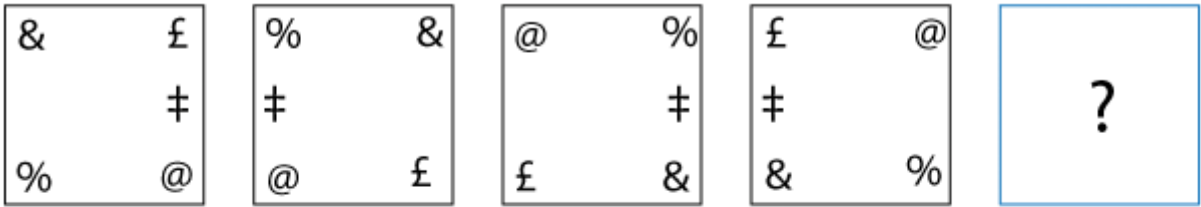


**Q26** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The notches alternate between being at the top and the bottom of the box.

Rule 2: The total number of notches is equal to the total number of edges on the shape in that box.

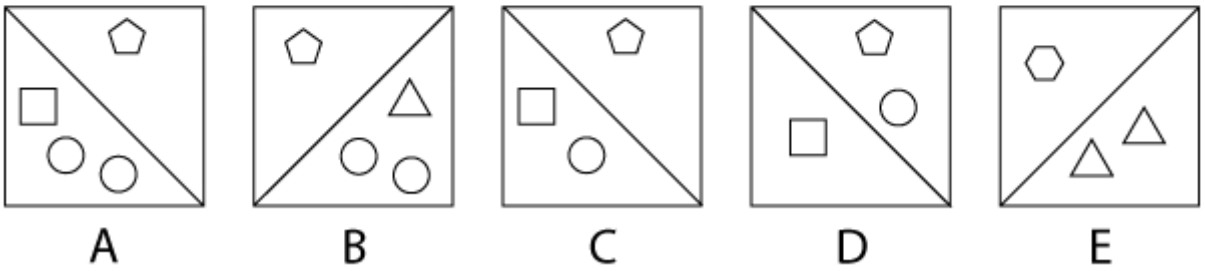


**Q27** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The '‡' symbol alternates between the right hand and left hand side of the box.

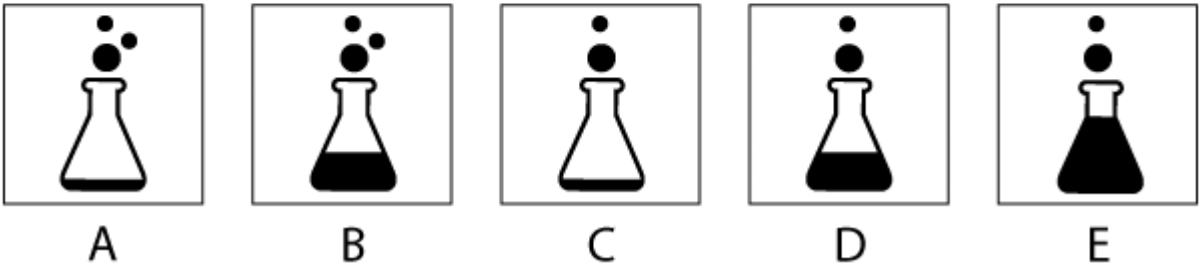
Rule 2: The other shapes moves one place clockwise to the next corner each time.



**Q28** What replaces the question mark?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The line in the box rotates 45° counterclockwise each time.  
 Rule 2: The total number of edges on the shapes in each half of the box is the same.

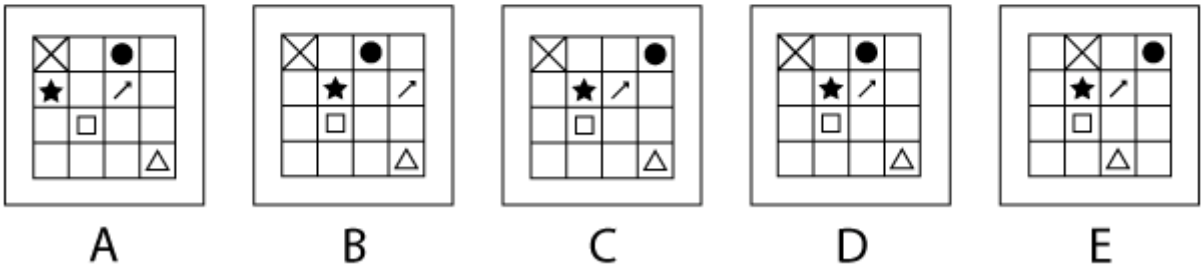
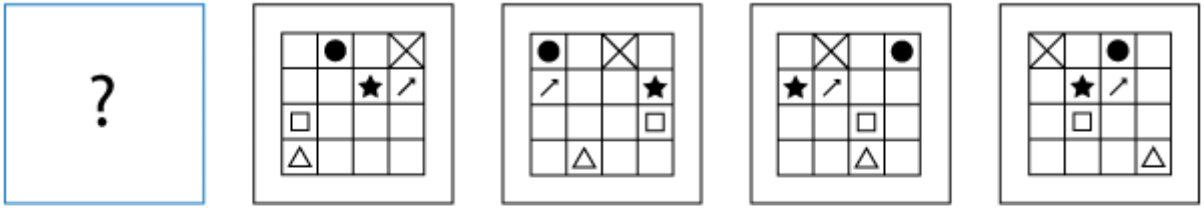


**Q29** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The flask goes from empty to half full to full, and then the pattern repeats.

Rule 2: The total number of bubble alternates between two and three.



**Q30** What replaces the question mark?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: Each shape in the first and third rows moves one place to the left each time.

Rule 2: Each shape in the second and fourth rows moves one place to the right each time.





A

B

C

D

E

**Q1** What comes next in the sequence?

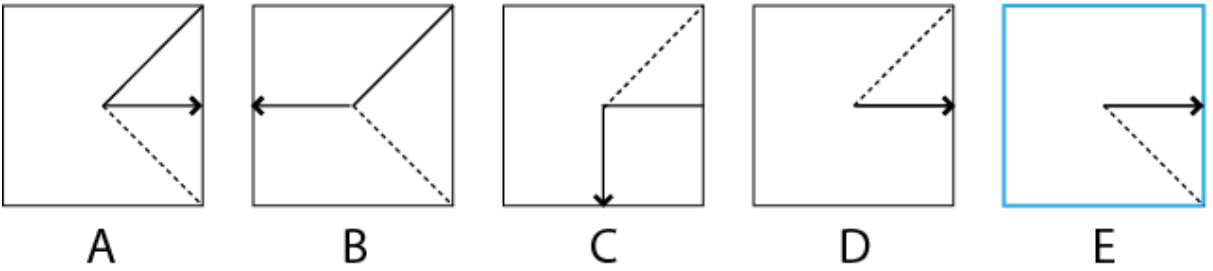
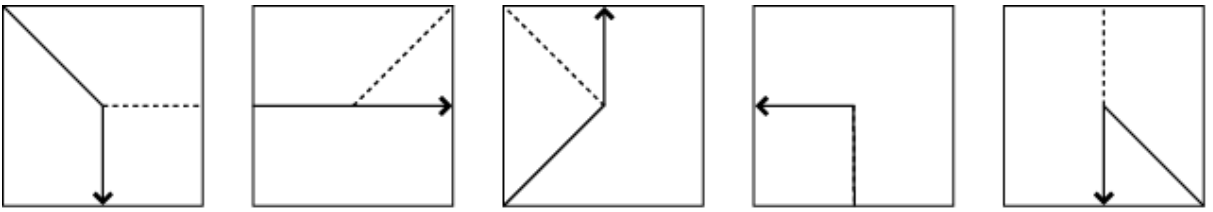
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shapes on the top row follow the order: circle, circle, square, square and then repeats.

Rule 2: The shapes on the top row move one place to the right each time.

Rule 3: The shapes on the bottom row alternate between circle and square.





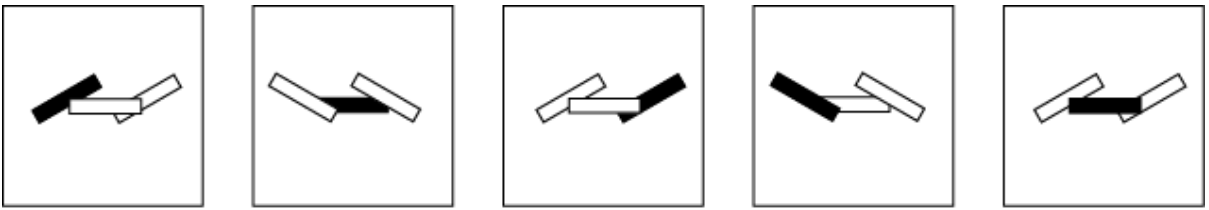
**Q2** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The solid line moves one place counterclockwise each time.

Rule 2: The arrow line moves two places counterclockwise each time.

Rule 3: The dotted line moves counterclockwise one place, then two places, then 3 places and so on.



A

B

C

D

E

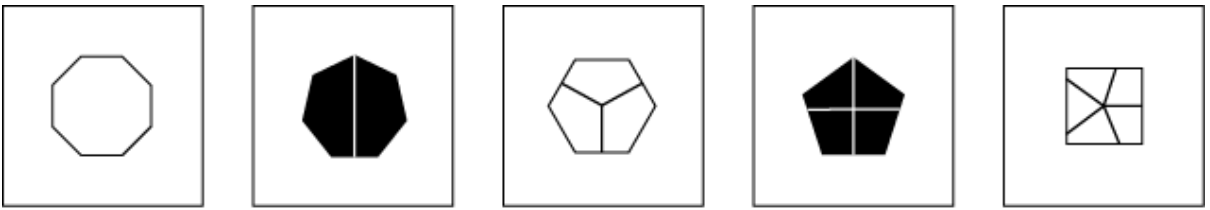
**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The left and right hand rectangles alternate between pointing NE-SW and NW-SE each time.

Rule 2: The middle rectangle alternates between the foreground and the background.

Rule 3: The shaded block moves one place to the right each time.



A

B

C

D

E

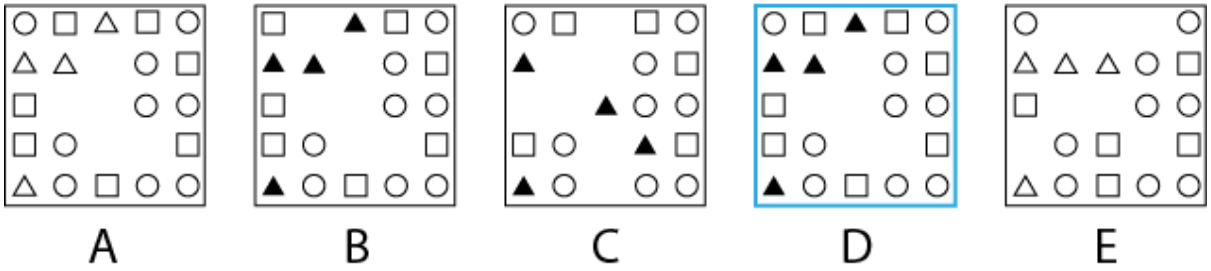
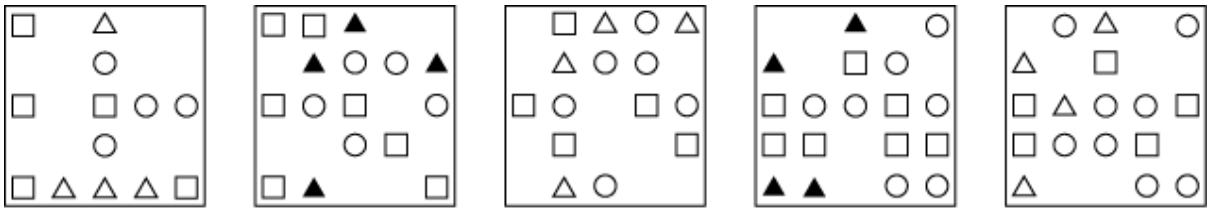
**Q4** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The total number of edges on the shape decreases by one each time.

Rule 2: The total number of segments in each shape increases by one each time.

Rule 3: The shape alternates between shaded and unshaded.



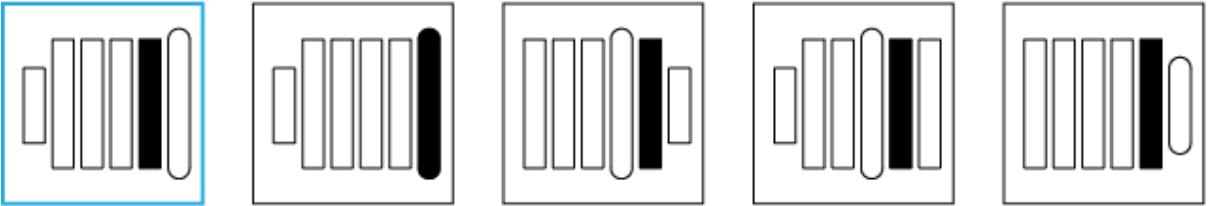
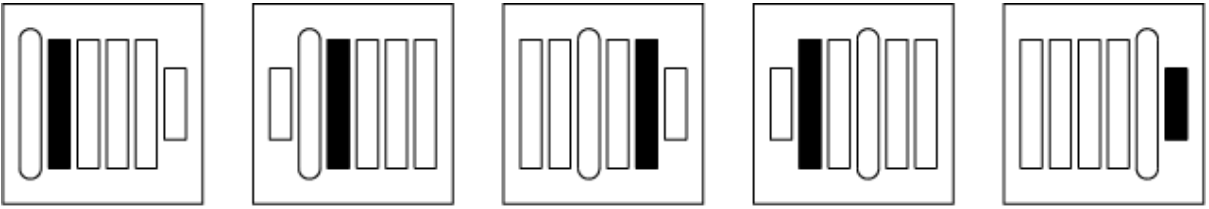
**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The total number of circles increases by one each time.

Rule 2: The triangles alternate between shaded and unshaded.

Rule 3: The total number of squares alternates between 5 and 7.



A

B

C

D

E

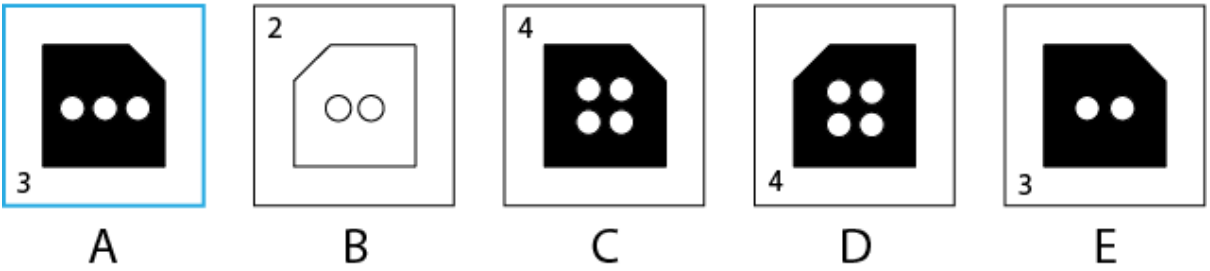
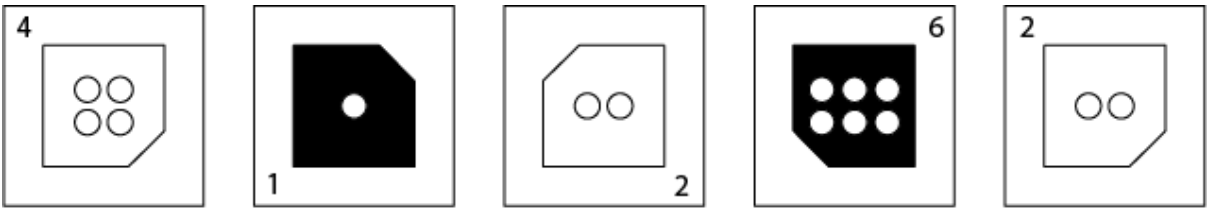
**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The shaded bar moves one place to the right, then two places, then three places and so on.

Rule 2: The rounded corners move one place to the right each time.

Rule 3: The shortened bar alternates between the left and right hand side.



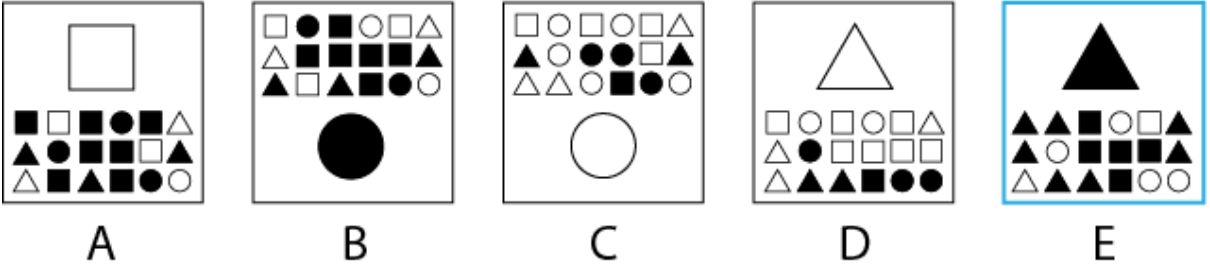
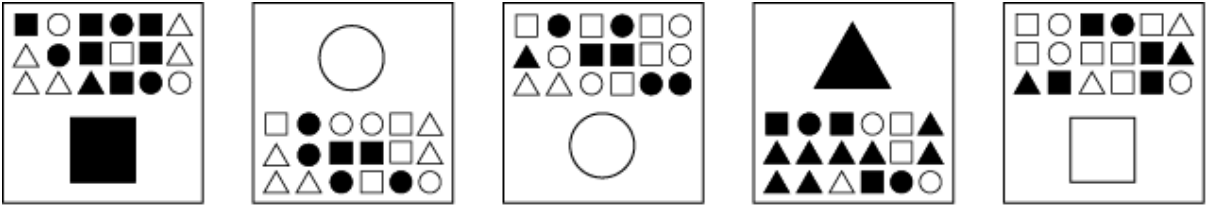
**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The missing edge of the square moves one place counterclockwise each time.

Rule 2: The number moves one place counterclockwise each time, and indicate how many circles are in the square.

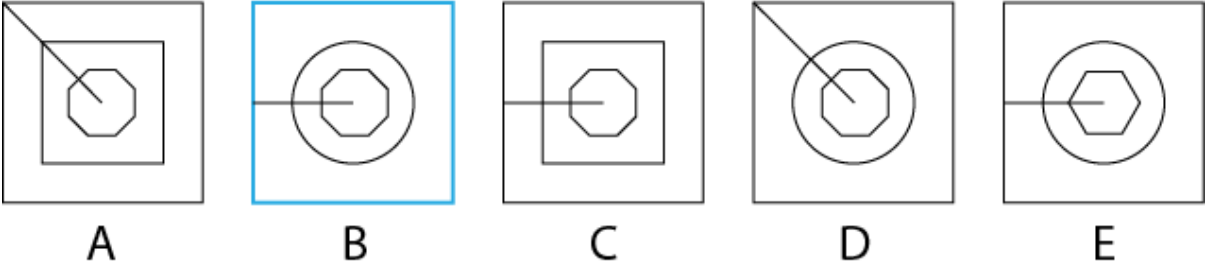
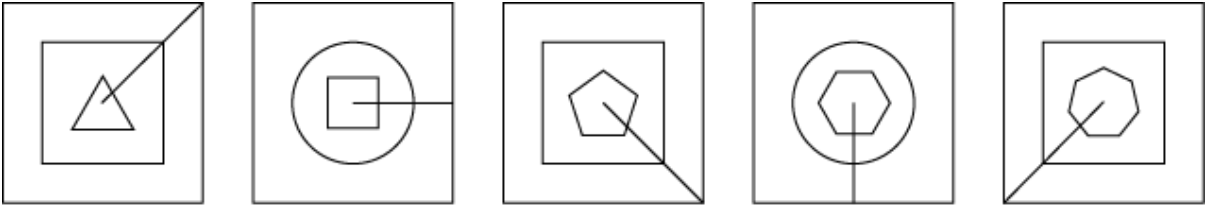
Rule 3: The square alternates between shaded and unshaded.



**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The large shape alternates between being at the top and the bottom of the box.  
 Rule 2: The large shape is the same as which ever small shape is the most frequent.  
 Rule 3: If more small shapes are shaded than unshaded, then the large shape is also shaded, and vice versa.



**Q9** What comes next in the sequence?

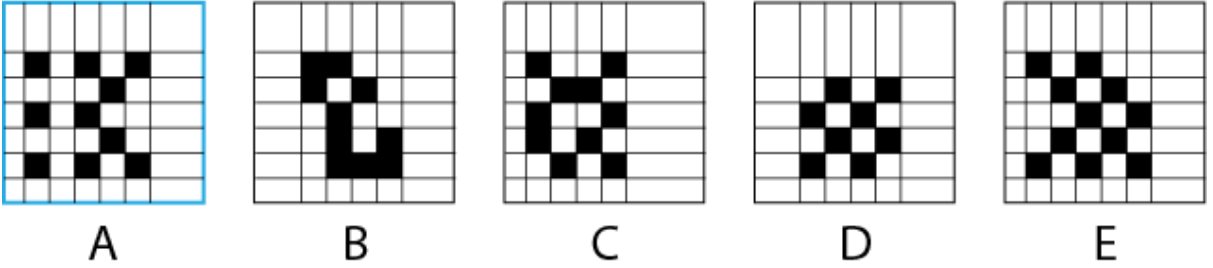
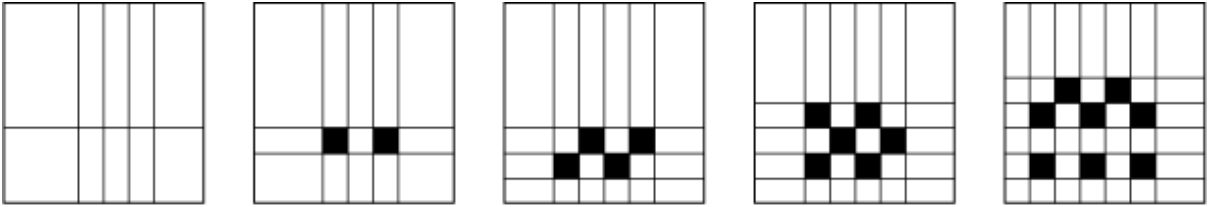
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The large shape alternates between circle and square.

Rule 2: The total number of edges on the the small shape increases by one each time.

Rule 3: The line rotates one place clockwise each time.

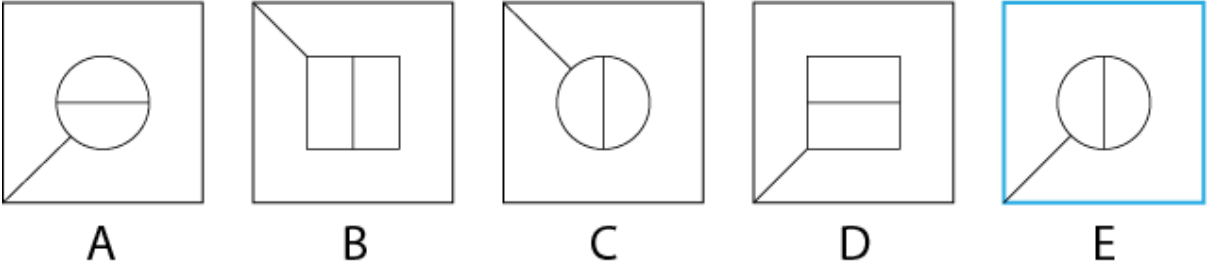
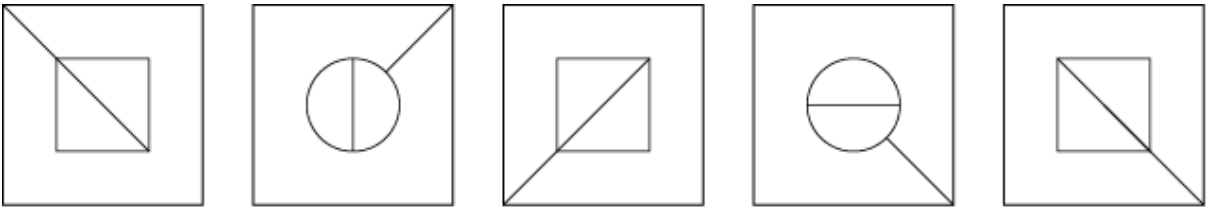




**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of vertical lines increases by one every two boxes.  
 Rule 2: The total number of horizontal lines increases by one each time.  
 Rule 3: The total number of shaded boxes increases by two each time.



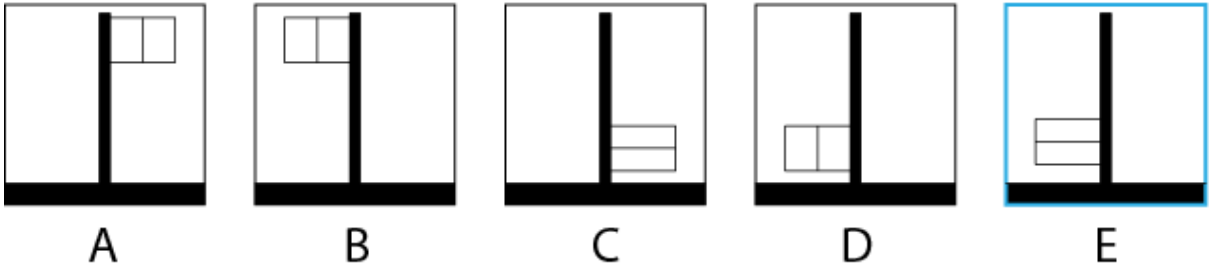
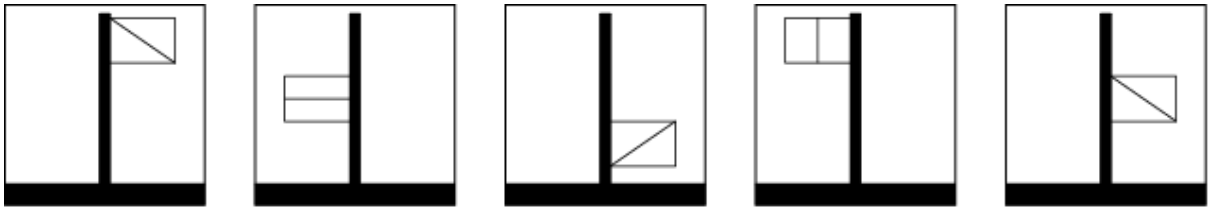
**Q11** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The shape alternates between a circle and square.

Rule 2: The line outside of the shape moves clockwise one place to the next corner, then two places, then three places and so on.

Rule 3: The line inside the shape rotates 45° clockwise each time.



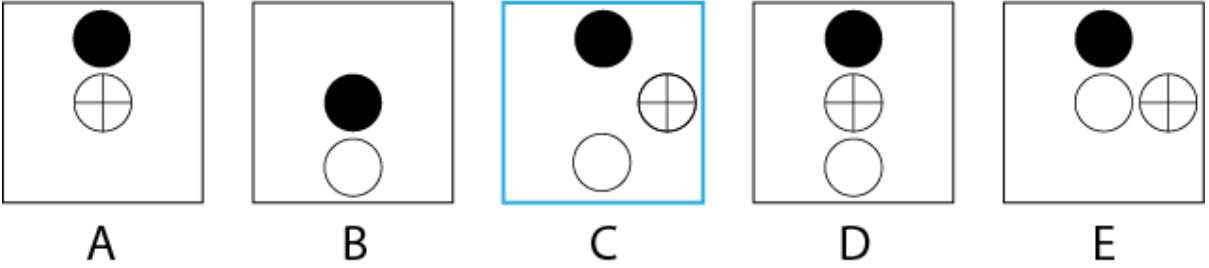
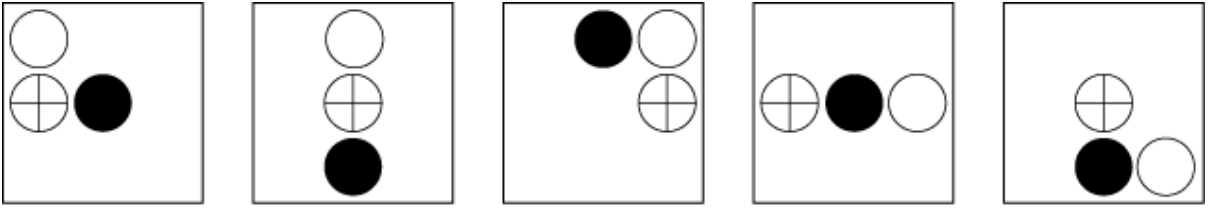
**Q12** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The flag moves down one place each time, and then begins again from the top.

Rule 2: The flag alternates between pointing left and right.

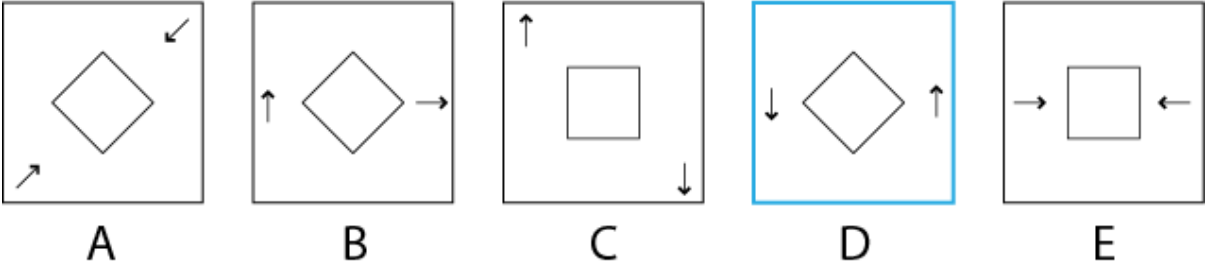
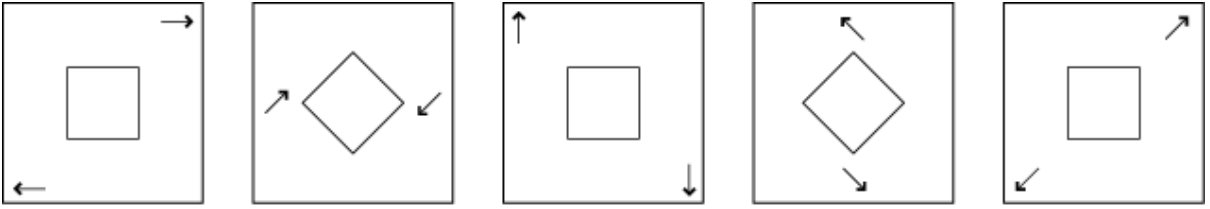
Rule 3: The line in the flag rotates 45° counterclockwise each time.



**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The shaded circle moves down one place each time, and then begins again from the top.  
 Rule 2: The crossed circle moves one place to the right each time and then begins again from the left.  
 Rule 3: The blank circle moves one place clockwise each time.



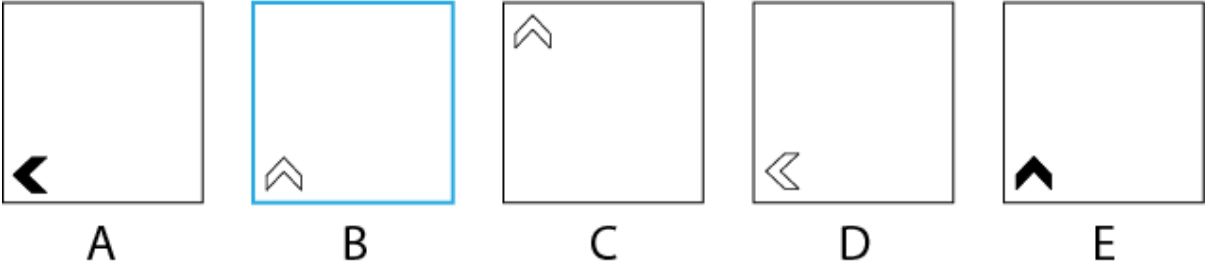
**Q14** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The square rotates  $45^\circ$  each time.

Rule 2: Both arrows move one place clockwise around the box each time.

Rule 3: The arrows always point in opposite directions.



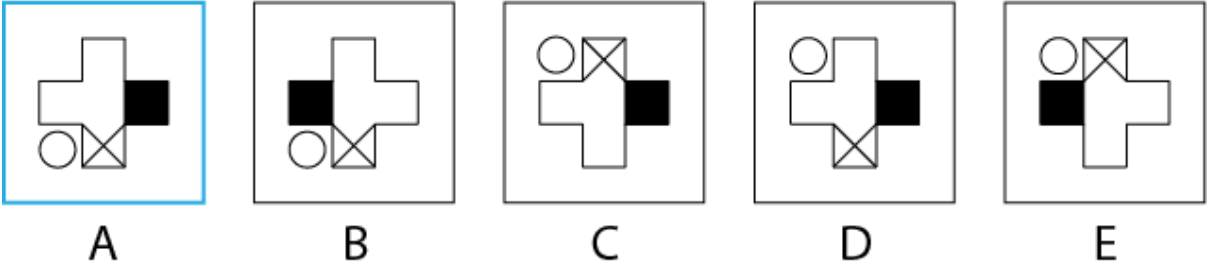
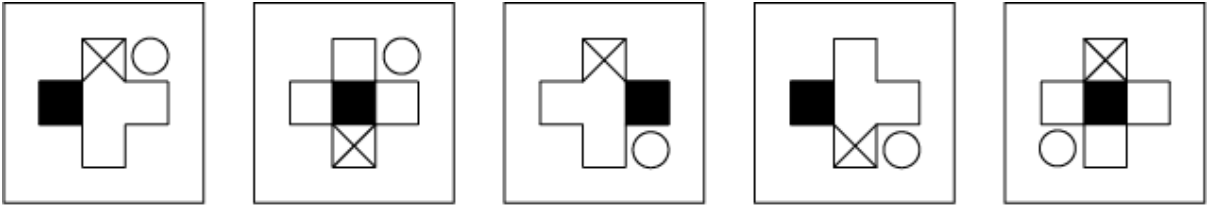
**Q15** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The shape rotates 90° counterclockwise each time.

Rule 2: The shape alternates between shaded and unshaded.

Rule 3: The shape moves from top left, to middle right, to bottom left and then repeats.



**Q16** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The shaded block moves one place to the right each time and then begins again from the left.

Rule 2: The cross alternates between the top and bottom of the shape.

Rule 3: The circle moves one place clockwise every two boxes.



**Q17** What comes next in the sequence?

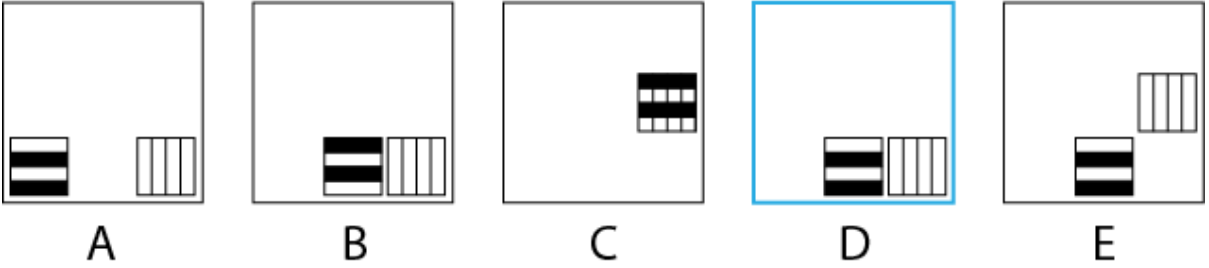
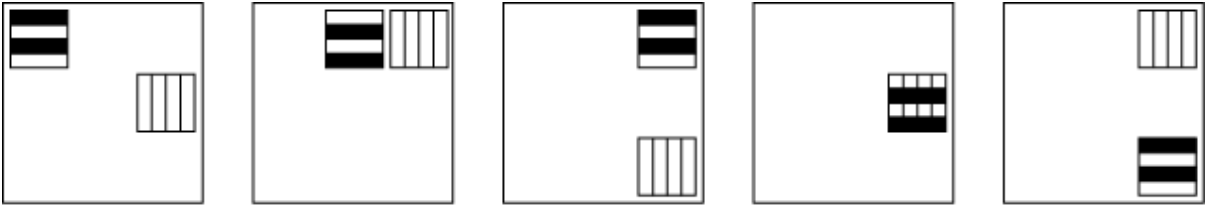
- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The outer circle rotates  $45^\circ$  counterclockwise each time.

Rule 2: The shape inside the circle rotates  $90^\circ$  counterclockwise each time.

Rule 3: The shape inside the circle alternates between shaded and unshaded.

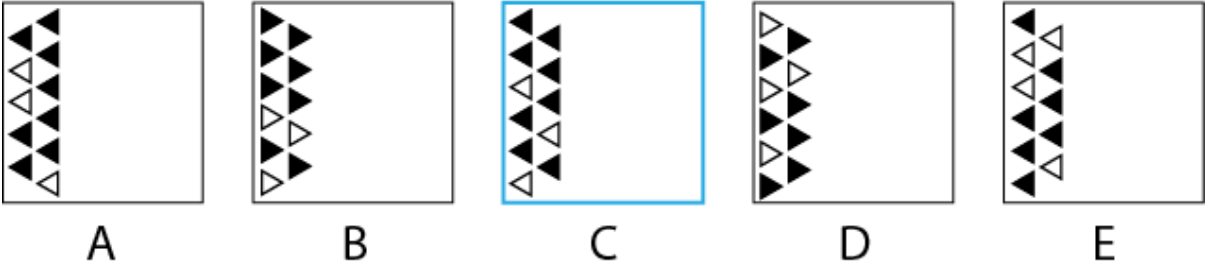
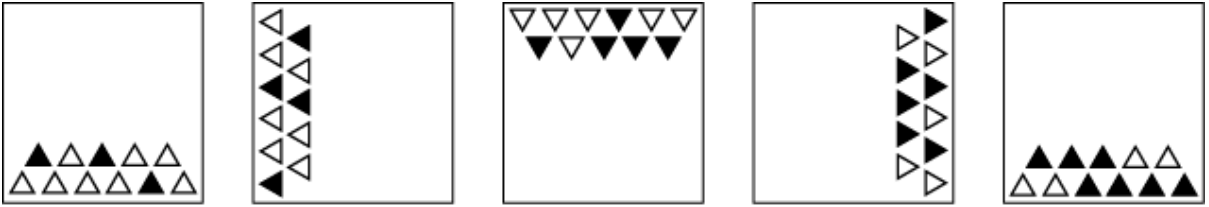




**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The horizontally barred square moves one place clockwise around the box each time.  
 Rule 2: The bars on the horizontally barred square alternate between shaded and unshaded.  
 Rule 3: The vertically barred square moves up one place each time, then begins again from the bottom.



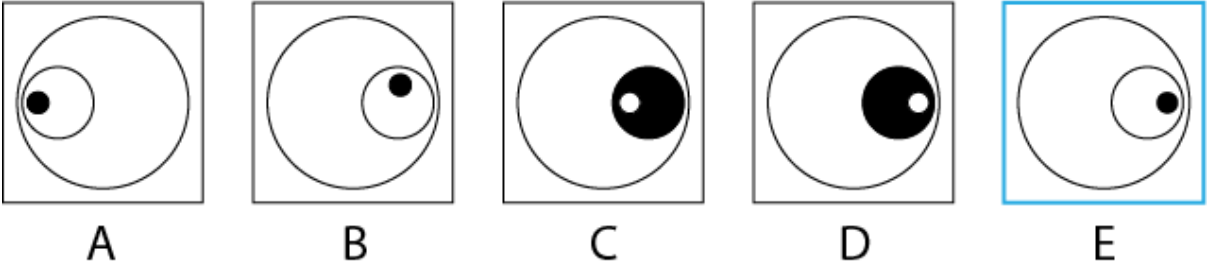
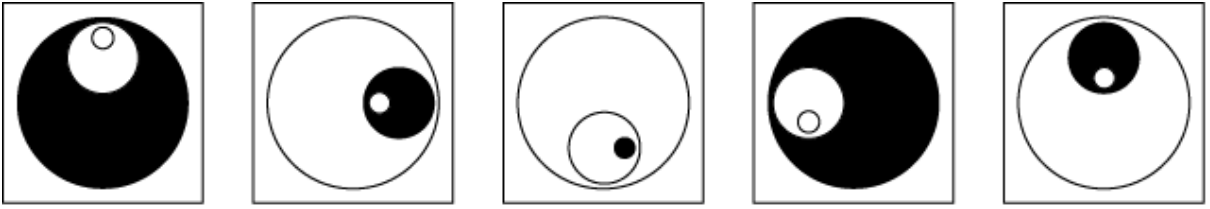
**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The rows of triangles move clockwise to the next edge of the box each time. The row of six triangles is always closest to the edge.

Rule 2: The triangles alternate between pointing to the centre of the box, and pointing away from the box.

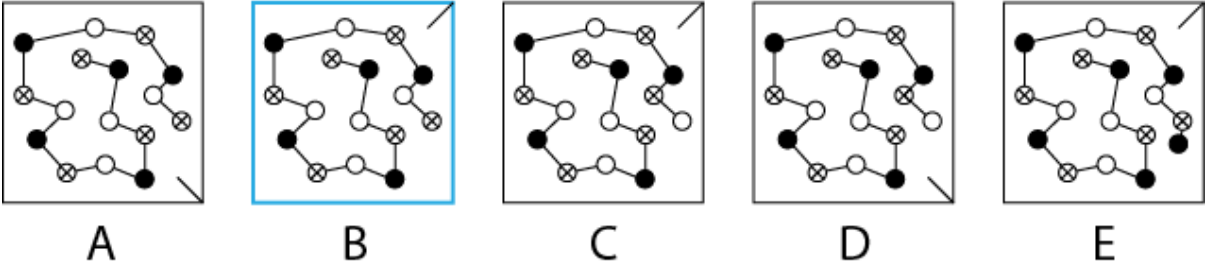
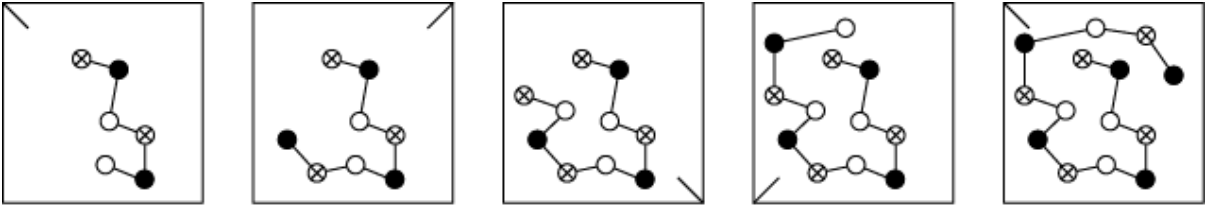
Rule 3: The total number of shaded triangles increases by one each time.



**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The small circle rotates counterclockwise one place, then two places, then three places and so on.  
 Rule 2: The middle circle moves one place clockwise around the large circle.  
 Rule 3: The shading alternates between the large, middle and small circle, in that order, and then repeats.



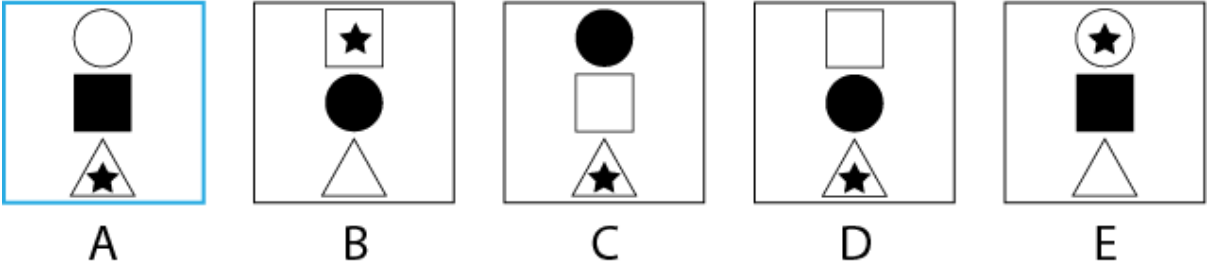
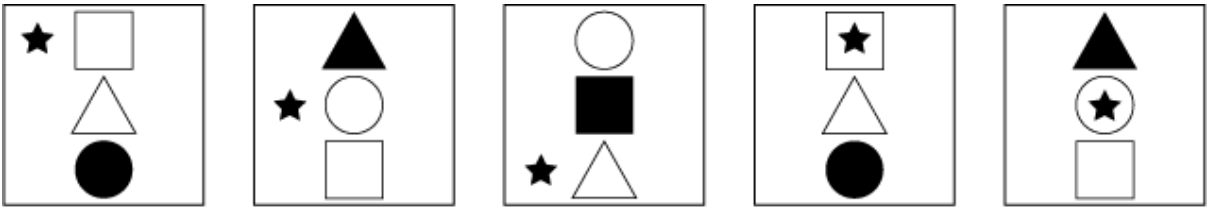
**Q21** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: Two new circles are added to the chain each time.

Rule 2: The circles go in the sequence: crossed circle, unshaded circle, shaded circle, and then repeat.

Rule 3: The notch in the corner of the box moves one place clockwise each time.



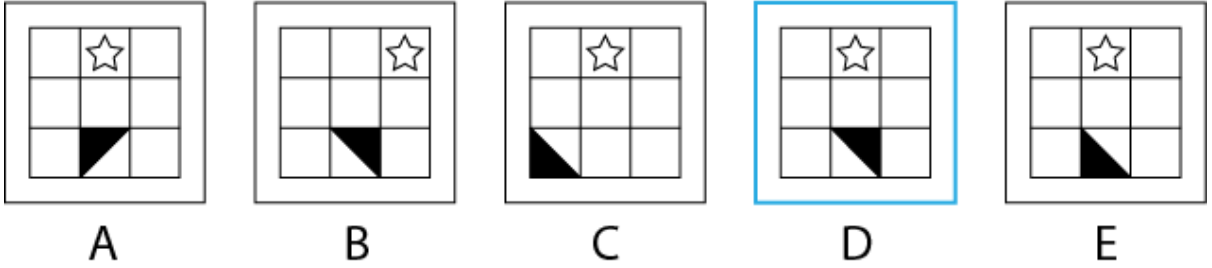
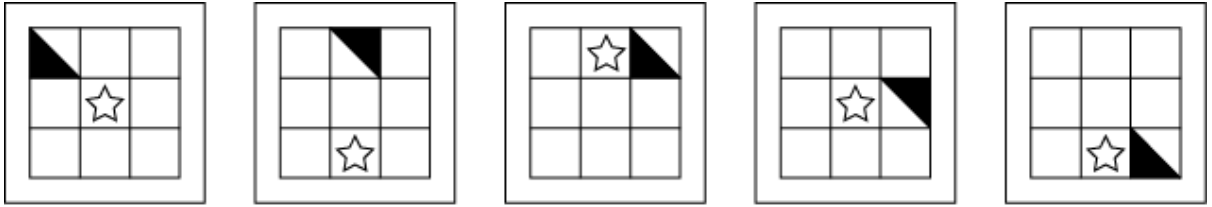
**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: Each shape(exc. the star) moves up one place each time.

Rule 2: The star moves down one place each time, then begins again in the next column.

Rule 3: The shaded shape moves down one place each time then begins again from the top.



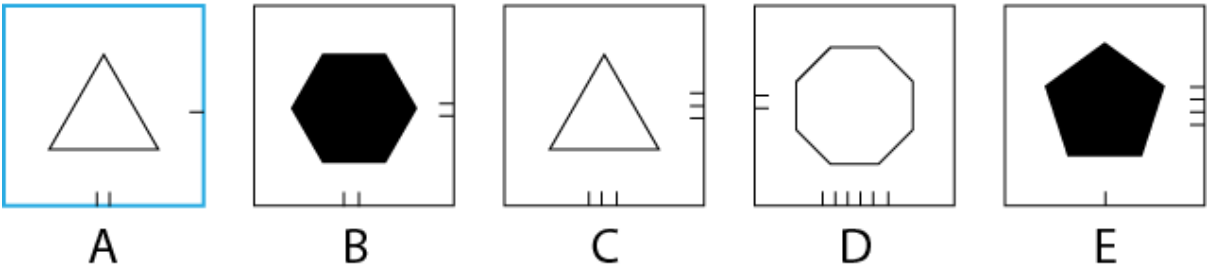
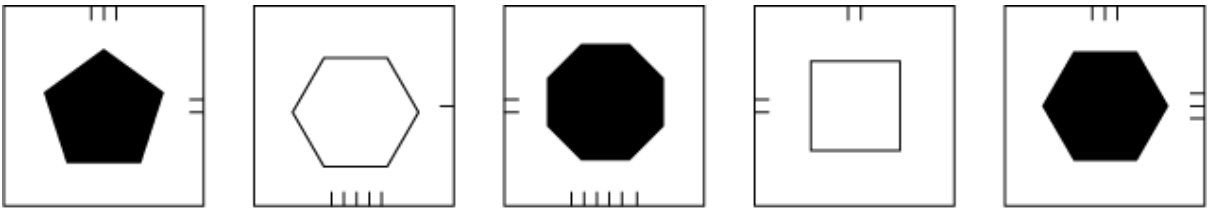
**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The star moves down one place each time, then begins again from the top.

Rule 2: The halved square moves one place clockwise each time.

Rule 3: The halves of the square alternate between shaded and unshaded.



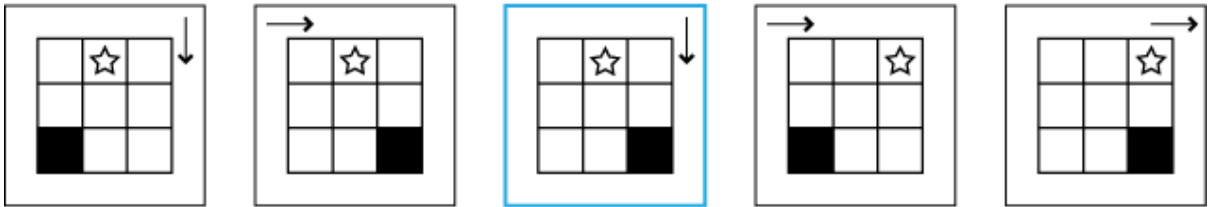
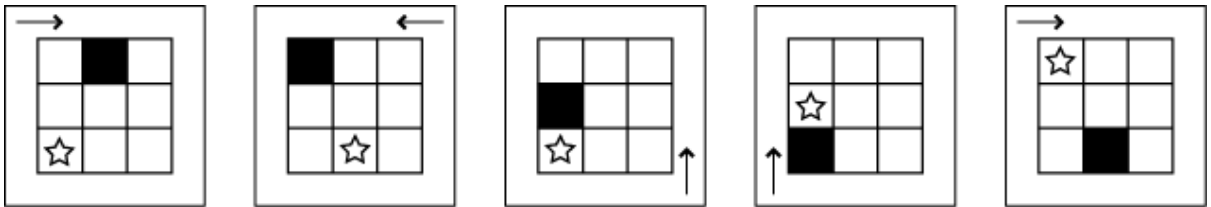
**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: Both sets of notches move one place clockwise each time.

Rule 2: The total number of notches is equal to the total number of edges on the shape in the centre.

Rule 3: The shape alternates between shaded and unshaded.



A

B

C

D

E

**Q25** What comes next in the sequence?

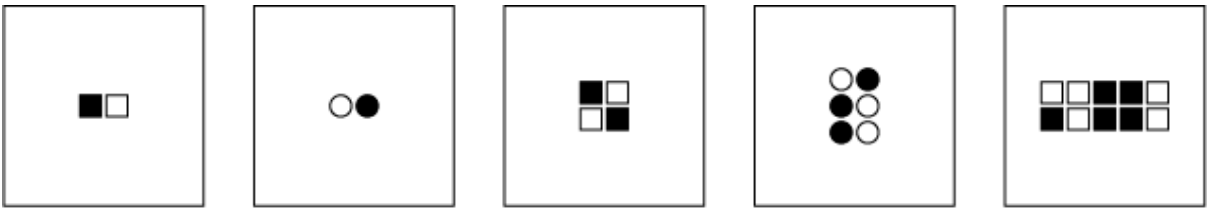
- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The arrow moves one place clockwise around the grid each time.

Rule 2: The arrow indicates where the star moves to in the next grid.

Rule 3: The shaded square moves one place counterclockwise around the grid each time.





A

B

C

D

E

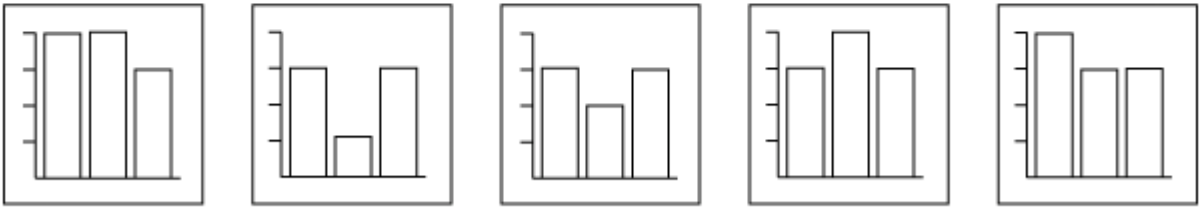
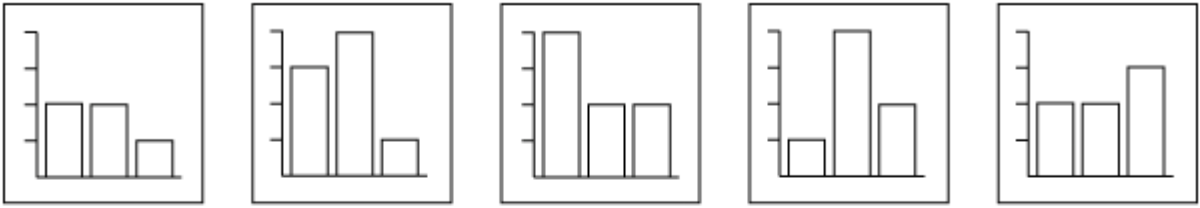
**Q26** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The shapes alternate between circle and square.

Rule 2: The total number of shapes in each box is equal to the total number of shapes in the previous two boxes.

Rule 3: Exactly half of the shapes are shaded each time.



A

B

C

D

E

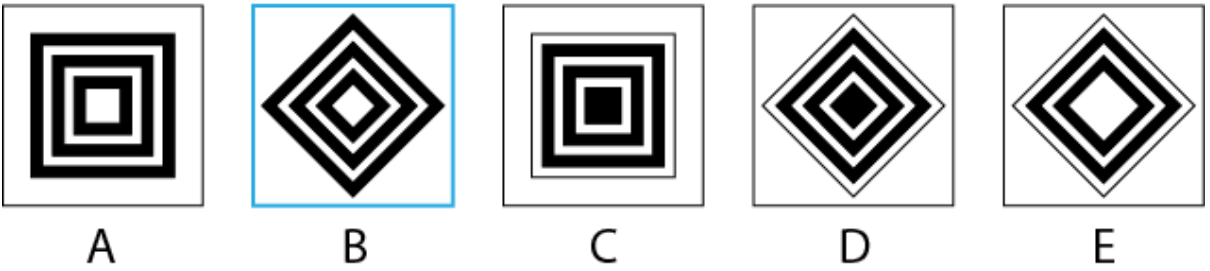
**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The first bar increases by one each time, then the pattern repeats.

Rule 2: The height of the second bar alternates between the second and fourth level of the graph.

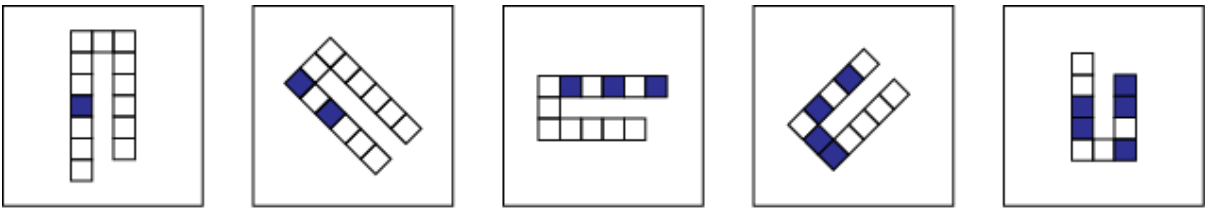
Rule 3: The third bar increases by one every two boxes.



**Q28** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: An additional square is added each time.  
Rule 2: The shading alternates between squares each time.  
Rule 3: The squares rotate  $45^\circ$  each time.



A

B

C

D

E

**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The symbol rotates  $45^\circ$  counterclockwise each time.

Rule 2: The total number of shaded squares increases by one each time.

Rule 3: One square is removed from the symbol each time.



A

B

C

D

E

**Q30** What comes next in the sequence?

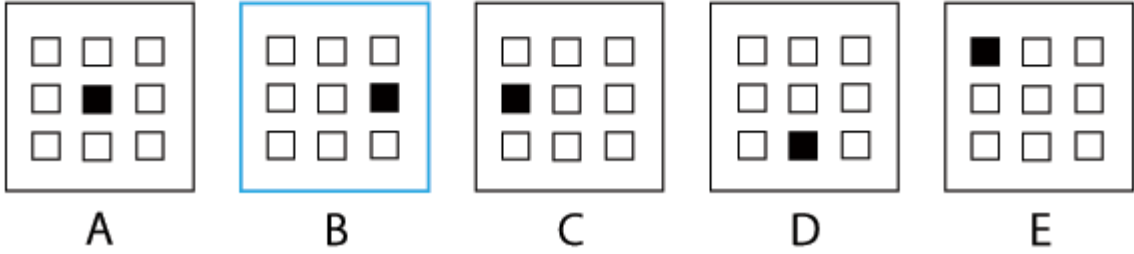
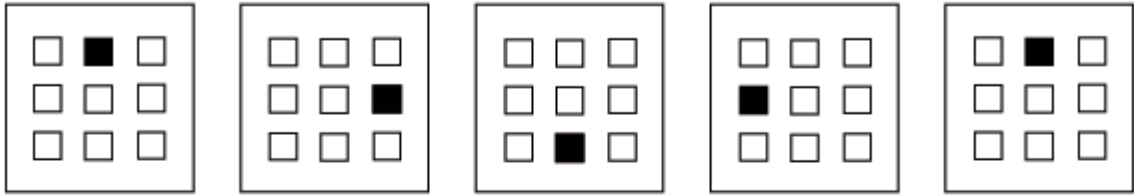
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The triangle rotates 90° clockwise each time.

Rule 2: The small shape alternates between a square and a circle.

Rule 3: The line in the small shape indicates the orientation of the lines in the triangle.

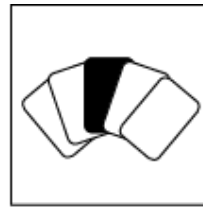
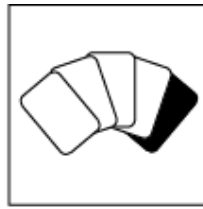
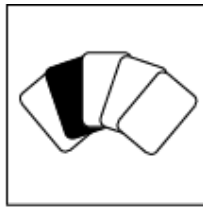
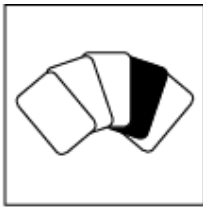
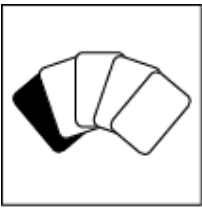




**Q1** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

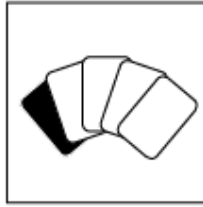
Rule 1: The shaded square moves two places clockwise each time.



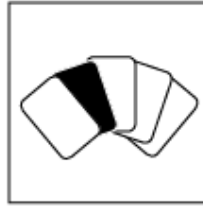
A



B



C



D



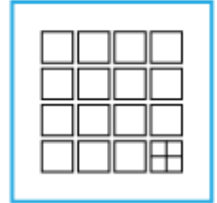
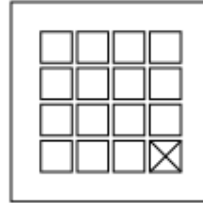
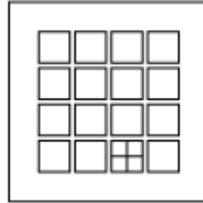
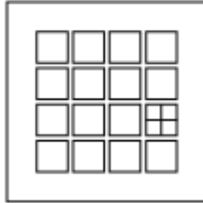
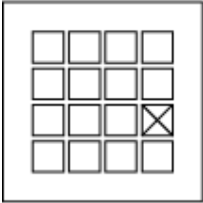
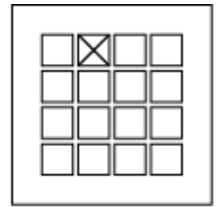
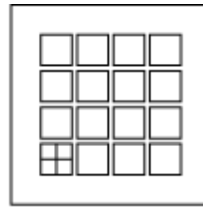
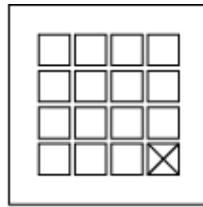
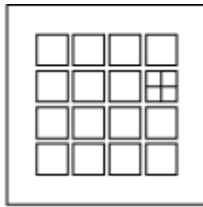
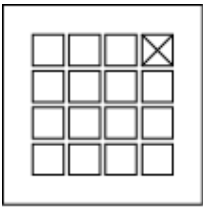
E

**Q2** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The shaded card moves three places to the right each time.  
Rule 2: The cards alternate between moving from background to foreground and vice versa each time.

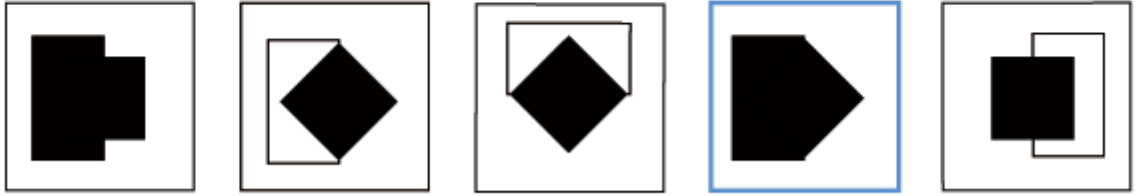




**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The crossed square moves clockwise one place, then two places, then three places and so on each time.  
Rule 2: The cross rotates 45° each time.



A

B

C

D

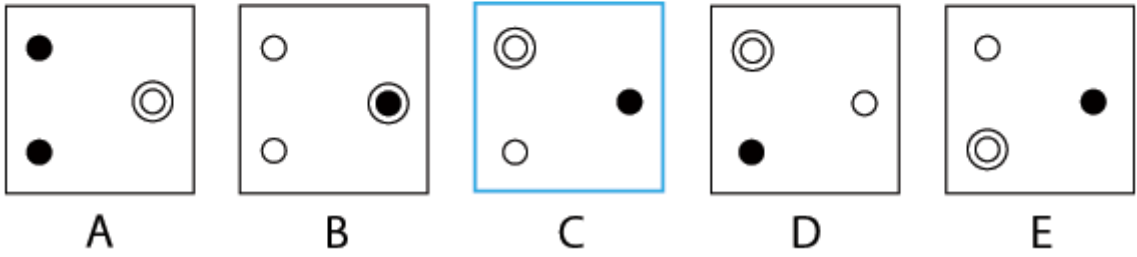
E

**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shading of the shapes alternates between square, rectangle or both shaded.

Rule 2: The square rotates by 45° every turn.



**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The shading alternates left to right each turn.

Rule 2: The larger circle moves one space anti-clockwise each turn.



A

B

C

D

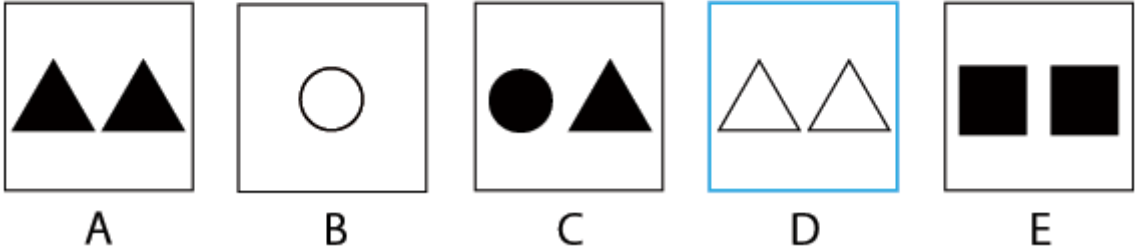
E

**Q6** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The line moves one place clockwise each time.

Rule 2: The cross rotates by  $45^\circ$  each time.

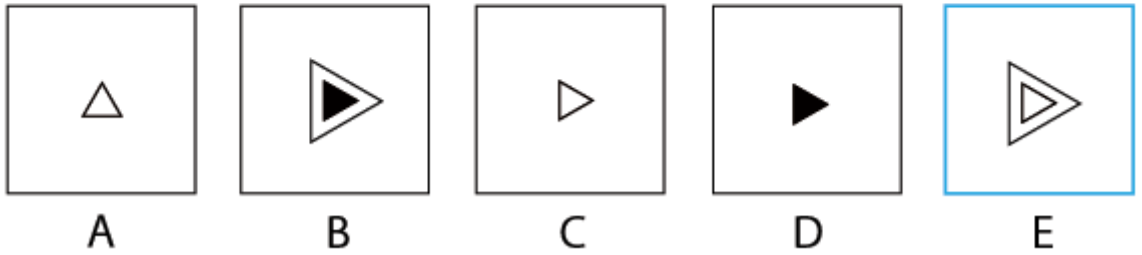


**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shading alternates between boxes.

Rule 2: The total number of edges within each box increases by one each time.



**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

- Rule 1: The triangle alternates between rotating  $90^\circ$  clockwise and  $90^\circ$  anti-clockwise each time.
- Rule 2: The centre alternates between being shaded and unshaded.
- Rule 3: At every second rotation, the number of triangles reduces by one.



A

B

C

D

E

**Q9** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The middle rectangles alternate between being shaded and unshaded.  
 Rule 2: The shape rotates 45° anti-clockwise every two turns.



A

B

C

D

E

**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

- Rule 1: The number of wires the lampshade hangs from increases until there are three, at which point it reverts back to one.
- Rule 2: The number of lines below the light bulb reduce by one until there are none, at which point it reverts back to three.





A

B

C

D

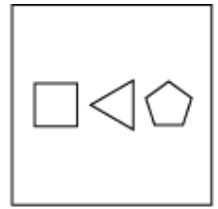
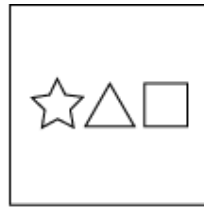
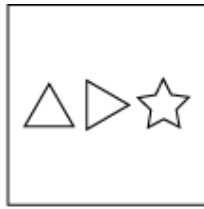
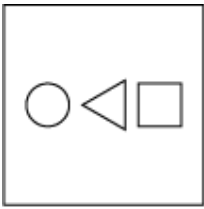
E

**Q11** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The middle shape alternates between a circle, a square and a pentagon.

Rule 2: The small shaded circle moves one place clockwise after every three turns.



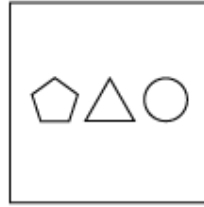
A



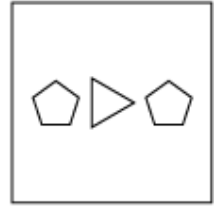
B



C



D



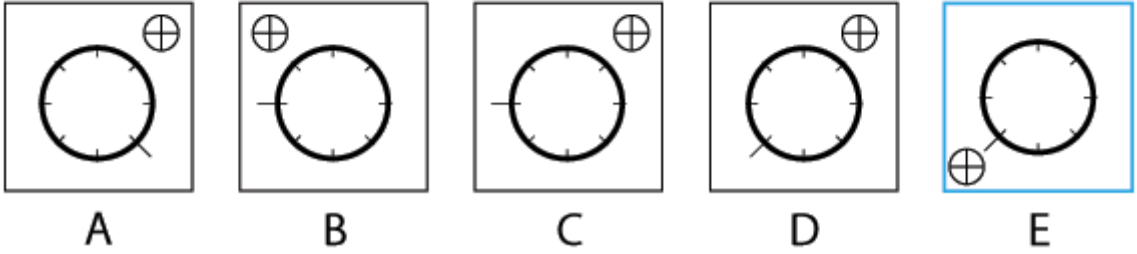
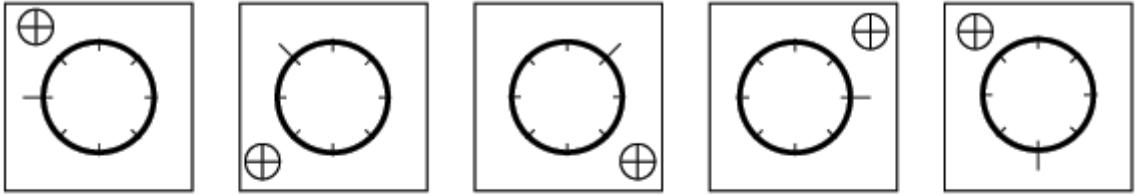
E

**Q12** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The middle triangle rotates 90° anti-clockwise each time.

Rule 2: The final symbol in the box is the first symbol in the next box.



**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The pointer alternates between turning 45° or 90° clockwise.

Rule 2: The crosshair symbol moves one place anti-clockwise each time.



A

B

C

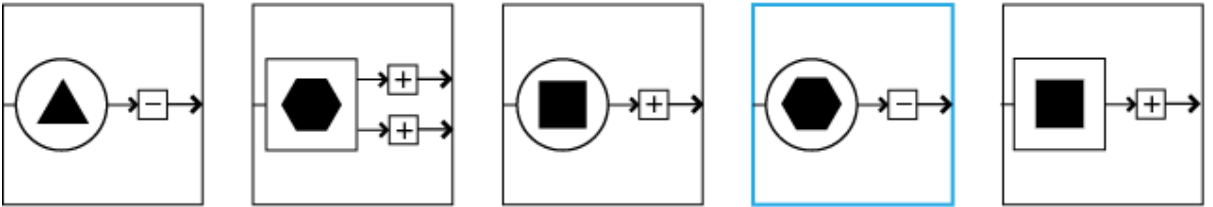
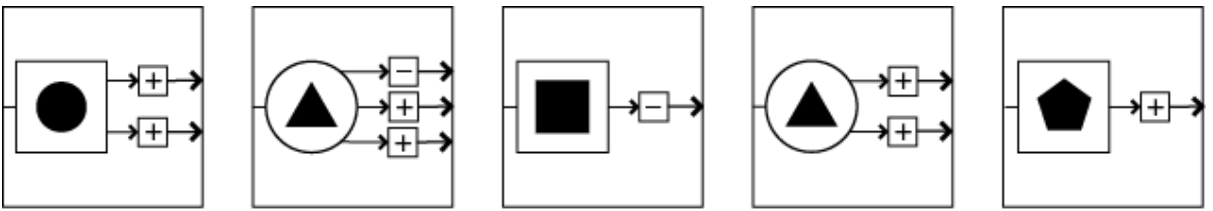
D

E

**Q14** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The bee moves diagonally from the bottom left to top right.  
 Rule 2: The shaded segment moves one place anti-clockwise each turn.



A

B

C

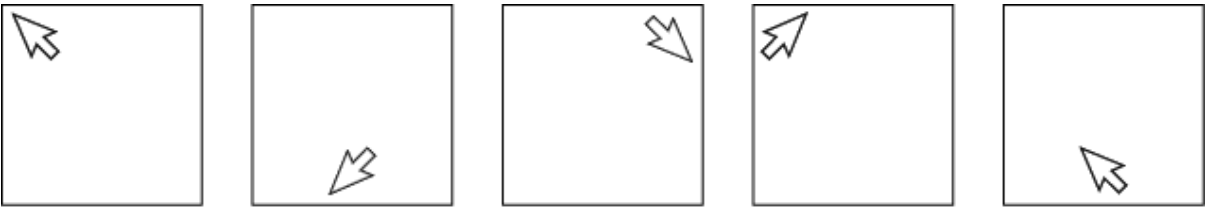
D

E

**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The large outer shape alternates between square and circle each time.  
 Rule 2: The small boxes indicate how many edges are added to and/or are subtracted from the shaded shape each time.



A

B

C

D

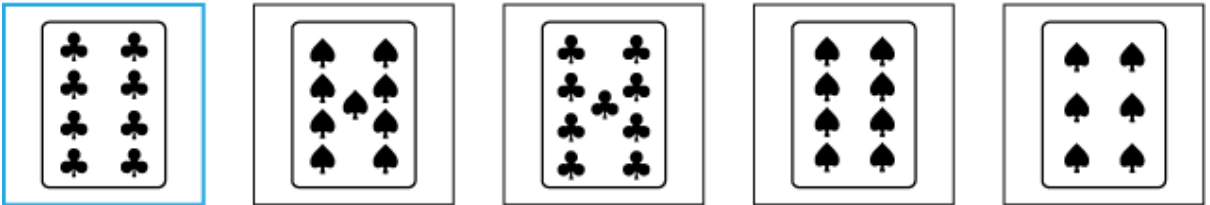
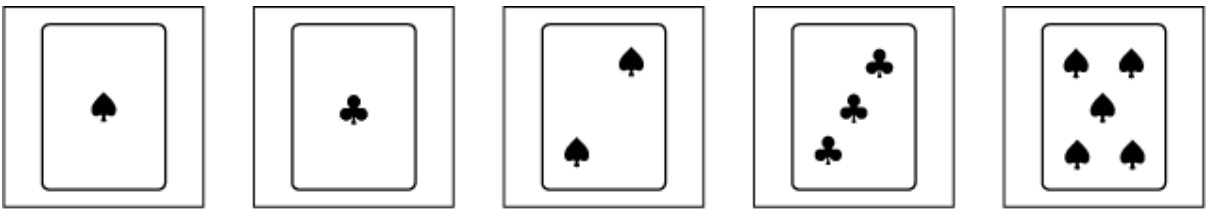
E

**Q16** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The cursor moves from top left, to centre bottom to top right and then repeats the pattern.

Rule 2: The cursor rotates 90° anti-clockwise each time.



A

B

C

D

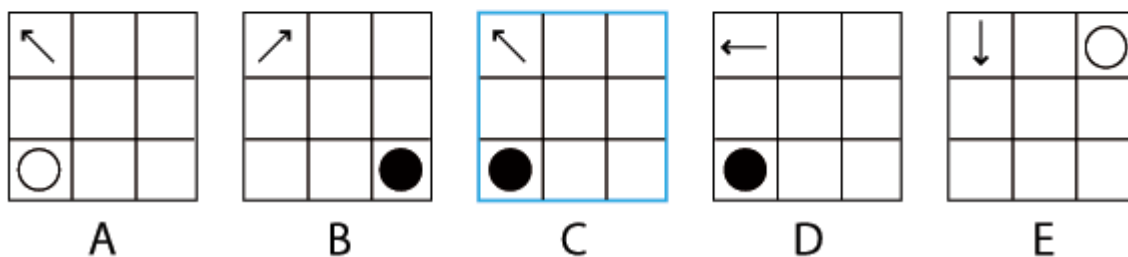
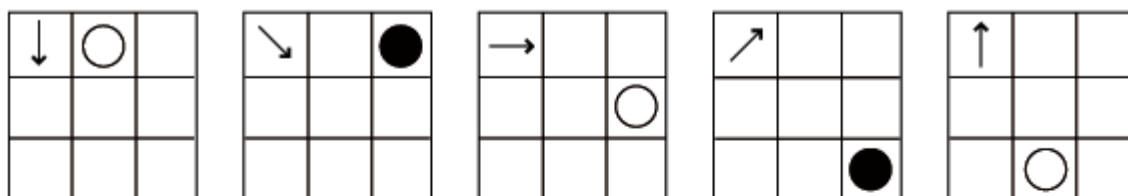
E

**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of symbols in each box is equal to the total number of symbols in the two previous boxes combined.

Rule 2: The symbols alternate between spades and clubs.

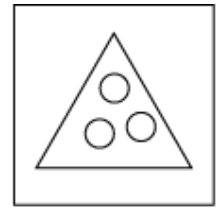
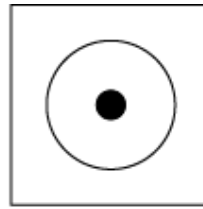
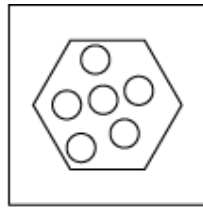
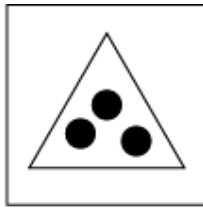
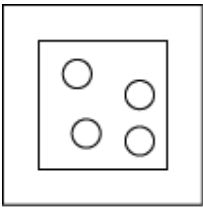


**Q18** What comes next in the sequence?

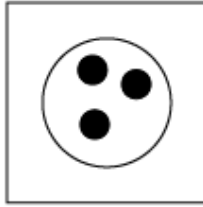
- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

- Rule 1: The arrow spins 45° anti-clockwise each turn.
- Rule 2: The circle moves one place clockwise each turn.
- Rule 3: The circle alternates between being shaded and unshaded.





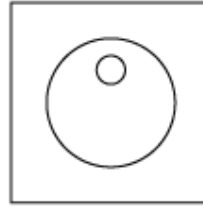
A



B



C



D



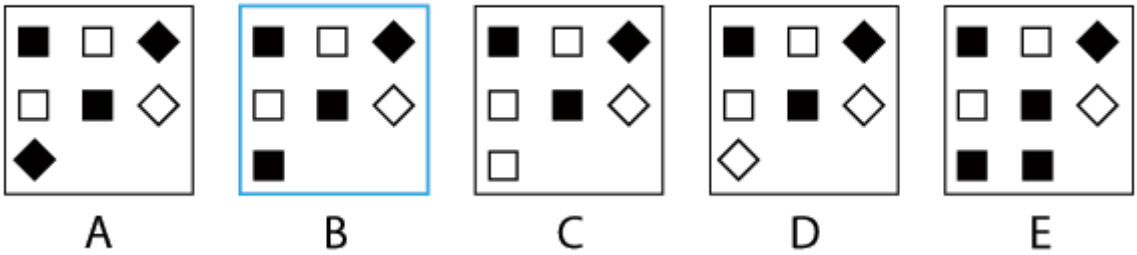
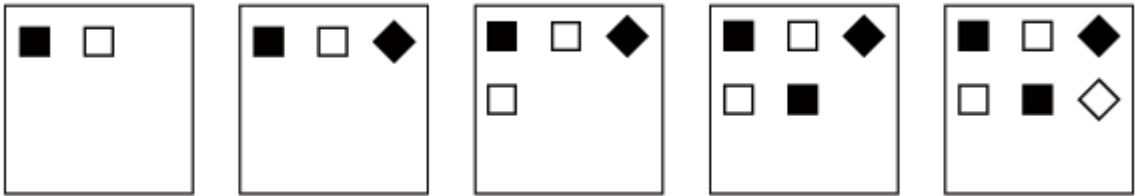
E

**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of small circles is equal to the total number of edges on the large shape.

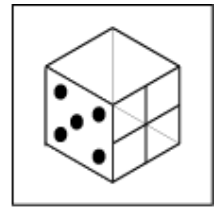
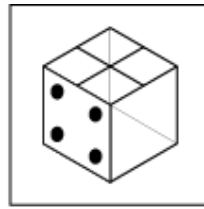
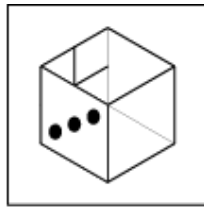
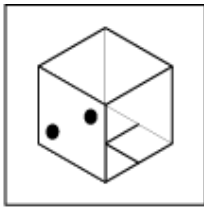
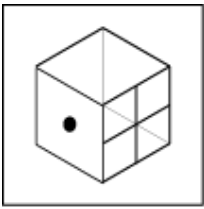
Rule 2: The small circles alternate between shaded and unshaded.



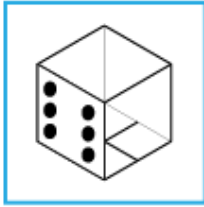
**Q20** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

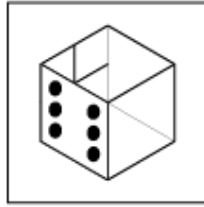
Rule 1: The squares alternate between being shaded and unshaded.  
 Rule 2: One square is added each time and this continues onto the next row.  
 Rule 3: Every third square is positioned diagonally.



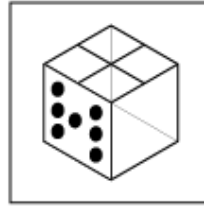
A



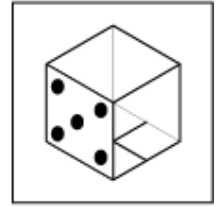
B



C



D

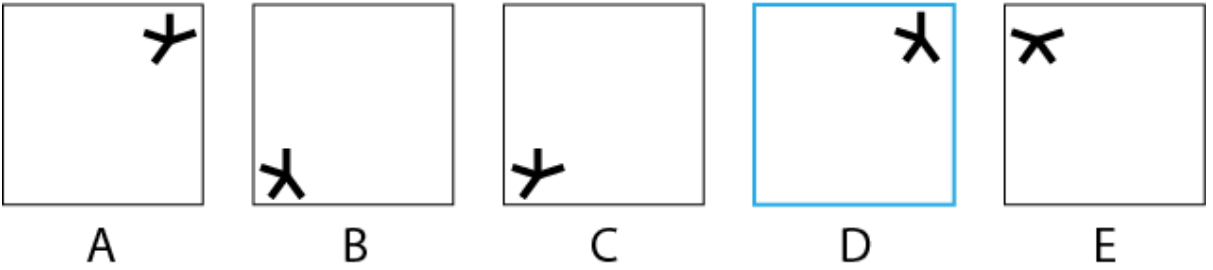
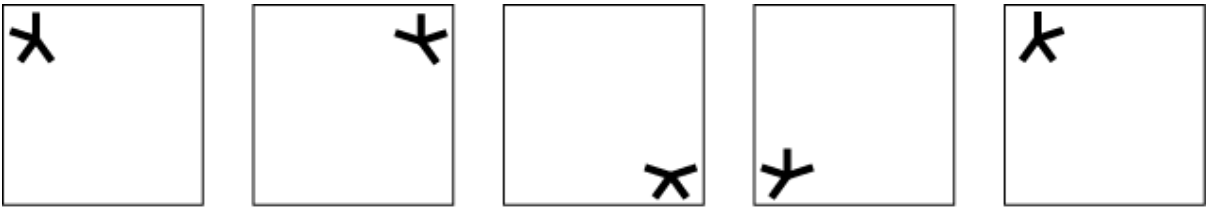


E

**Q21** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The crossed face of the cube moves one place clockwise each time.  
Rule 2: the total numbers of dots on the left hand face of the cube increases by one each time.



**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The star moves one place clockwise around the box each time.  
Rule 2: The missing point moves two places clockwise each time.



**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The arrow alternates between turning 45° clockwise and 90° anti-clockwise.

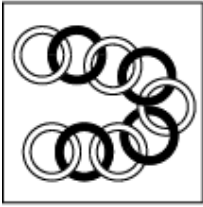
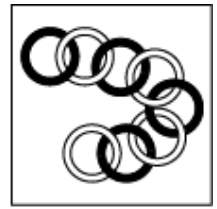
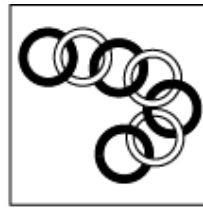
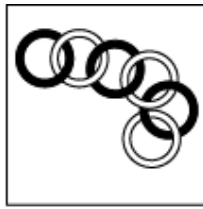
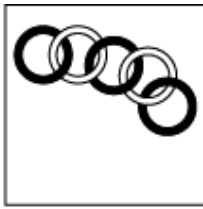
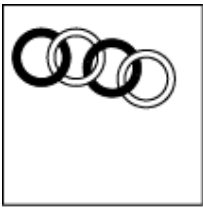
Rule 2: The shaded circle alternates between being at the top or bottom of the arrow.



**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The speaker alternates between pointing left and right each time.  
Rule 2: The total number of bars decreases by one each time.



A



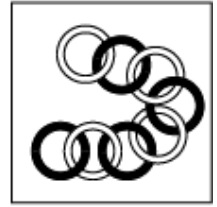
B



C



D



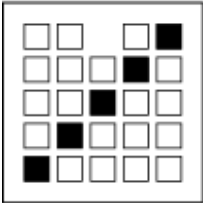
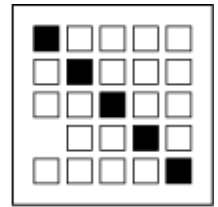
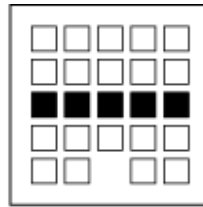
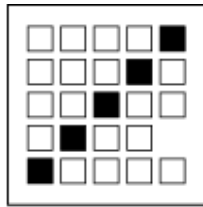
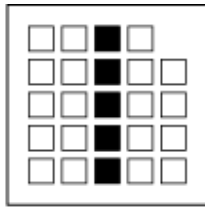
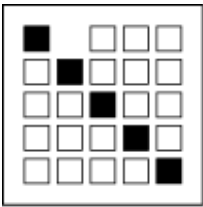
E

**Q25** What comes next in the sequence?

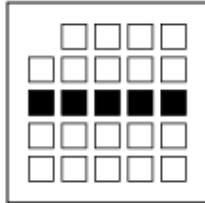
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: A new link is added to the chain each time.

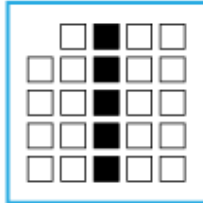
Rule 2: As they are added, the links alternate between shaded and unshaded.



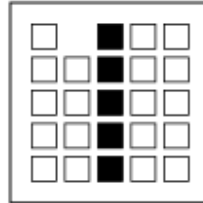
A



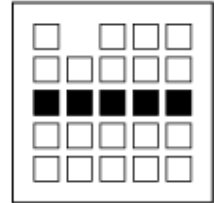
B



C



D



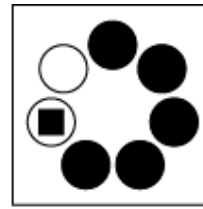
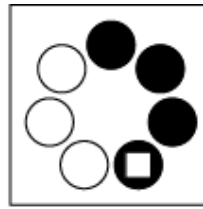
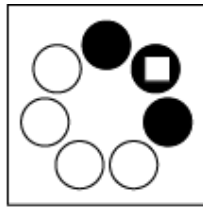
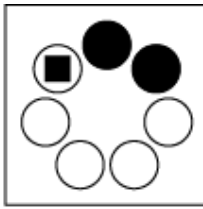
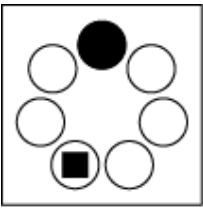
E

**Q26** What comes next in the sequence?

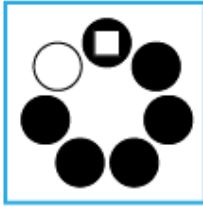
- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The shaded row of squares rotates 45° clockwise each time.  
 Rule 2: The missing square moves three places clockwise each time.

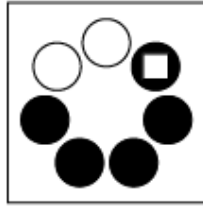




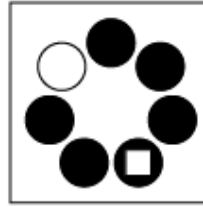
A



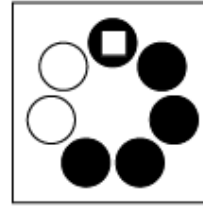
B



C



D



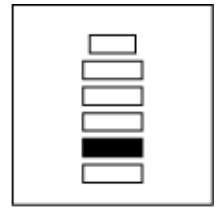
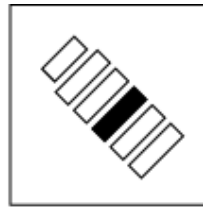
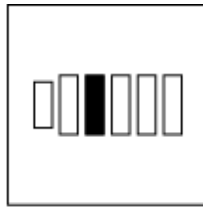
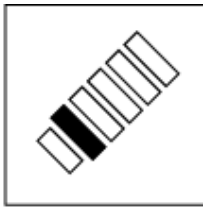
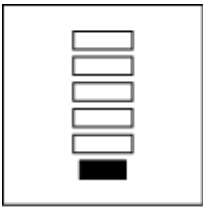
E

**Q27** What comes next in the sequence?

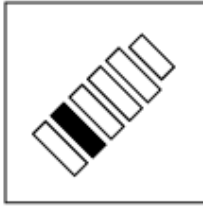
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The total number of shaded circles increases by one each time.

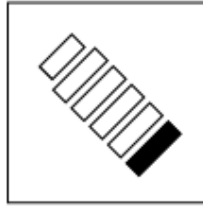
Rule 2: The Square moves two places clockwise each time.



A



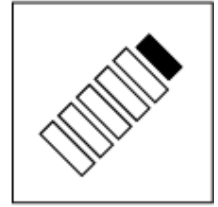
B



C



D



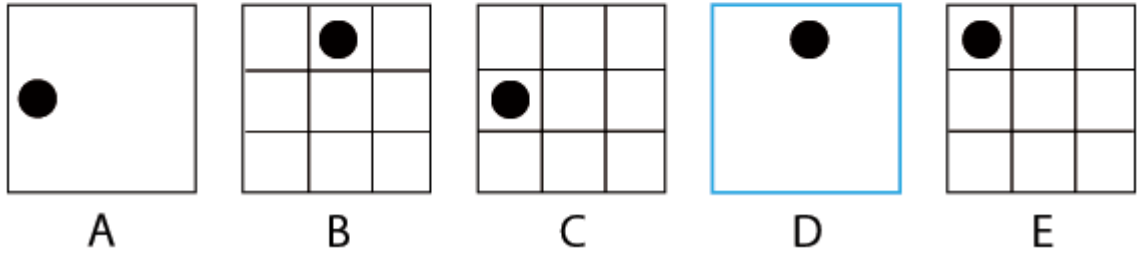
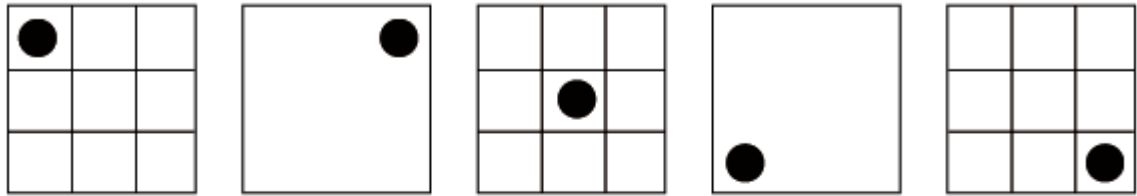
E

**Q28** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shaded bar moves up one place each time, regardless of the orientation of the bars.

Rule 2: The bars rotate 45° clockwise each time.

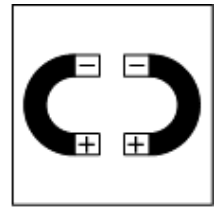
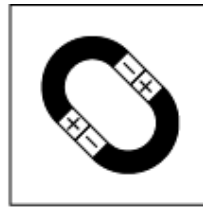
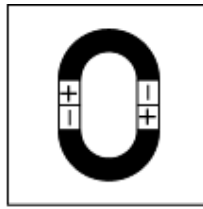
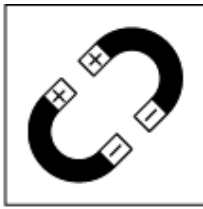
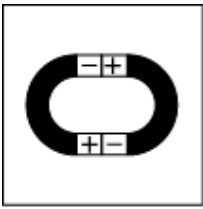


**Q29** What comes next in the sequence?

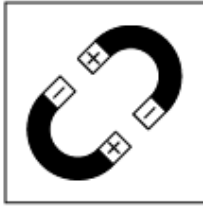
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The circle moves two places to the right each time and this continues onto the next row.

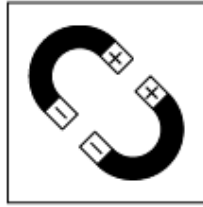
Rule 2: The gridlines disappear from every other square.



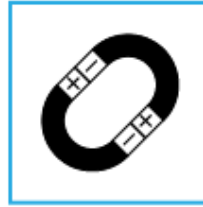
A



B



C



D



E

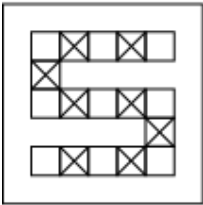
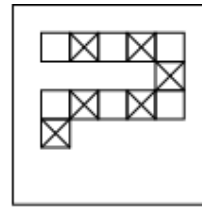
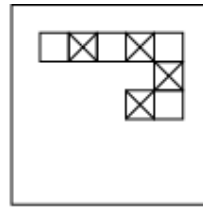
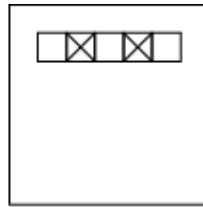
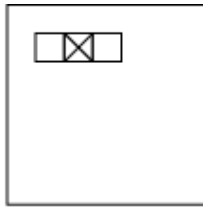
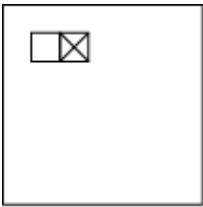
**Q30** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

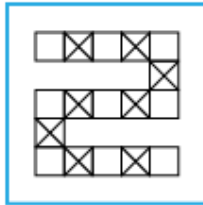
Rule 1: The magnets rotate 45° counter clockwise each time.

Rule 2: The magnets connect when both touching poles are opposite signs.  
When the touching poles are identical, the magnets are not connected.

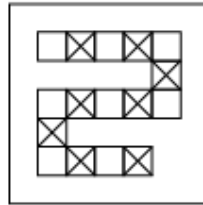




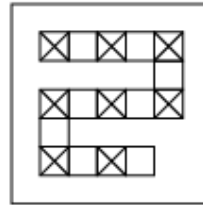
A



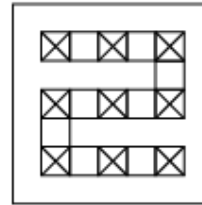
B



C



D



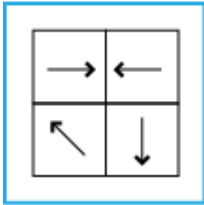
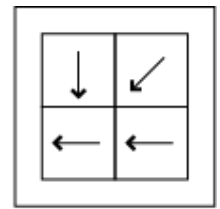
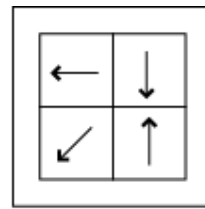
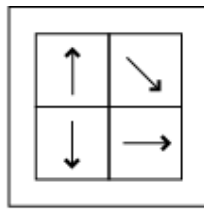
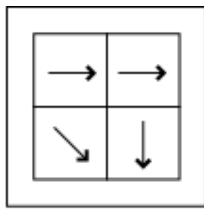
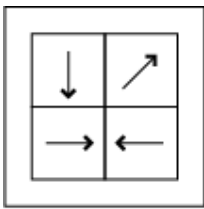
E

**Q1** What comes next in the sequence?

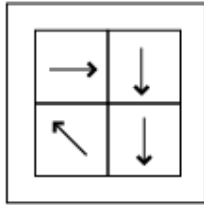
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: One new square is added, then two, then three and so on.

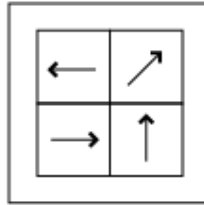
Rule 2: The squares in the pattern alternate between shaded and unshaded.



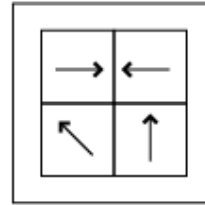
A



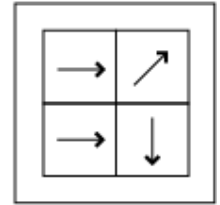
B



C



D



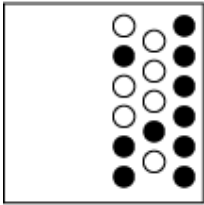
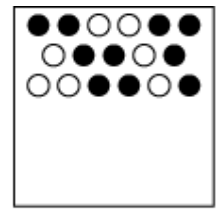
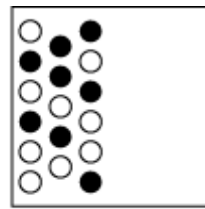
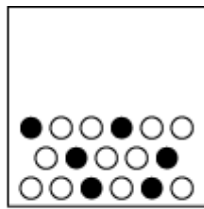
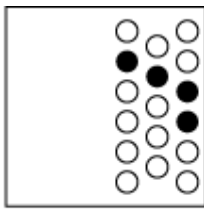
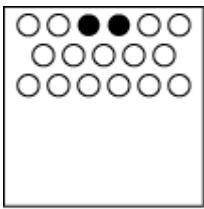
E

**Q2** What comes next in the sequence?

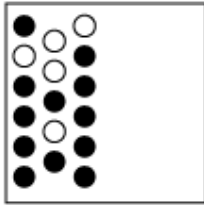
- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The top left and bottom right arrows rotate  $90^\circ$  counterclockwise each time.

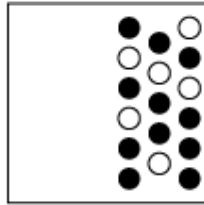
Rule 2: The top right and bottom left arrows rotate  $45^\circ$  clockwise each time.



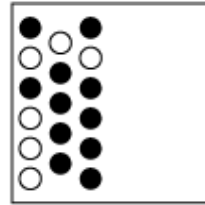
A



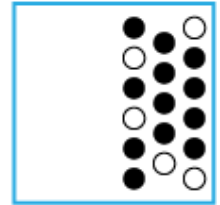
B



C



D



E

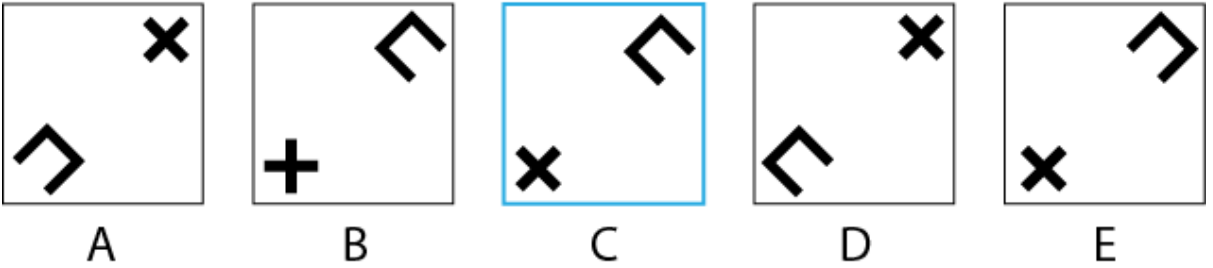
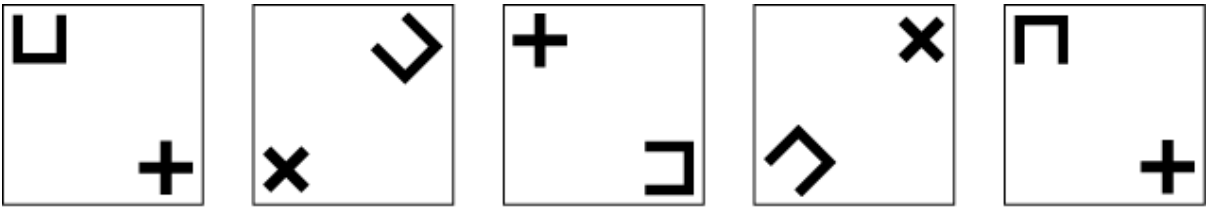
**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The rows of circles rotate one place clockwise each time.

Rule 2: The total number of shaded circles increases by two each time.

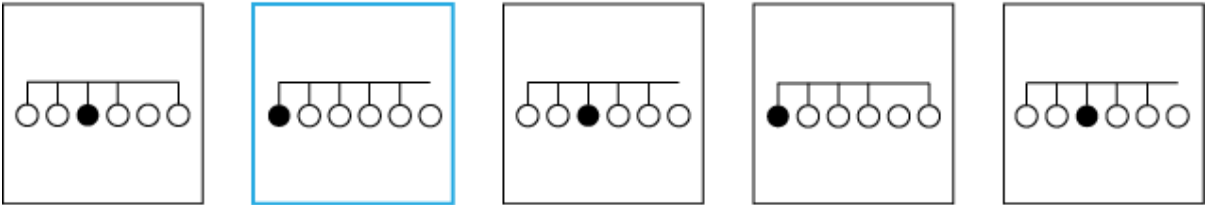
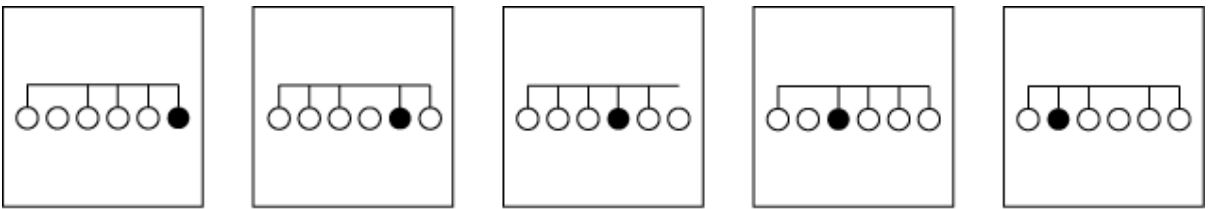




**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: Both symbols move one place clockwise around the box each time.  
 Rule 2: Both symbols rotate 45° counterclockwise each time.



A

B

C

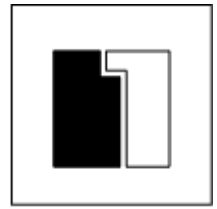
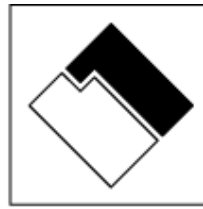
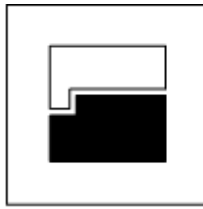
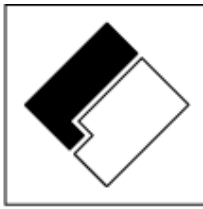
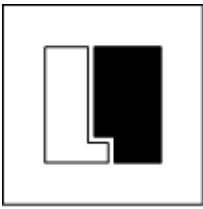
D

E

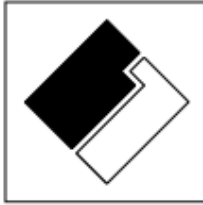
**Q5** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

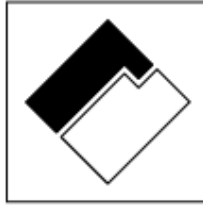
Rule 1: The missing vertical line moves two places to the right each time.  
 Rule 2: The shaded circle moves one place to the left each time.



A



B



C



D



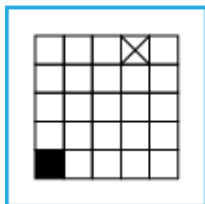
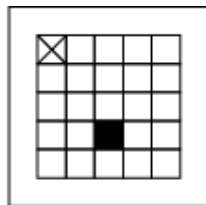
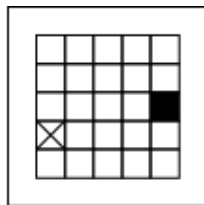
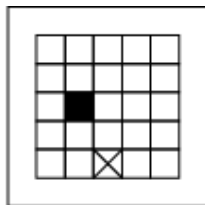
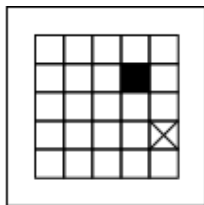
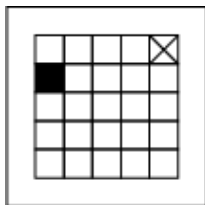
E

**Q6** What comes next in the sequence?

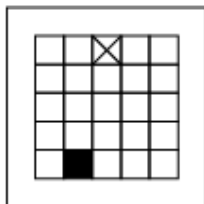
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The symbol rotates 45° clockwise each time.

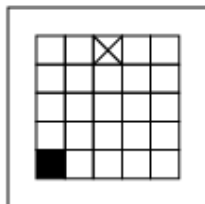
Rule 2: The segments of the symbol alternate between shaded and unshaded.



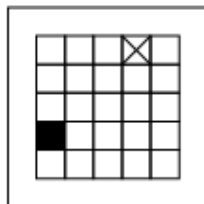
A



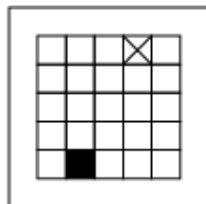
B



C



D



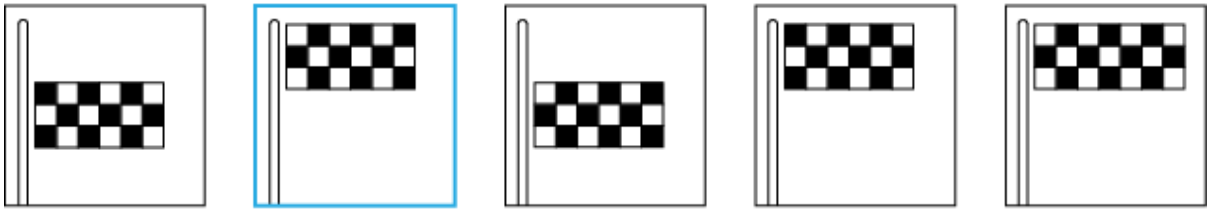
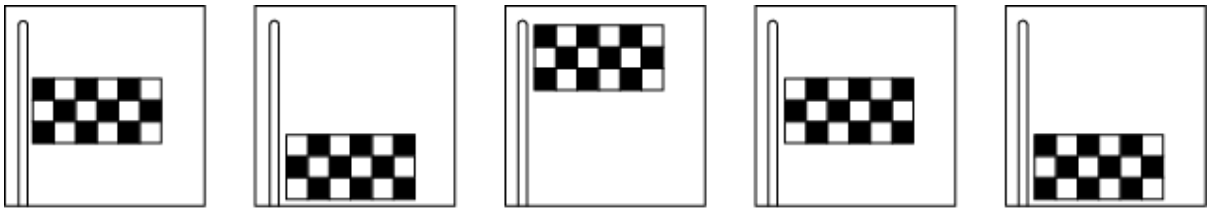
E

**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The crossed box moves three places clockwise each time.

Rule 2: The shaded box moves three places to the right each time, and then begins again on the next row.



A

B

C

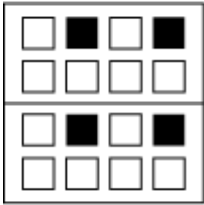
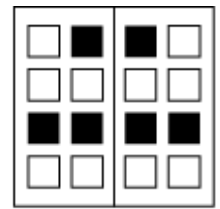
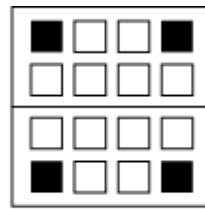
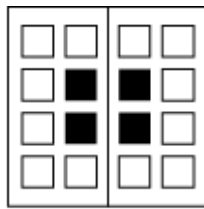
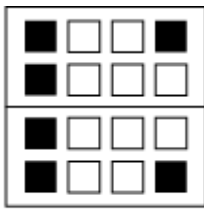
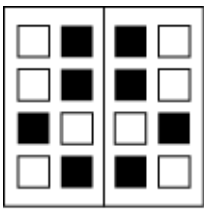
D

E

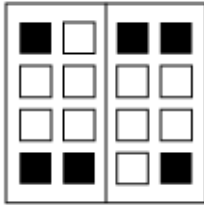
**Q8** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

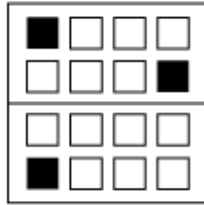
Rule 1: The flag moves down one place each time, then begins again from the top of the flagpole.  
 Rule 2: Each square on the flag alternates between shaded and unshaded each time.



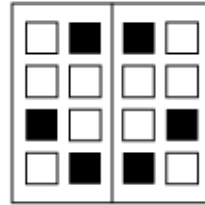
A



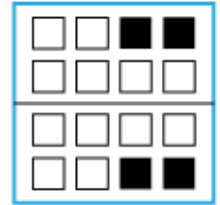
B



C



D



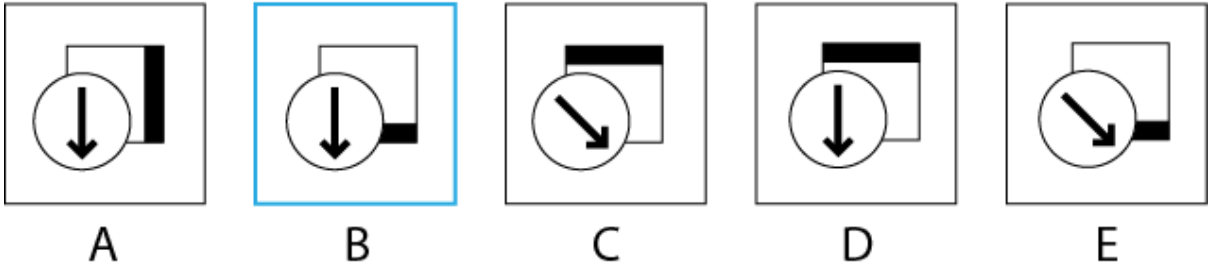
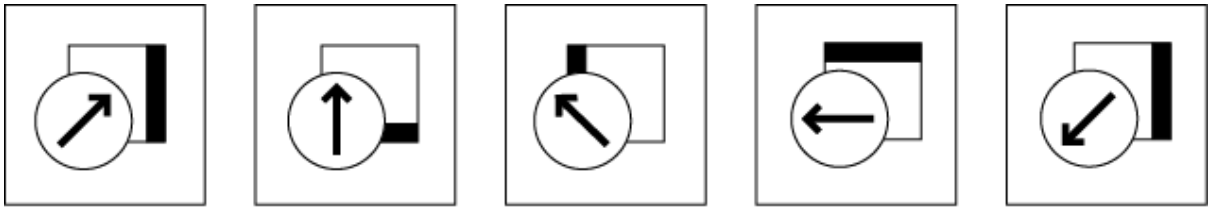
E

**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The line dividing the squares alternates between vertical and horizontal.

Rule 2: All opposite squares across the dividing line are identical.

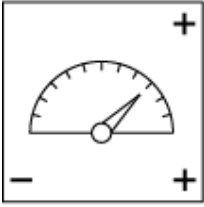
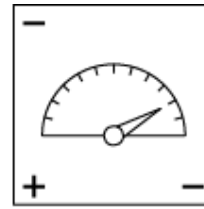
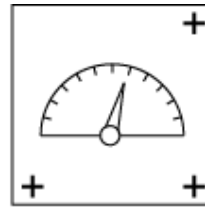
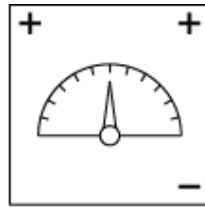
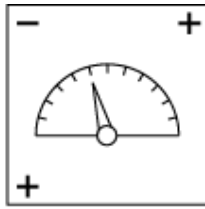
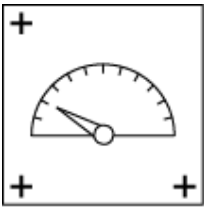


**Q10** What comes next in the sequence?

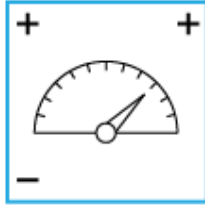
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The arrow rotates  $45^\circ$  counterclockwise each time.

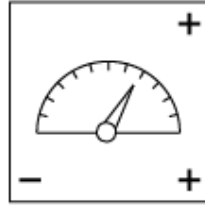
Rule 2: The square in the background rotates  $90^\circ$  clockwise each time.



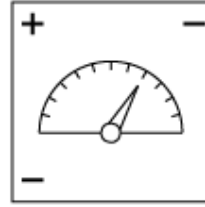
A



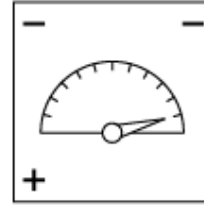
B



C



D



E

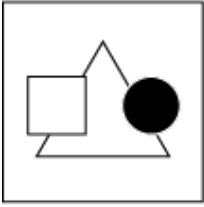
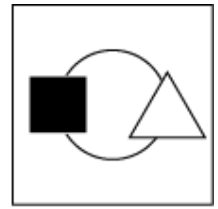
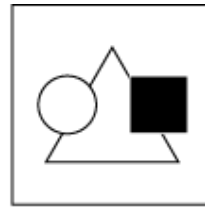
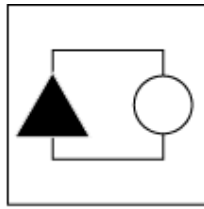
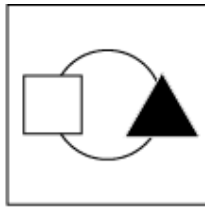
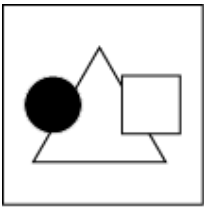
**Q11** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

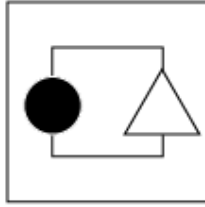
Rule 1: The positive and negative symbols move one place clockwise each time.

Rule 2: The positive and negative symbols indicate the location of the gauge in the next box.

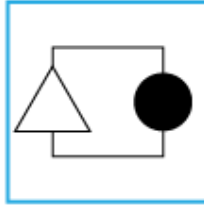




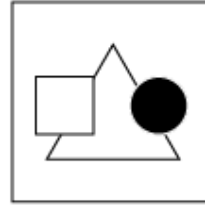
A



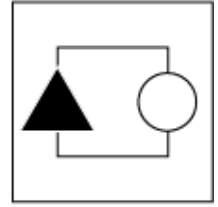
B



C



D



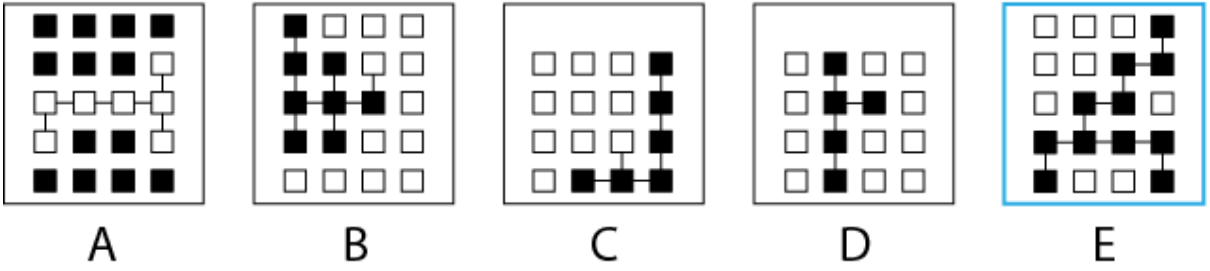
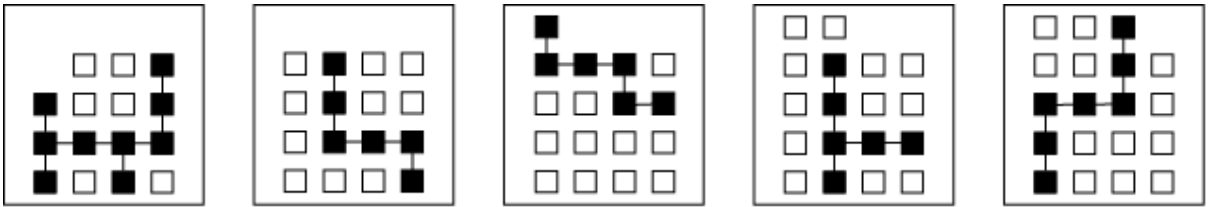
E

**Q12** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: Each shape moves one place to the right each time. The middle shape is always enlarged.

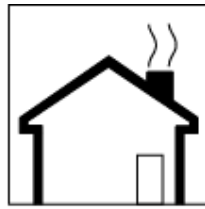
Rule 2: The shaded shape alternates between the left and right hand sided shape.



**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: A new square is added to the grid each time.  
 Rule 2: All of the connected squares are shaded.



A



B



C



D



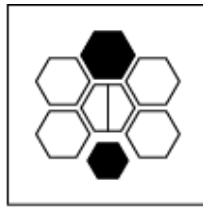
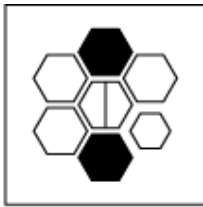
E

**Q14** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The door moves one place to the right each time.

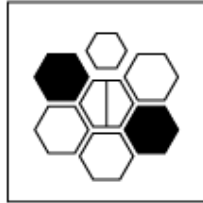
Rule 2: The chimney alternates between having two and three wisps of smoke.



A



B



C



D



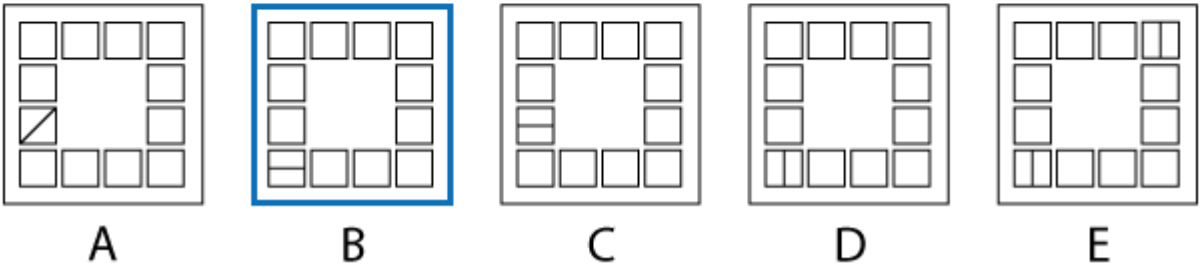
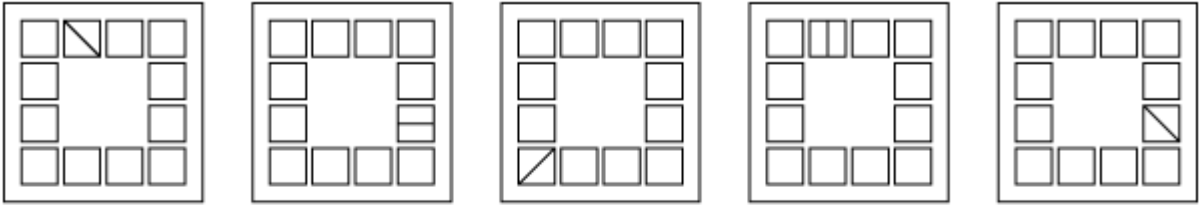
E

**Q15** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The small hexagon moves one place clockwise each time.

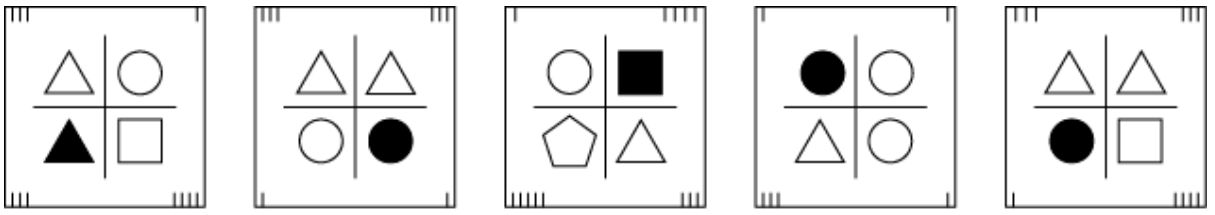
Rule 2: The shaded hexagons are determined by the line in the central hexagon. The two hexagons connected by the line are always shaded.



**Q16** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The lined square moves 4 places clockwise each time.  
 Rule 2: The line in the square rotates 45° counterclockwise each time.



A

B

C

D

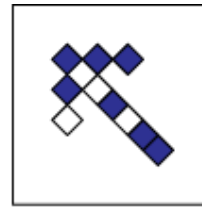
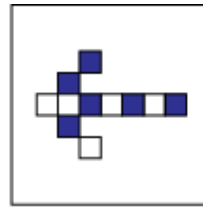
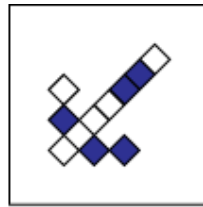
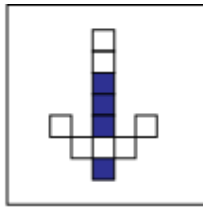
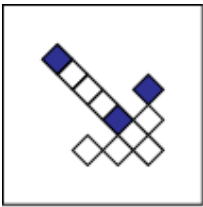
E

**Q17** What comes next in the sequence?

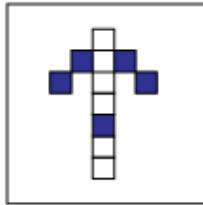
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The total number of edges on each shape is equal to the number of notches in that shape's corner.

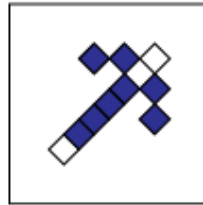
Rule 2: The shaded shape moves one place counterclockwise each time.



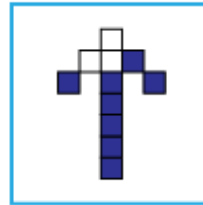
A



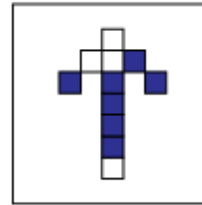
B



C



D



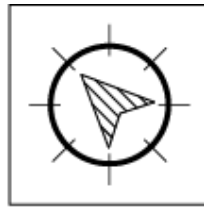
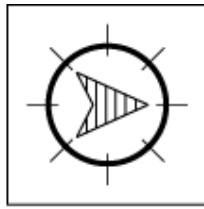
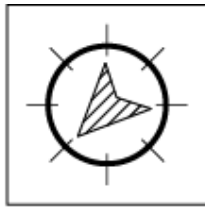
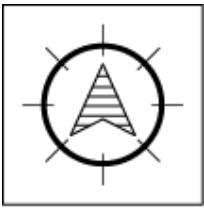
E

**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The arrow rotates  $45^\circ$  clockwise each time.

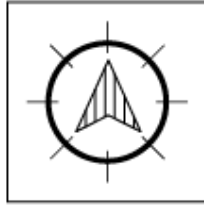
Rule 2: The total number of shaded squares increases by one each time.



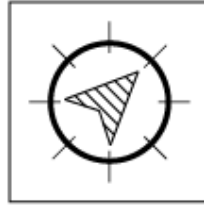
A



B



C



D



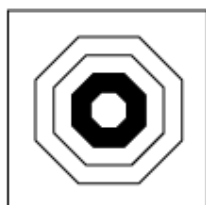
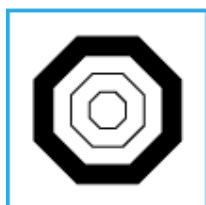
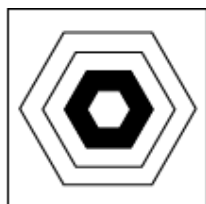
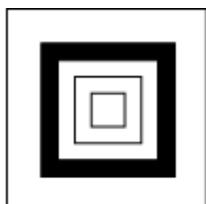
E

**Q19** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The compass moves three places counterclockwise each time.  
Rule 2: The lines on the compass alternate between horizontal and vertical, with respect to the direction of the arrow.





A

B

C

D

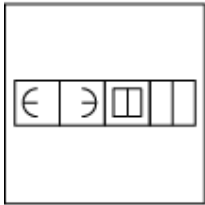
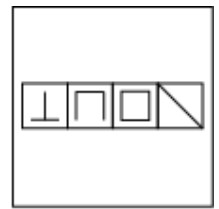
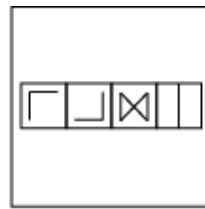
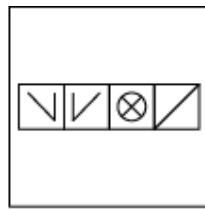
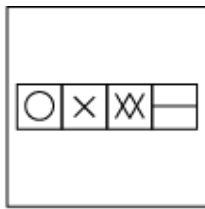
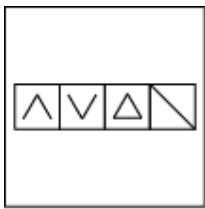
E

**Q20** What comes next in the sequence?

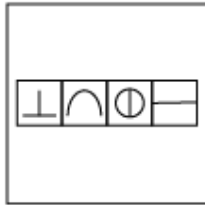
- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of edges on the shape increases by one each time.

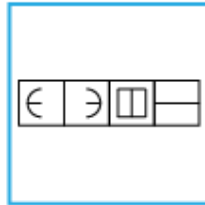
Rule 2: The shaded layer of the shape moves outward one place each time, then begins again from the centre.



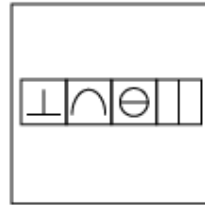
A



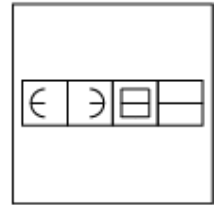
B



C



D



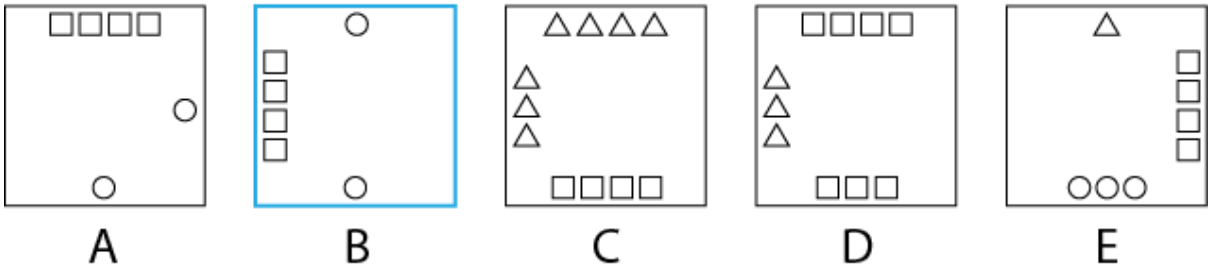
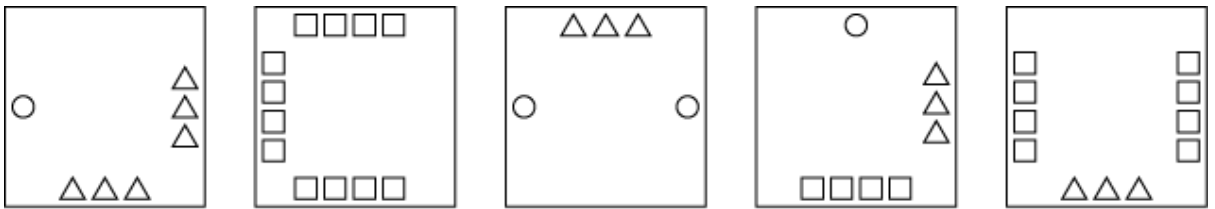
E

**Q21** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The 1st and 2nd symbols combine to form the 3rd symbol of the next box.

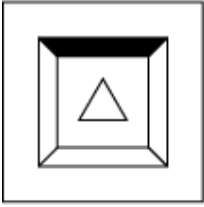
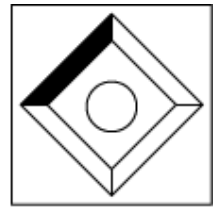
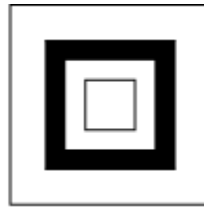
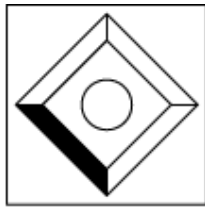
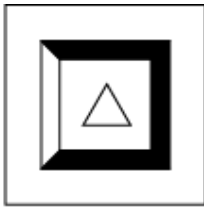
Rule 2: The 4th symbol rotates 45° counterclockwise each time.



**Q22** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The batches of shapes move one place clockwise each time.  
 Rule 2: The number of shapes on each batch is equal to the number of edges on that shape.



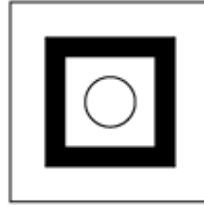
A



B



C



D



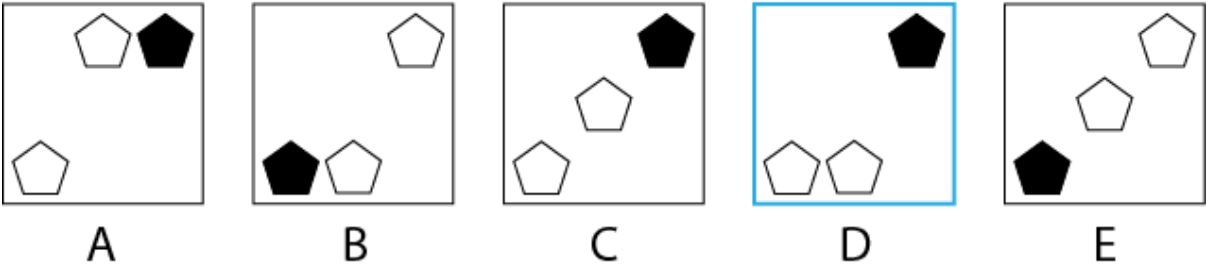
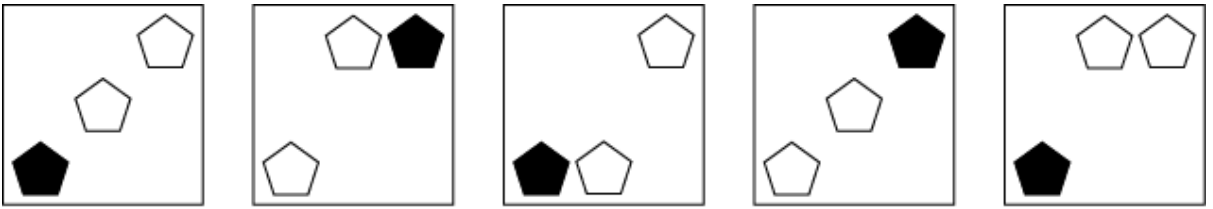
E

**Q23** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The square rotates  $45^\circ$  clockwise each time.

Rule 2: The number of edges on the shape in the centre is equal to the number of shaded edges on the large square.

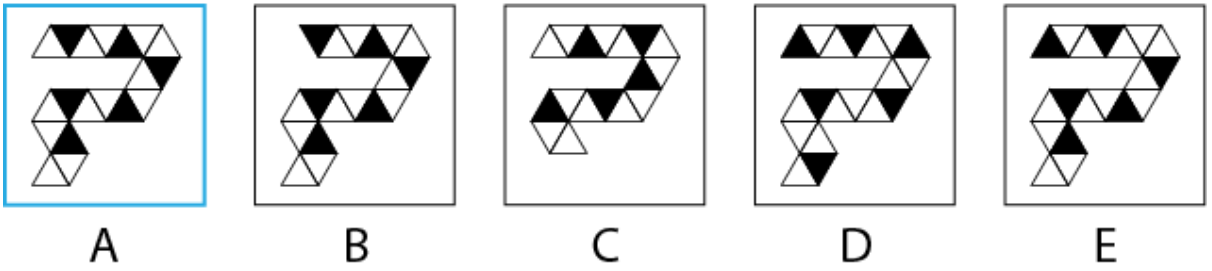
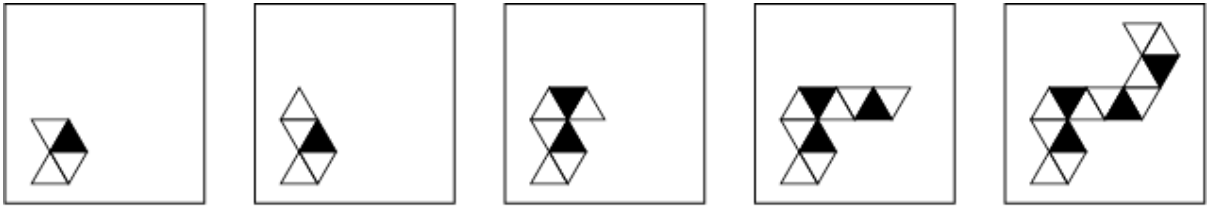


**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The middle pentagon moves up one place each time.

Rule 2: The shaded pentagon alternates between the left and right hand pentagon.

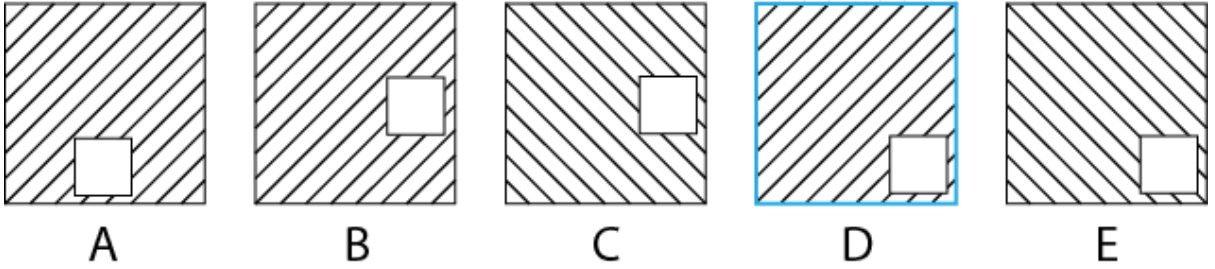
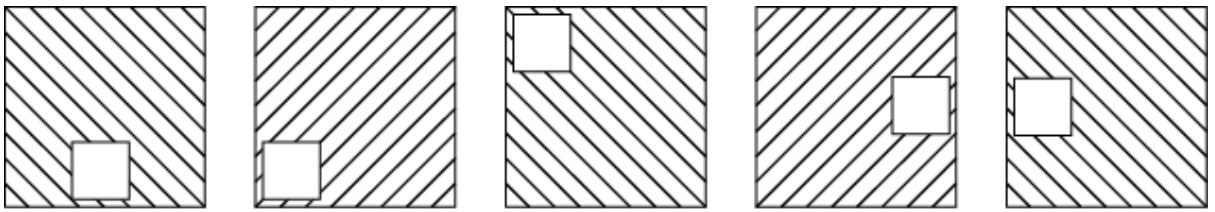


**Q25** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: One triangle is added, then two triangles, then three and so on, each time.

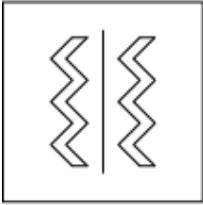
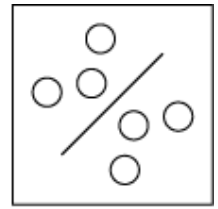
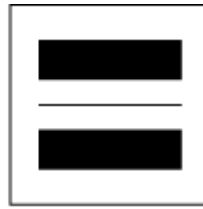
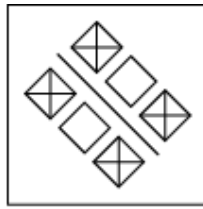
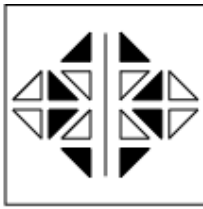
Rule 2: Every third triangle is shaded.



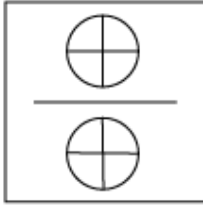
**Q26** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The white square moves clockwise one place, then two place, then three places and so on, each time.  
 Rule 2: The lines alternate between pointing NW-SE and NE-SW.



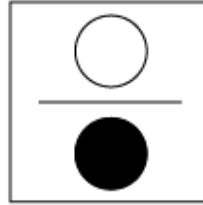
A



B



C



D



E

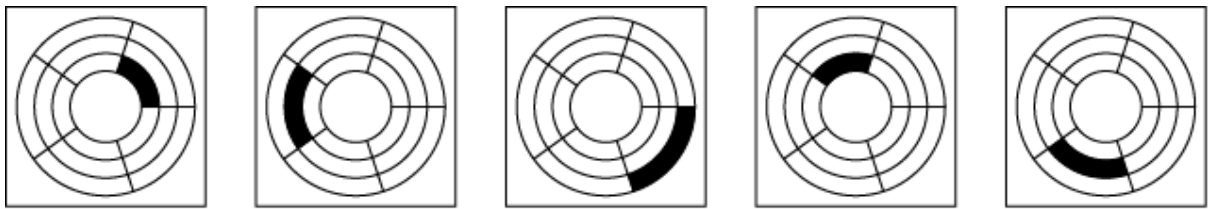
**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The centre line rotates  $45^\circ$  counterclockwise each time.

Rule 2: The symbols are symmetrical about the centre line.





A

B

C

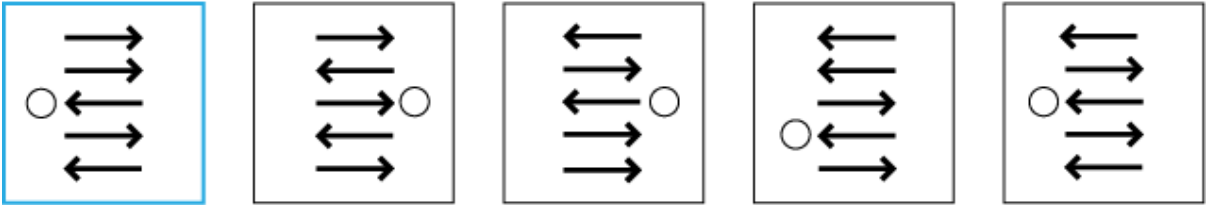
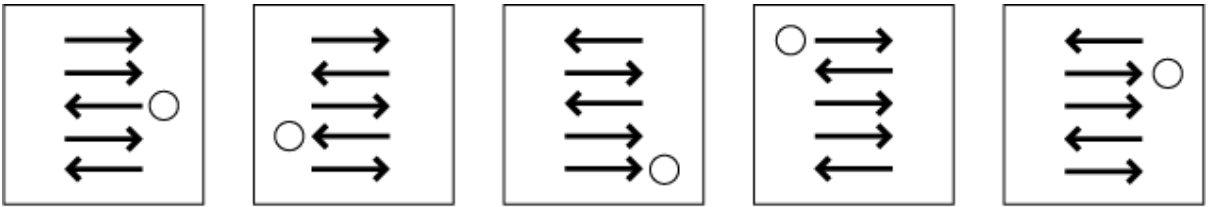
D

E

**Q28** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The shaded segment moves two places counterclockwise each time.  
 Rule 2: The shaded segment also moves outwards to the next ring each time, then begins again from the centre ring.



A

B

C

D

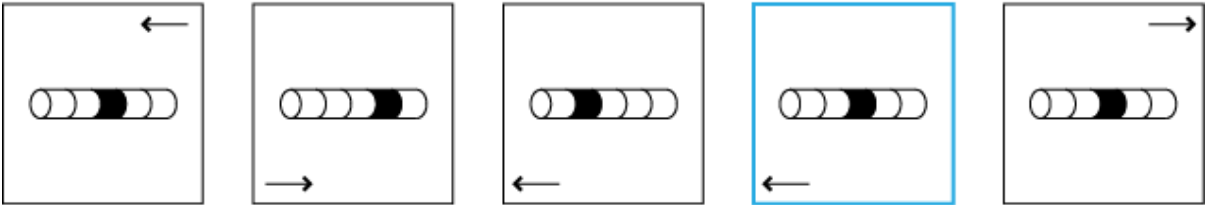
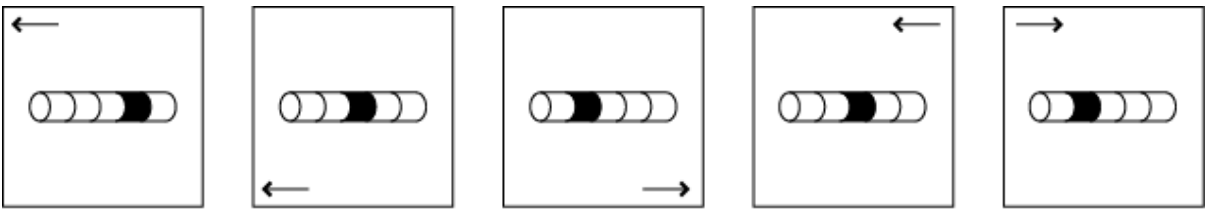
E

**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: Each arrow moves up one place each time, then begins again from the bottom.

Rule 2: The circle moves down one place each time and alternates side, then begins again from the top.



A

B

C

D

E

**Q30** What comes next in the sequence?

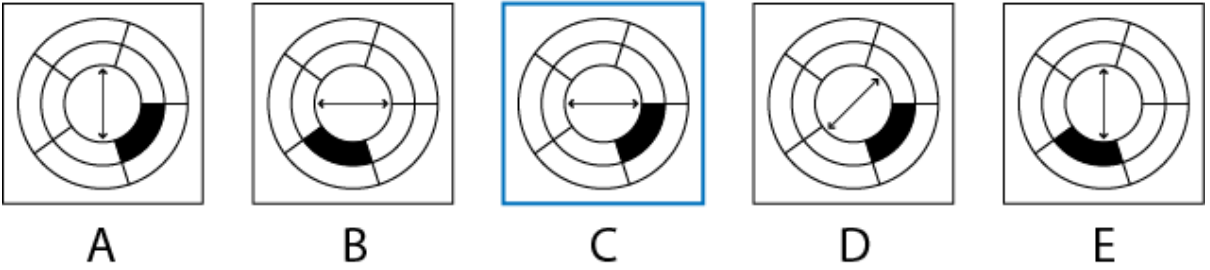
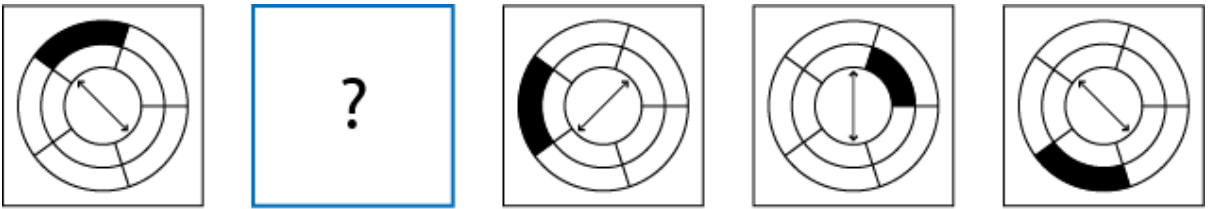
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The arrow moves one place counterclockwise each time.

Rule 2: The arrow indicates which segment of the cylinder will be shaded in the following box.

**-- End of Test --**

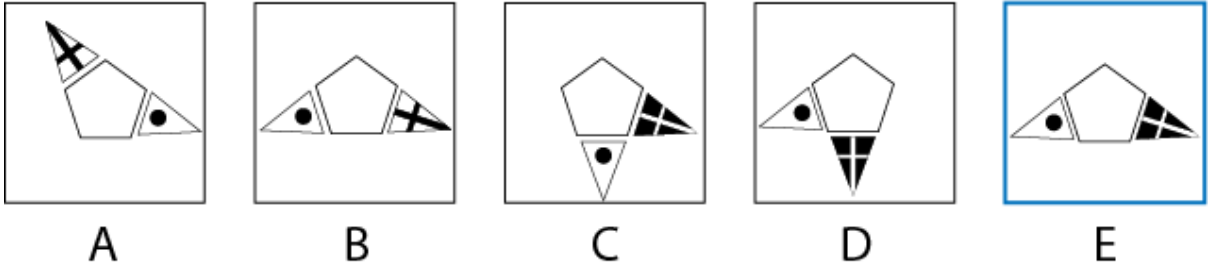




**Q1** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The arrow line in the centre rotates  $45^\circ$  counterclockwise each time.  
 Rule 2: The shaded segment moves two place clockwise each time.  
 Rule 3: The shaded segment alternates between the outer and inner rings.



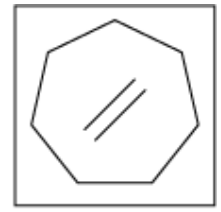
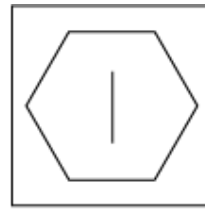
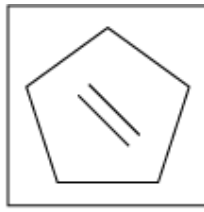
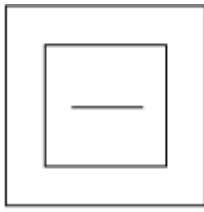
**Q2** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

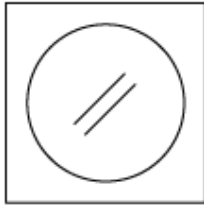
Rule 1: The crossed triangle moves two places counter clockwise each time.

Rule 2: The sections of the crossed triangle alternate between shaded and unshaded each time.

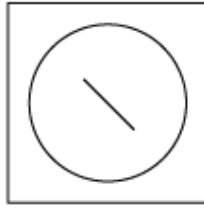
Rule 3: The circled triangle moves one place counter clockwise each time.



A



B



C



D

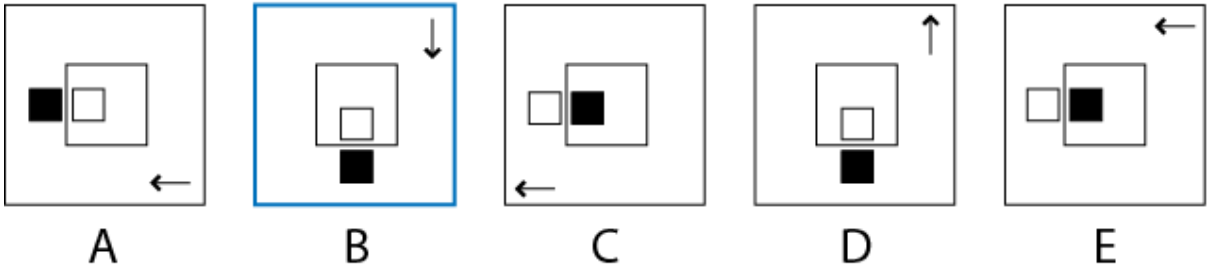
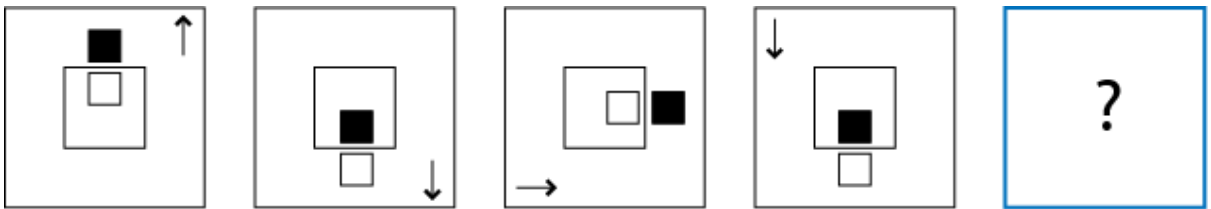


E

**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The total number of edges on the large shape increases by one each time.  
Rule 2: The number of lines inside the large shape alternates between two and one.  
Rule 3: The lines rotate 45° clockwise each time.



**Q4** What comes next in the sequence?

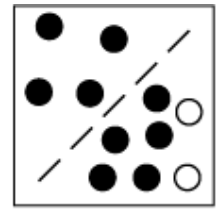
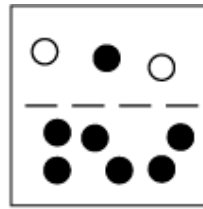
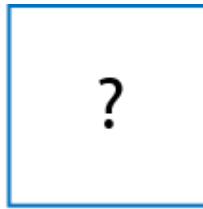
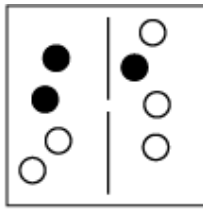
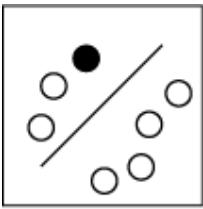
- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The arrow moves one place clockwise to the next corner each time.

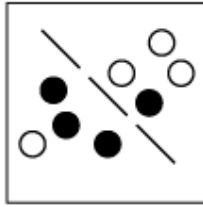
Rule 2: The arrow indicates which side the small boxes are positioned.

Rule 3: The small boxes outside and inside the large box alternates between shaded and unshaded.

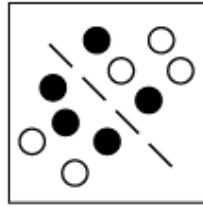




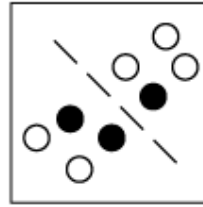
A



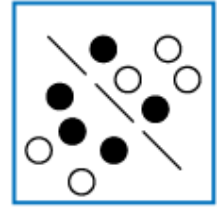
B



C



D



E

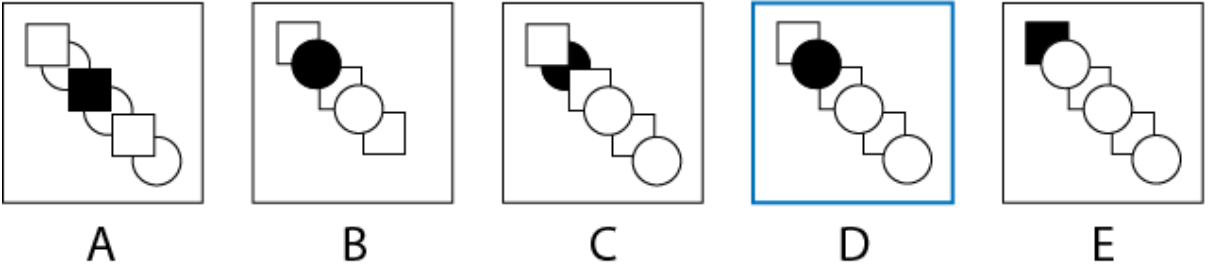
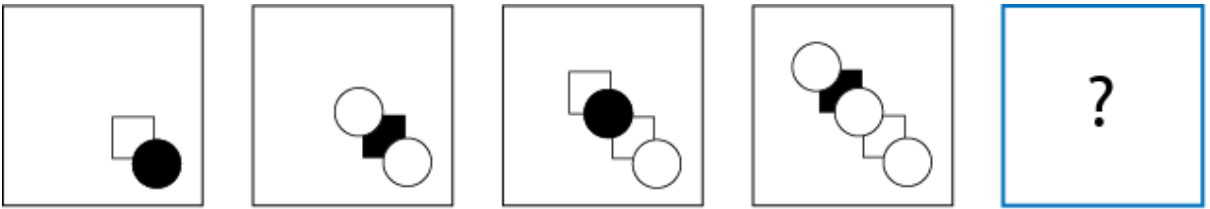
**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The dividing line rotates 45° counterclockwise each time.

Rule 2: The number of lines in the dividing line increases by one each time.

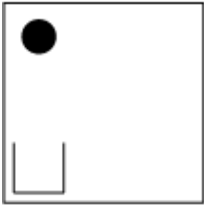
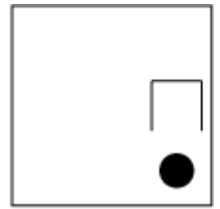
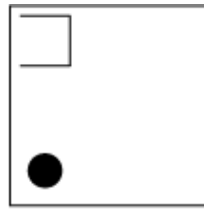
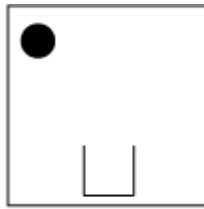
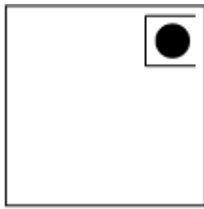
Rule 3: The total number of shaded circles increases by two each time.



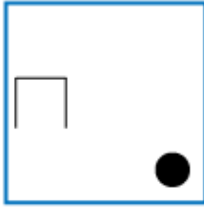
**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

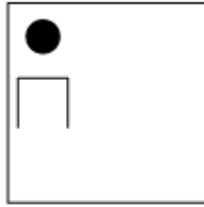
Rule 1: A new shape is added each time, alternating between circle and square.  
 Rule 2: The squares are in the background, and the circles are in the foreground.  
 Rule 3: The shaded shape moves up one place each time.



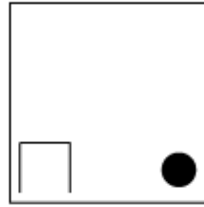
A



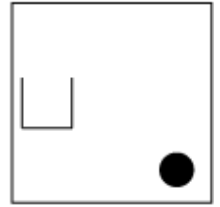
B



C



D



E

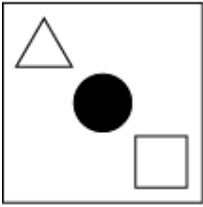
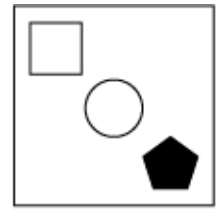
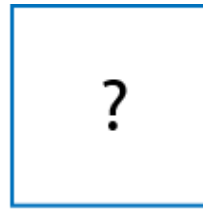
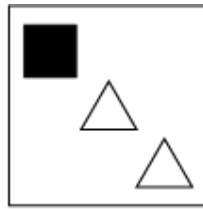
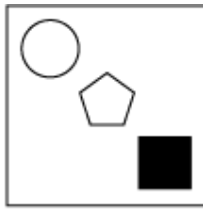
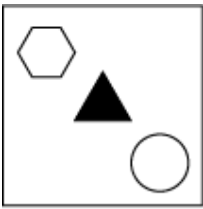
**Q7** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

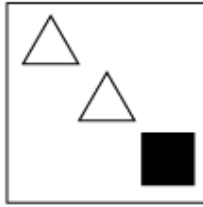
Rule 1: The square moves three places clockwise around the box each time.

Rule 2: The missing edge of the square moves one place counter clockwise each time.

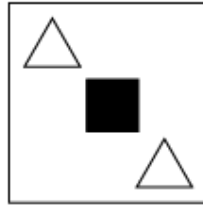
Rule 3: The shaded circle moves one place counter clockwise each time.



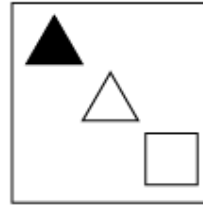
A



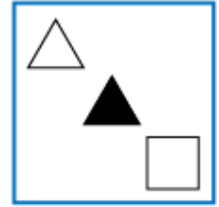
B



C



D

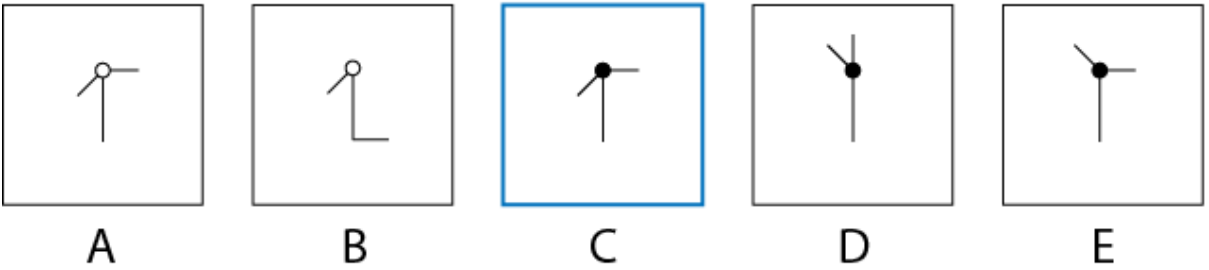
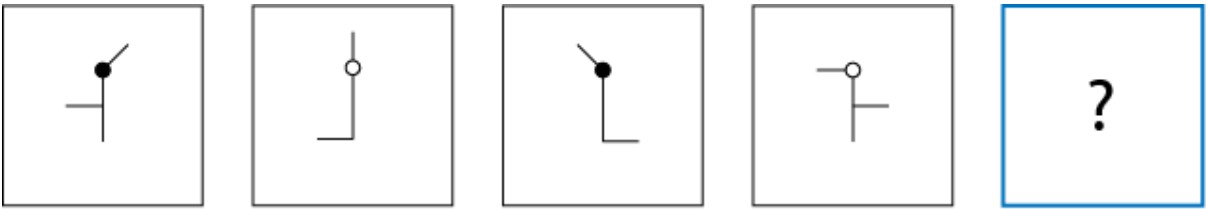


E

**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

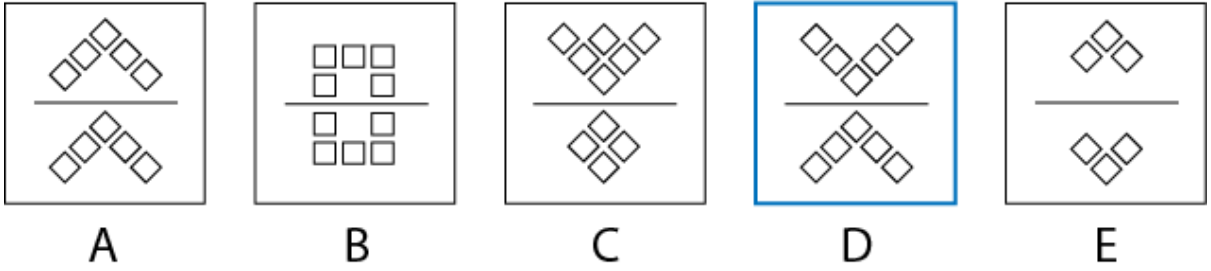
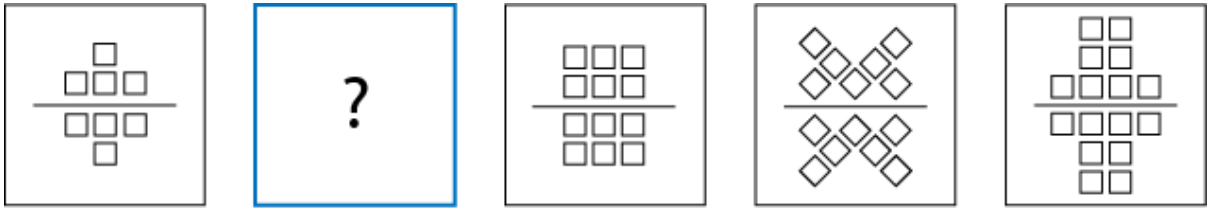
Rule 1: The shaded shape moves one place to the right each time.  
Rule 2: The right hand shape becomes the left hand shape in the next box.  
Rule 3: The total number of edges on the shapes is always equal to ten.



**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The top line rotates 45° counter clockwise around the circle each time.  
 Rule 2: The circle alternates between shaded and unshaded.  
 Rule 3: The horizontal line moves one place counter clockwise each time.



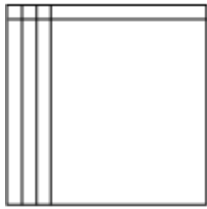
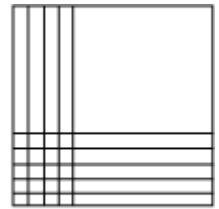
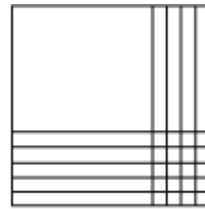
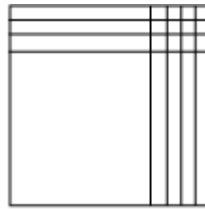
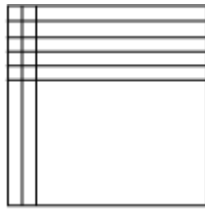
**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

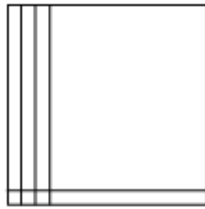
Rule 1: The shapes alternate between square and diamond.

Rule 2: The total number of shapes increases by two each time.

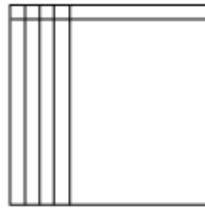
Rule 3: The shapes are always symmetrical about the horizontal centre line.



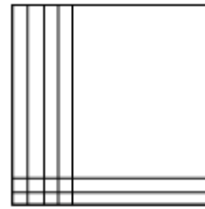
A



B



C



D



E

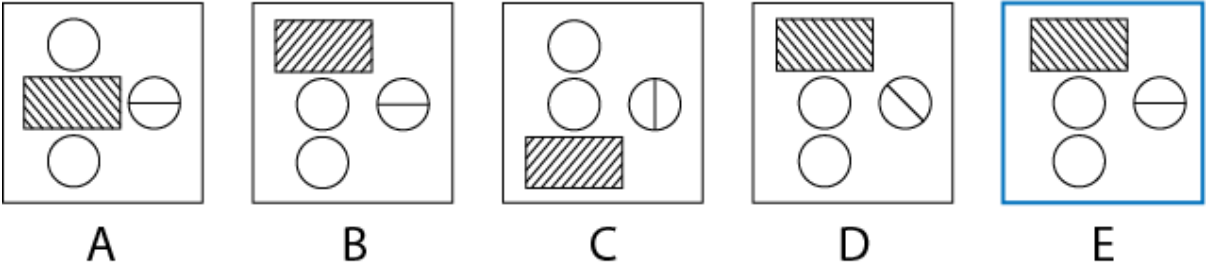
**Q11** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: Both batches of lines move one place clockwise around the box each time.

Rule 2: One batch alternates between having four and five lines.

Rule 3: The other batch of lines increases by one each time.



**Q12** What comes next in the sequence?

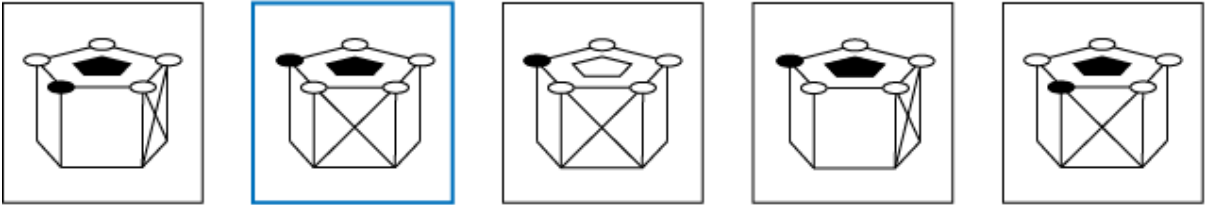
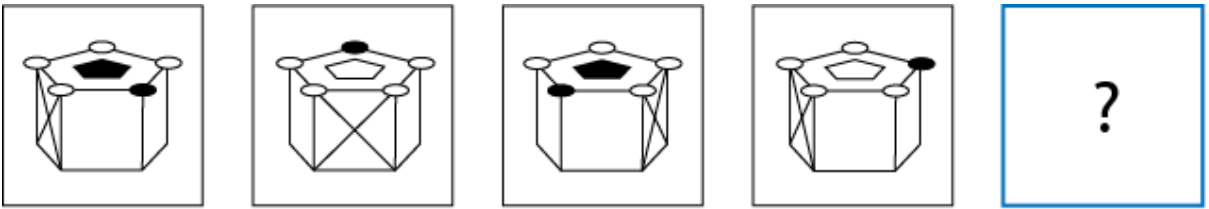
- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The lines in the rectangle alternate direction each time.

Rule 2: The line in the circle rotates 45° clockwise each time.

Rule 3: The rectangle alternates between being above and below the circles.





A

B

C

D

E

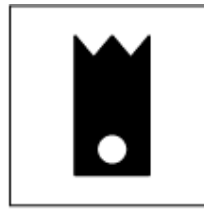
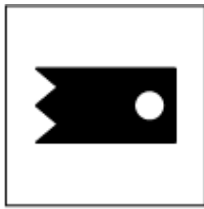
**Q13** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The crossed section of the shape moves one place to the right each time and then begins again from the left.

Rule 2: The shaded circle moves two places counter clockwise each time.

Rule 3: The small pentagon in the centre alternates between shaded and unshaded.



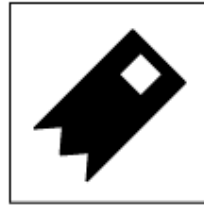
A



B



C



D



E

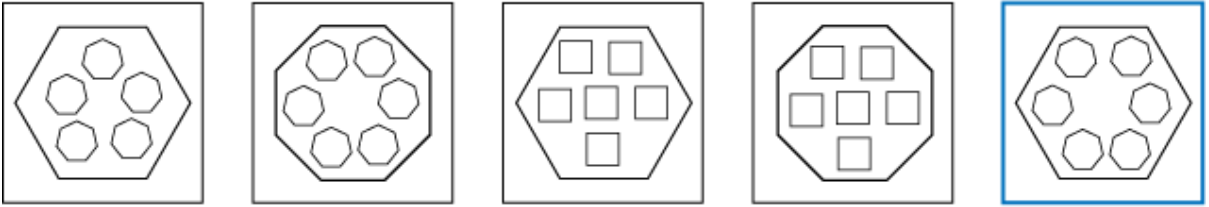
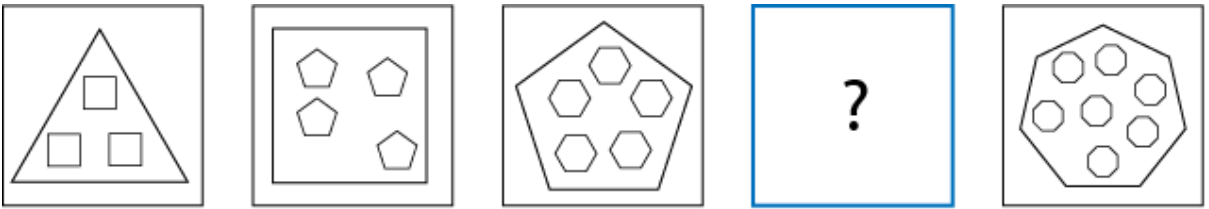
**Q14** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The ribbon rotates 45° clockwise each time.

Rule 2: The ribbon alternates between having two and three points at the bottom.

Rule 3: The small unshaded shape alternates between square and circle.



A

B

C

D

E

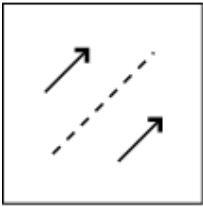
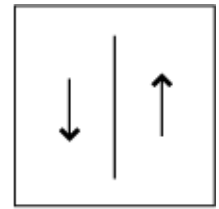
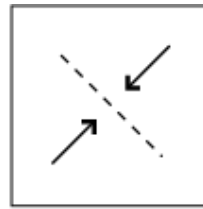
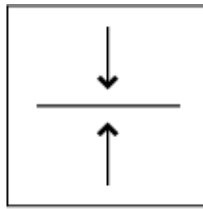
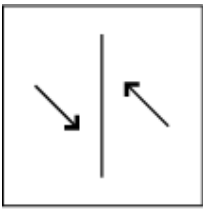
**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

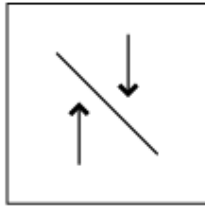
Rule 1: The total number of edges on the large shape increases by one each time.

Rule 2: The small shapes have one more edge than the large shape.

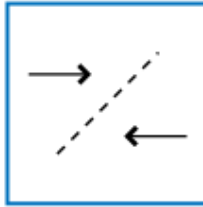
Rule 3: The total number of small shapes is equal to the total number of edges on the large shape.



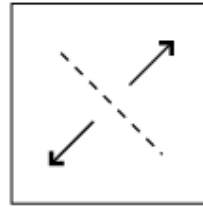
A



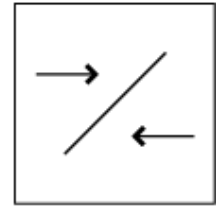
B



C



D

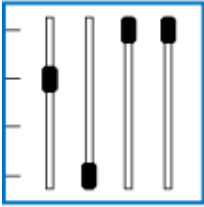
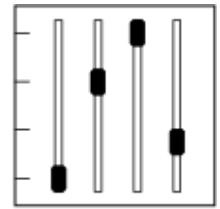
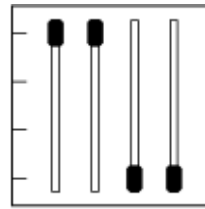
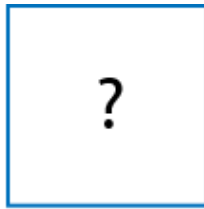
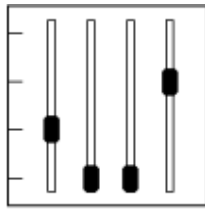
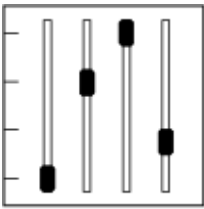


E

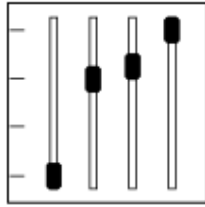
**Q16** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

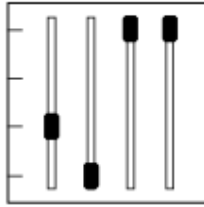
Rule 1: The centre line rotates 45° clockwise each time.  
Rule 2: The centre line alternates between solid and broken.  
Rule 3: The arrows always point in opposite directions.



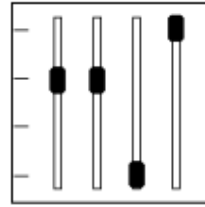
A



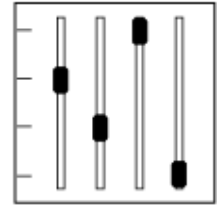
B



C



D



E

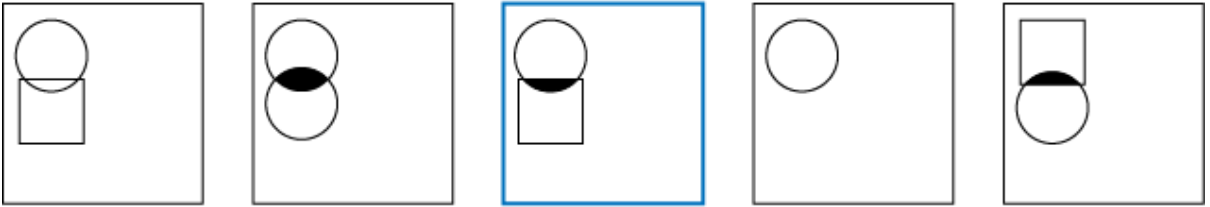
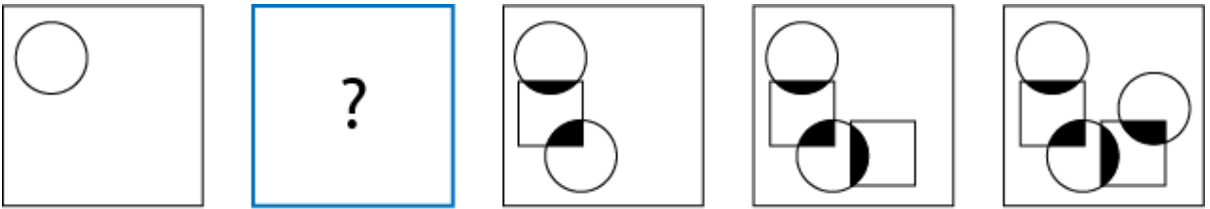
**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The first and fourth bar moves up one place each time.

Rule 2: The second bar moves down one place each time.

Rule 3: The third bar alternates between top and bottom.



A

B

C

D

E

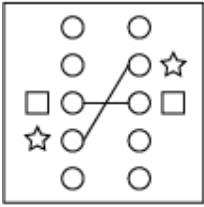
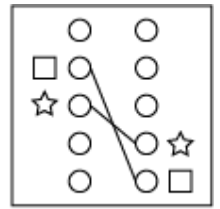
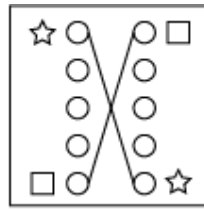
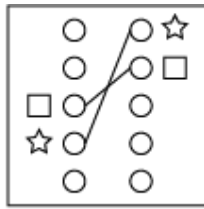
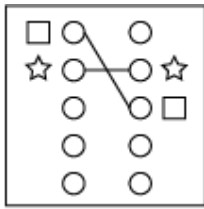
**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

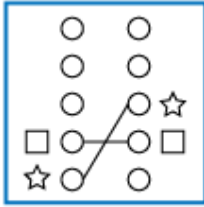
Rule 1: A new shape is added each time.

Rule 2: The new shape alternates between a square and a circle.

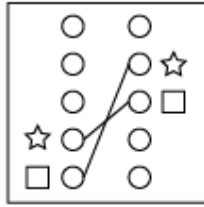
Rule 3: The overlapping sections of the shapes are shaded.



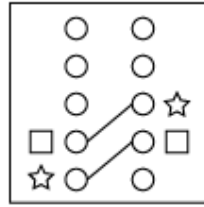
A



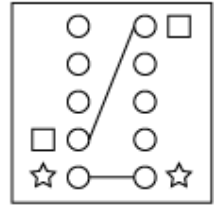
B



C



D



E

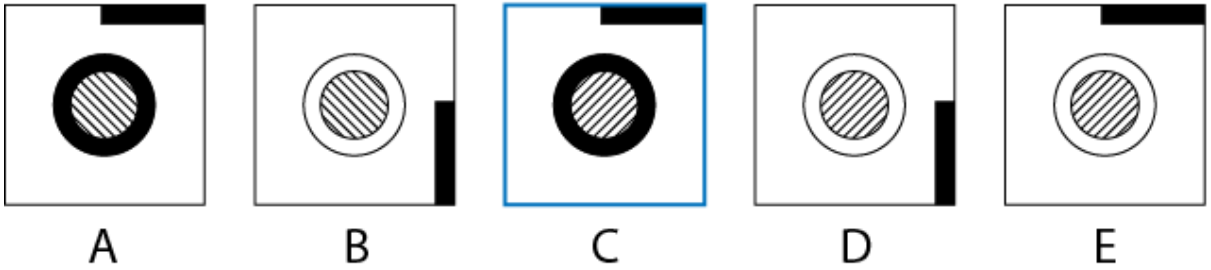
**Q19** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

Rule 1: The left side square and star move down two places each time.

Rule 2: The right sided square and star move up on place each time.

Rule 3: The circles next to the squares are linked, and the circles next to the stars are linked.

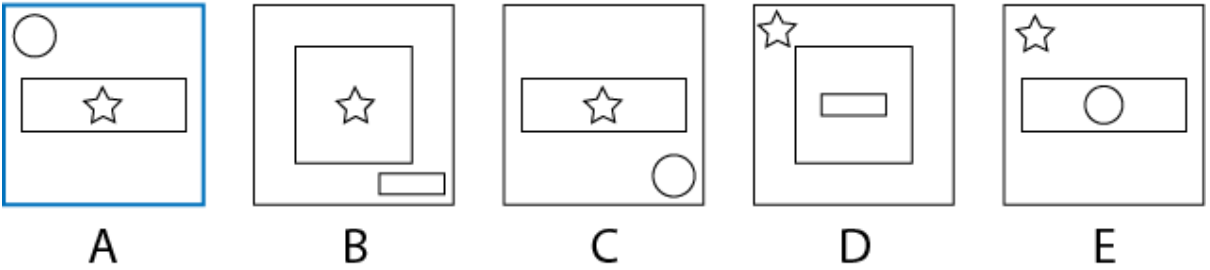


**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The shaded bar moves one place counter clockwise around the box each time.  
 Rule 2: The parallel lines in the circle rotate 45° counter clockwise each time.  
 Rule 3: The circle ring alternates between shaded and unshaded.

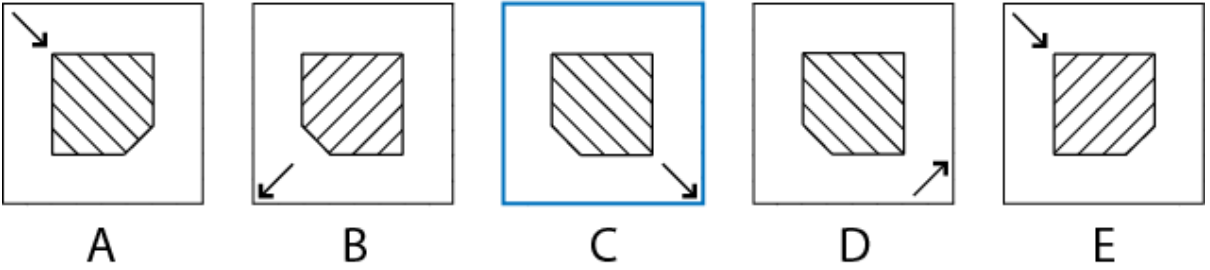
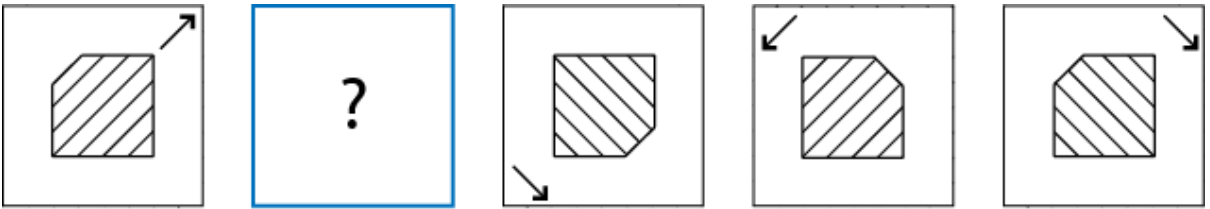




**Q21** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

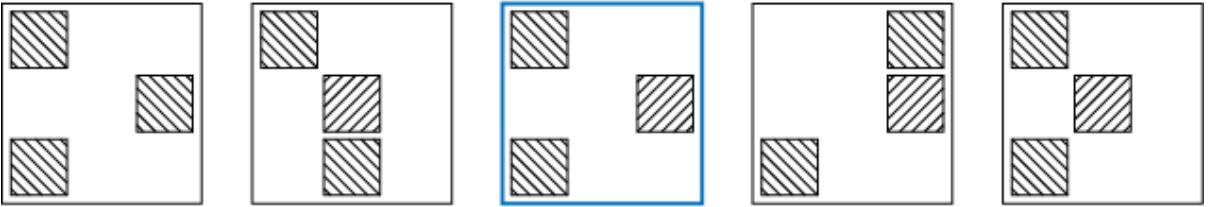
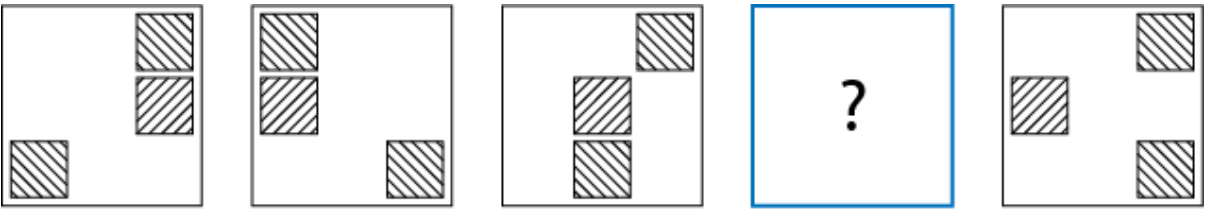
Rule 1: The small centre shape becomes the large shape of the next box.  
 Rule 2: The large shape becomes the small corner shape of the next box.  
 Rule 3: The corner shape moves one place counter clockwise each time.



**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The missing corner of the square moves one place counter clockwise each time.  
 Rule 2: The arrow moves one place clockwise each time.  
 Rule 3: The arrow indicates the orientation of the lines.



A

B

C

D

E

**Q23** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The top square alternates between being on the left and right.

Rule 2: The middle box moves one place to the right each time.

Rule 3: The bottom box moves one place to the left each time.

\$  
#  
@  
%

%  
ç  
#  
@

@  
%  
\$  
#

#  
@  
%  
ç

?

\$  
#  
@  
%

A

%  
#  
@  
\$

B

#  
ç  
@  
%

C

\$  
#  
%  
@

D

ç  
#  
@  
%

E

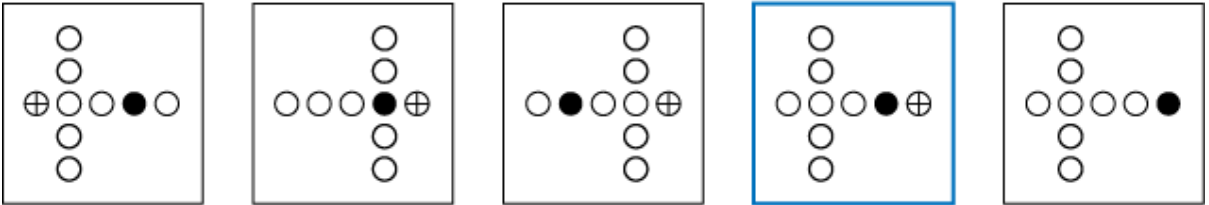
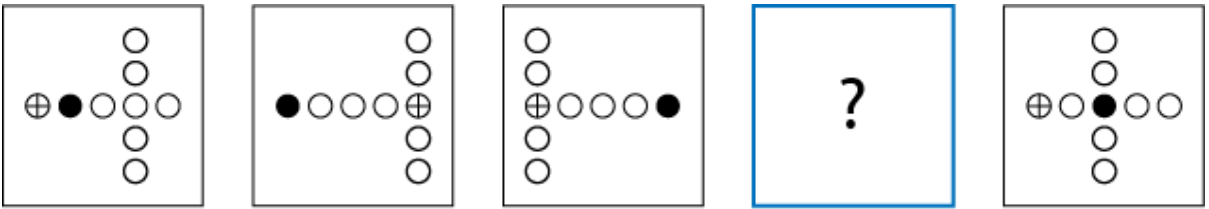
**Q24** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The bottom symbol becomes the top symbol of the next box.

Rule 2: The remaining symbols moves down one place each time.

Rule 3: The '\$' symbol alternates between facing right and left.



A

B

C

D

E

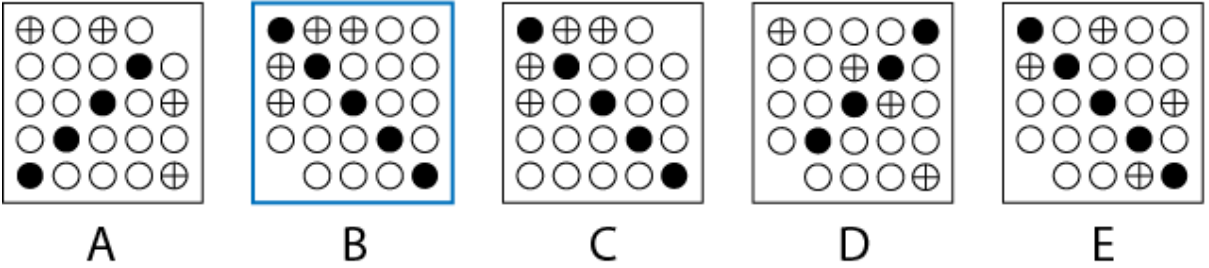
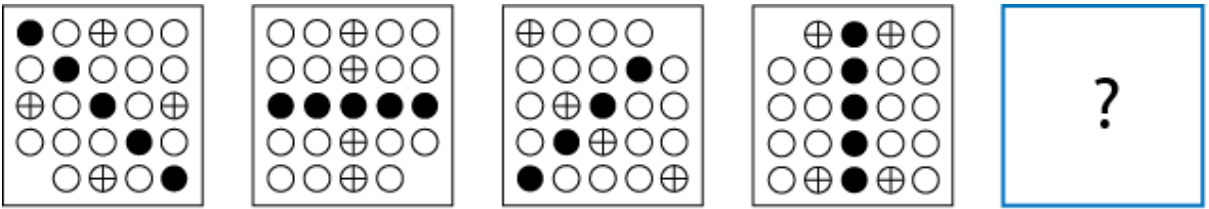
**Q25** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The shaded circle moves one place to the left each time.

Rule 2: The crossed circle alternates between the left and rightmost circles.

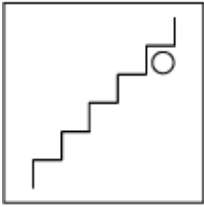
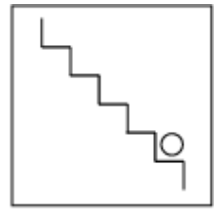
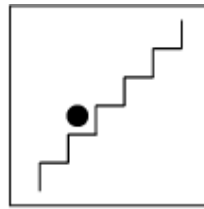
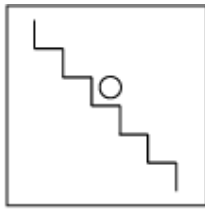
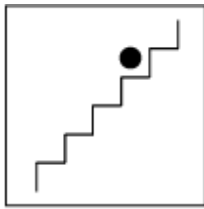
Rule 3: The vertical column of circles moves one place to the right each time.



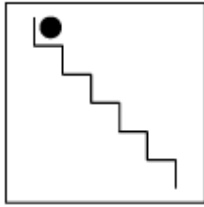
**Q26** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

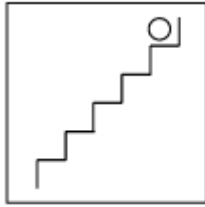
Rule 1: The row of shaded circles rotates 45° counter clockwise each time.  
 Rule 2: The crossed circles are always symmetrical about the shaded row.  
 Rule 3: The missing corner circle moves one place counter clockwise each time.



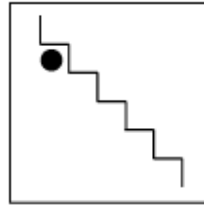
A



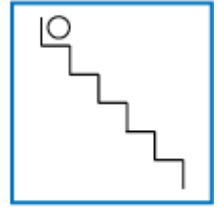
B



C



D



E

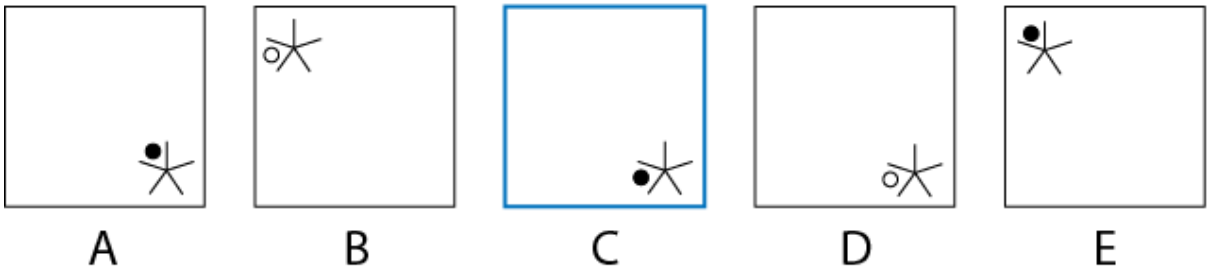
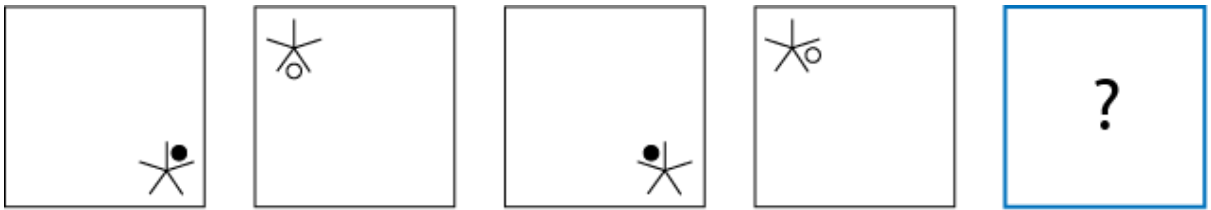
**Q27** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

Rule 1: The staircase alternates between pointing NW-SE and NE-SW.

Rule 2: The circle moves down one step each time.

Rule 3: The circle alternates between unshaded and shaded.

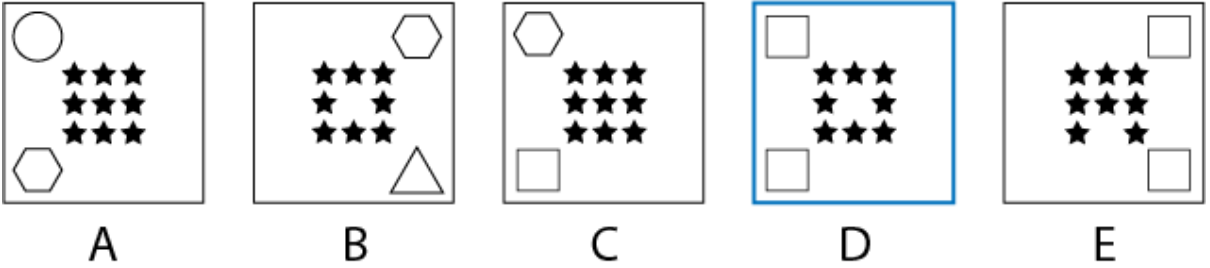


**Q28** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

Rule 1: The symbol alternates between the bottom right and the top left hand corner.  
 Rule 2: The circle moves two place clockwise around the star each time.  
 Rule 3: The circle alternates between shaded and unshaded.





**Q29** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

Rule 1: The total number of stars decreases by one each time.

Rule 2: The total number of edges on the unshaded shapes is equal to the total number of stars.

Rule 3: The unshaded shapes moves one place counter clockwise to the next corner each time.



A

B

C

D

E

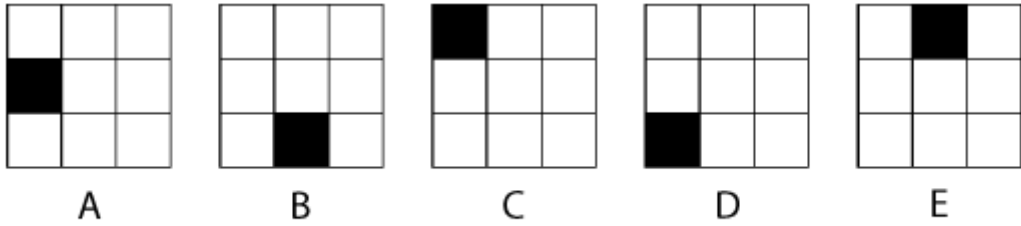
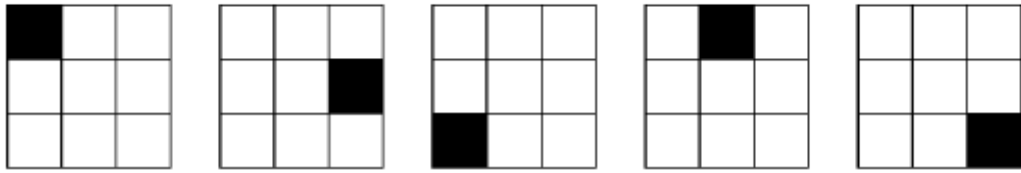
**Q30** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

Rule 1: The outer shape moves one place clockwise to the next corner each time.  
 Rule 2: The outer shape alternates between unshaded and shaded.  
 Rule 3: The padlock opens when the outer shape is the same as the padlock shape.

**-- End of Test --**



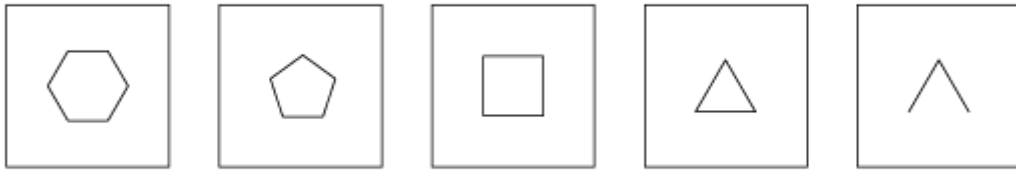


**Q1** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A

One Rule: Each step, the shaded square moves 3 squares clockwise round the edge of the figure.



A

B

C

D

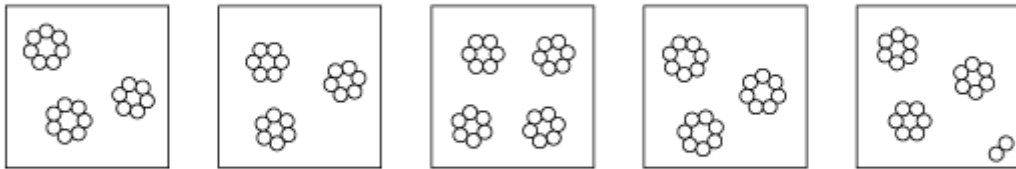
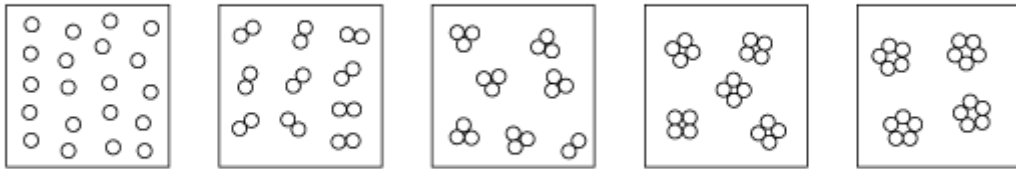
E

**Q2** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

One Rule: The shape in the centre comprises 1 fewer straight line every time.



A

B

C

D

E

**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

One Rule: The number of circles that are grouped together increases by one every time, with the final group containing all the circles that do not fit into a whole group.



A

B

C

D

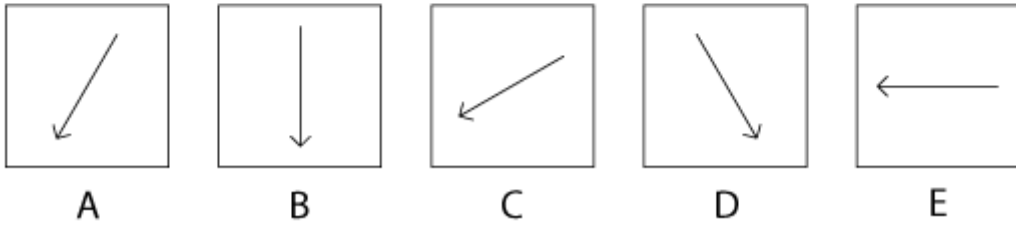
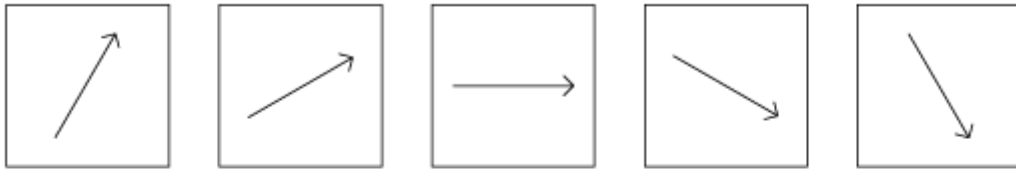
E

**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

One Rule: The door moves to the right, centre, left then centre, always in line with the window immediately above it, and then the pattern repeats.



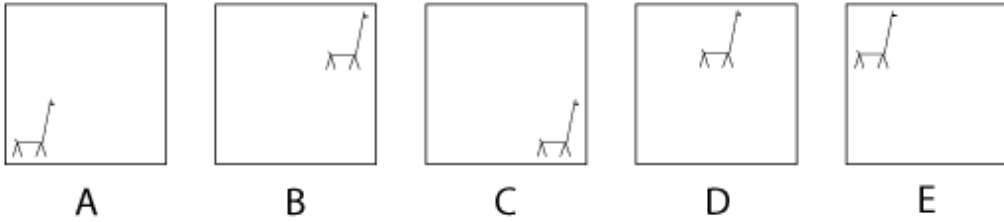
**Q5** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

The correct answer is B

One Rule: The direction of the arrow rotates by  $30^\circ$  each time.



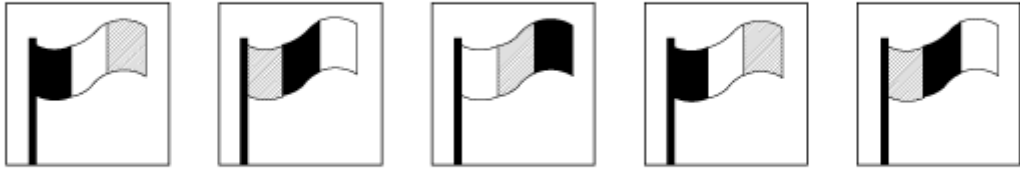


**Q6** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

The correct answer is B

One Rule: The matchstick giraffe visits the corners in the order top left, top right, bottom left, bottom right. The sequence then repeats.



A

B

C

D

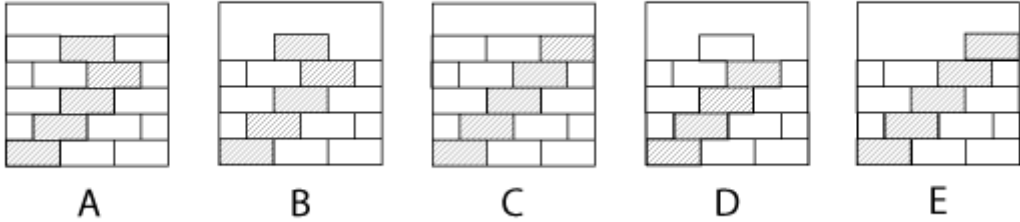
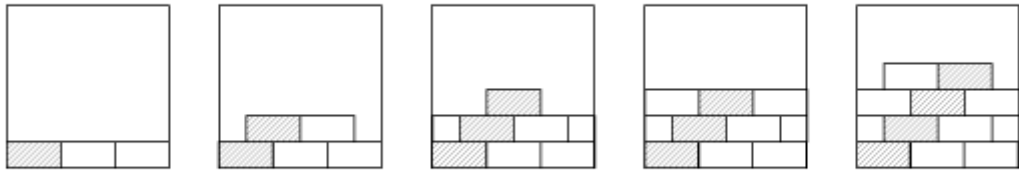
E

**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

First Rule: The shading type furthest from the flagpole on one figure becomes the shading closest to the flagpole on the next figure, and every other form of shading moves one band to the right.



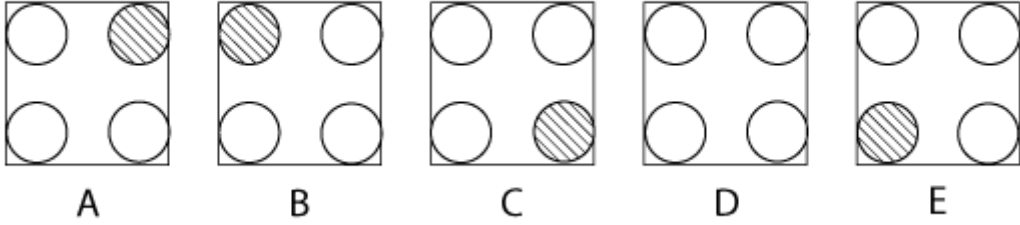
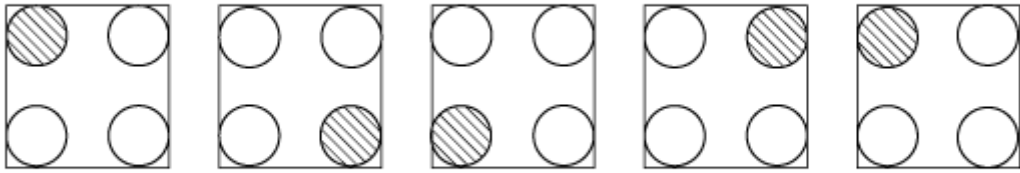
**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

First Rule: Two bricks are added each time, starting from the centre and working outwards. Each row is completed before the next is started, and addition of two half bricks counts as adding one whole brick.

Second Rule: Bricks on the bottom left to top right diagonal have upward sloping cross-hatching.

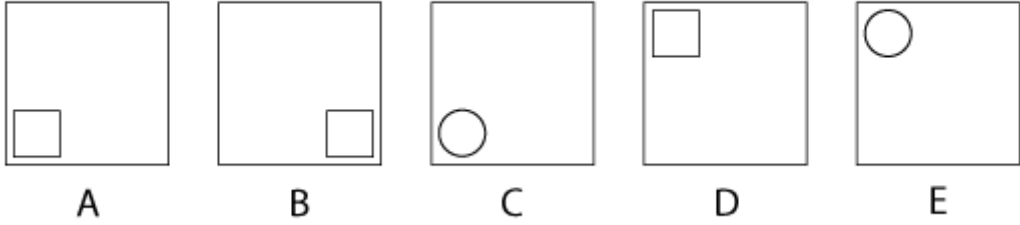
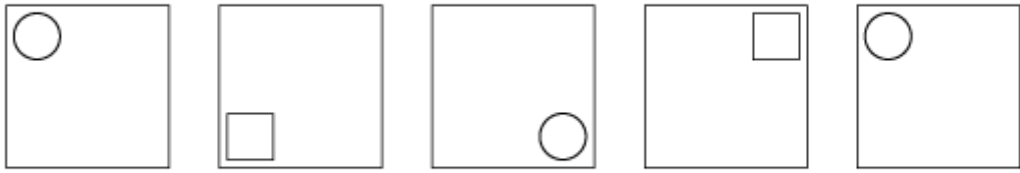


**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

One Rule: The downward sloping cross-hatching follows the sequence top left circle, bottom right circle, bottom left circle, top right circle. This sequence then repeats.



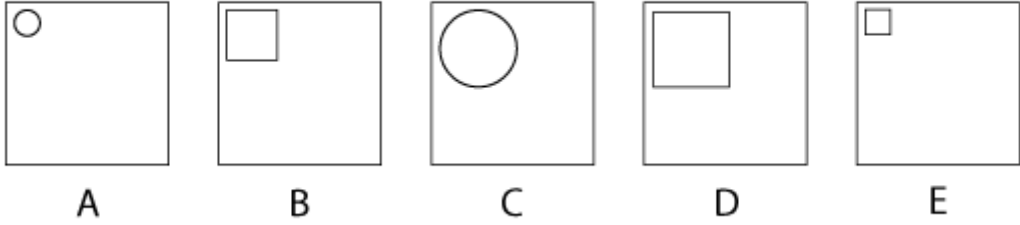
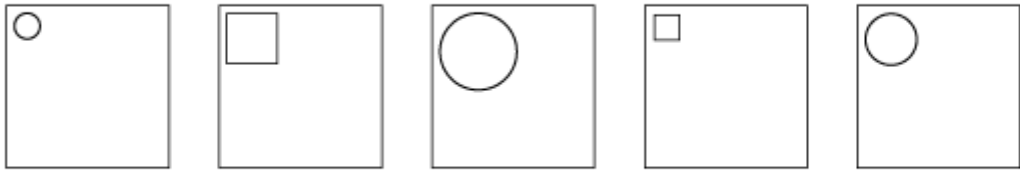
**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A.

Rule 1: The shapes move one corner anticlockwise each time.

Rule 2: The shapes alternate between circle and square



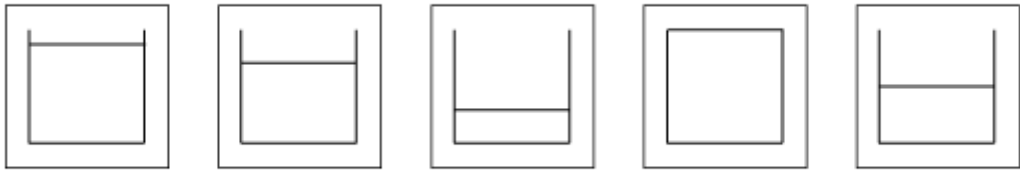
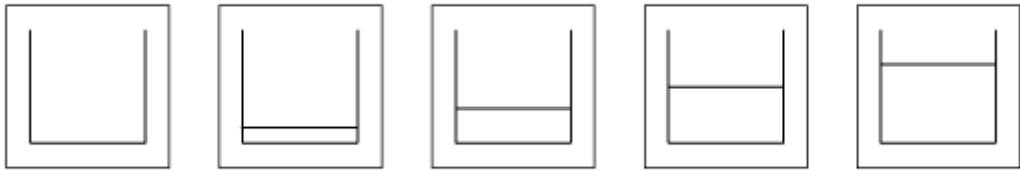
**Q11** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D.

Rule 1: The shapes grow small, medium, then large, then start again.

Rule 2: The shapes alternate between circle and square



A

B

C

D

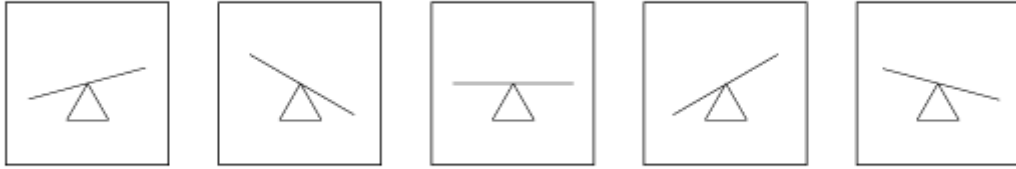
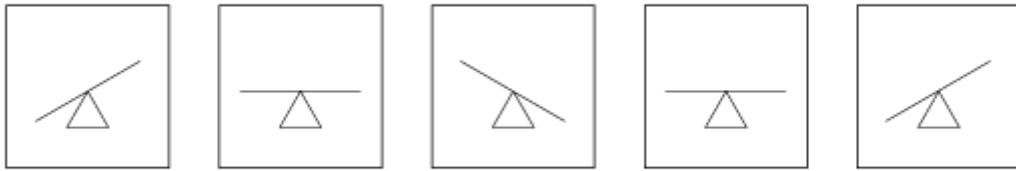
E

**Q12** What comes next in the sequence

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A

One Rule: The level of the liquid in the container rises by a consistent amount every time.



A

B

C

D

E

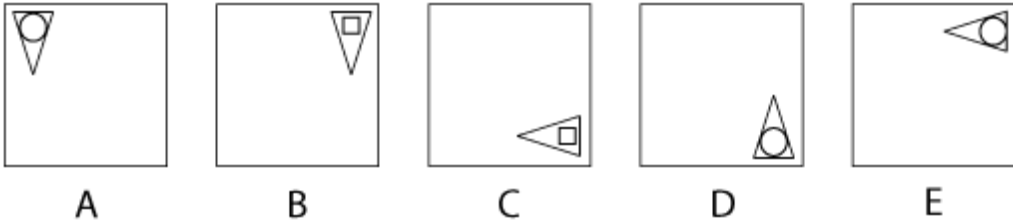
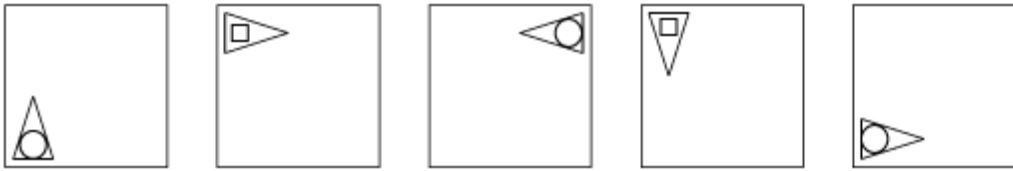
**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

One Rule: The scales are tipped fully to the left, then straight, then tipped fully to the right, then straight. This sequence then repeats.





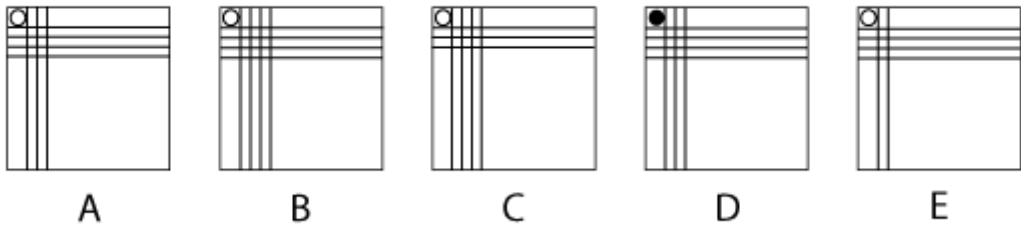
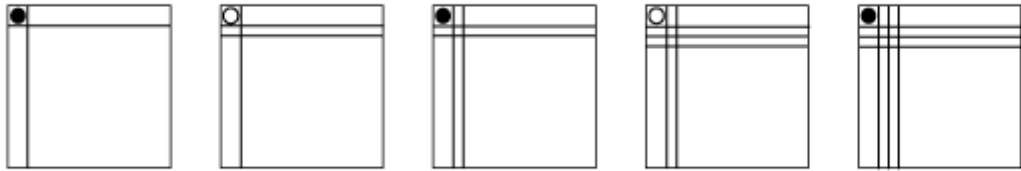
**Q14** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C.

Rule 1: The position of the shapes in the current item is determined by the direction the triangle is pointing in the previous item. There is no rule to determine the direction of the arrow in the current item, only its position.

Rule 2: The shape inside the triangle alternates between a circle and a square.



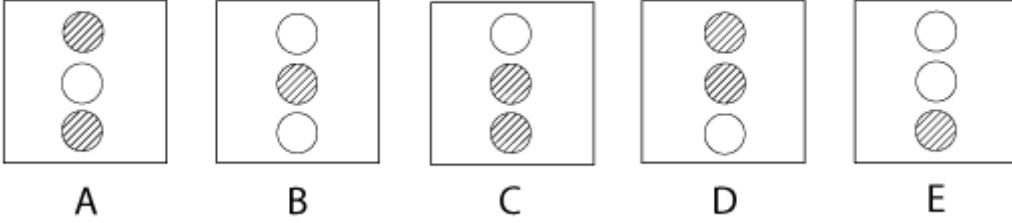
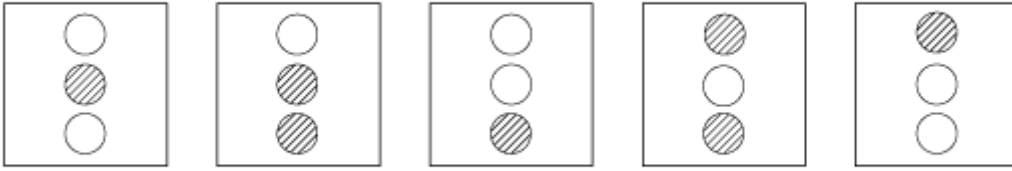
**Q15** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A.

Rule 1: The number of lines increases by one each time, alternating between adding a horizontal line, then a vertical.

Rule 2: The circle in the top left corner alternates between shaded and clear.

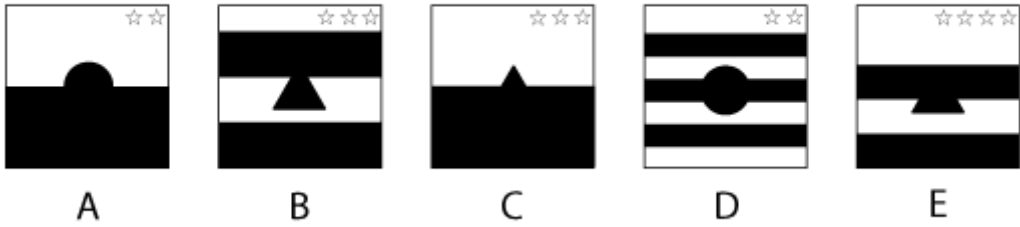


**Q16** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

One Rule: The cross-hatching alternates between being applied to the circle below the shaded one (wrapping round to the top when no circle is available below) and removed from the circle that has had the cross-hatching for two consecutive figures.



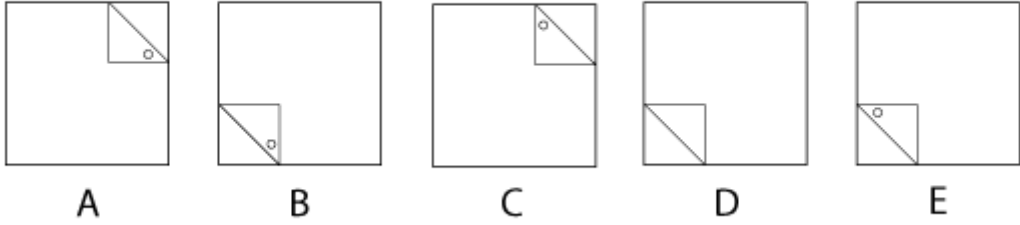
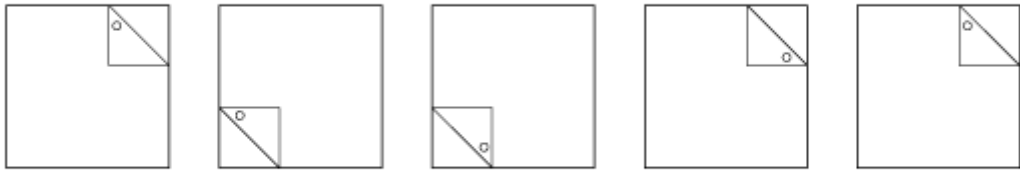
**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C.

Rule 1: The number of stars in the top right predicts how many horizontal lines will be in the next box.

Rule 2: The circle alternates with a triangle.

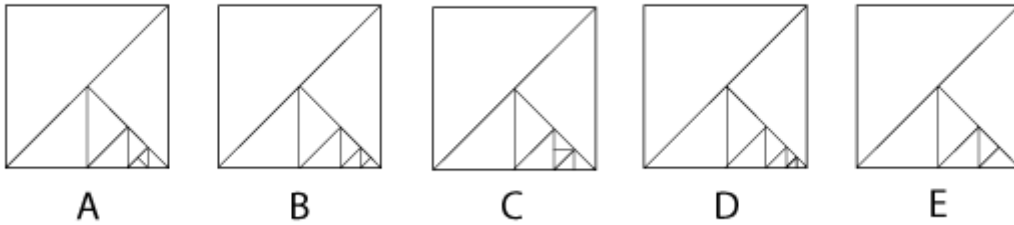
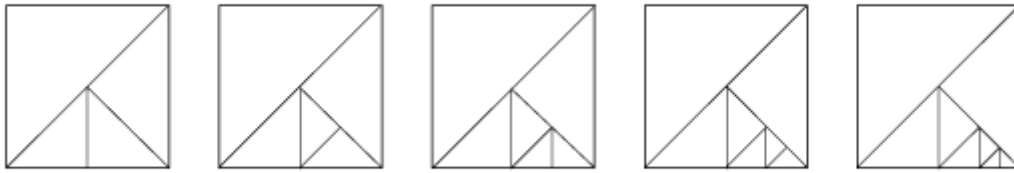


**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

One Rule: The triangle with a dot in one corner alternates between mirrored in a diagonal from the top left of the figure to the bottom right and mirrored in a diagonal from the top right of the figure to the bottom left.



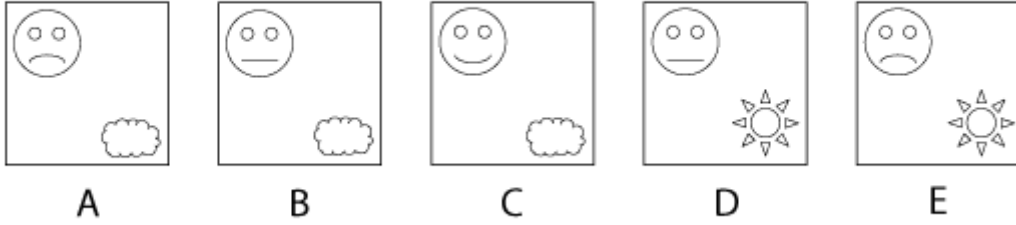
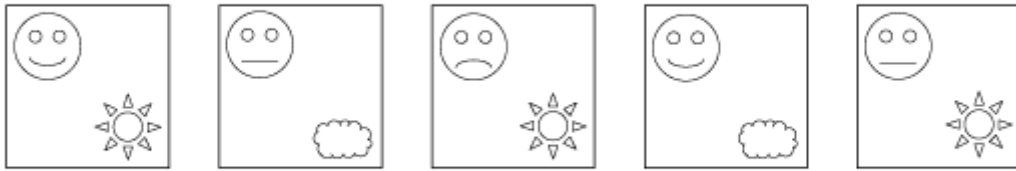
**Q19** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

The correct answer is B

One Rule:

Every time, the small triangle nearest the bottom right corner is split into two equal triangles of the same proportions.



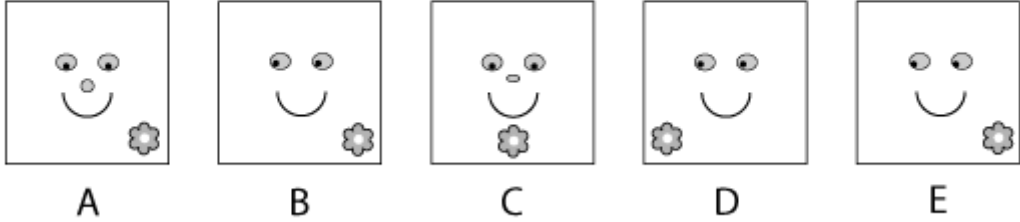
**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A.

Rule 1: The face changes in sequence from smiling to ambivalent to frowning.

Rule 2: The weather symbol alternates between sun and cloud.



**Q21** What comes next in the sequence?

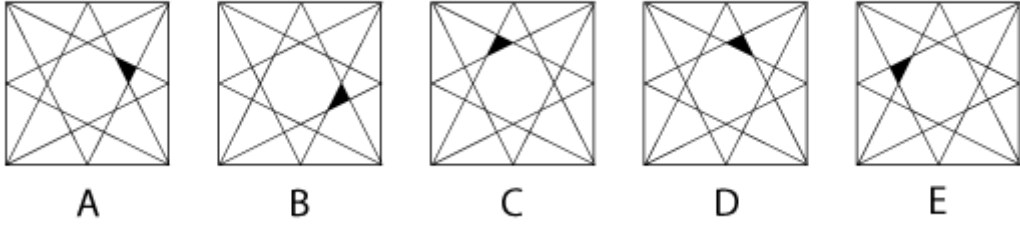
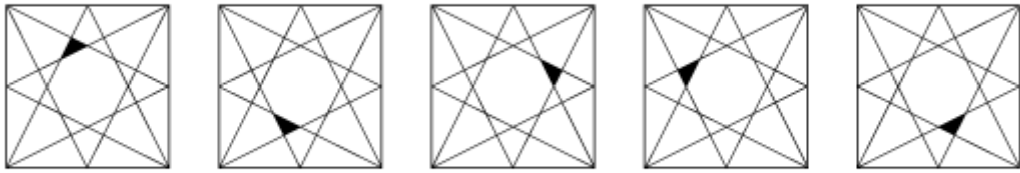
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D.

Rule 1: The nose changes in sequence from hook to oval to none.

Rule 2: The eyes look towards the flower.





**Q22** What comes next in the sequence?

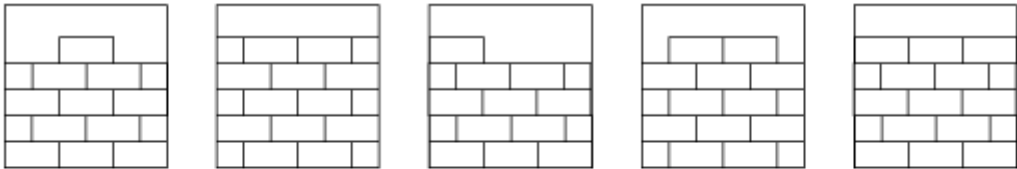
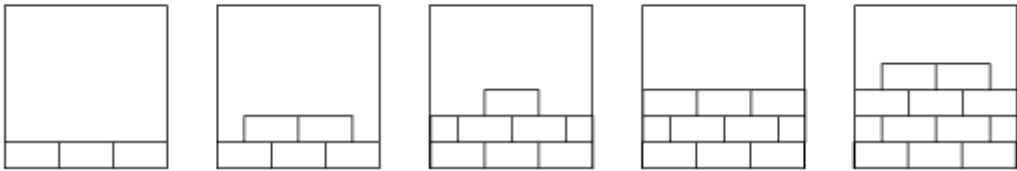
- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

One Rule:

The shading of the small triangles moves 3 triangles anti-clockwise each time.





A

B

C

D

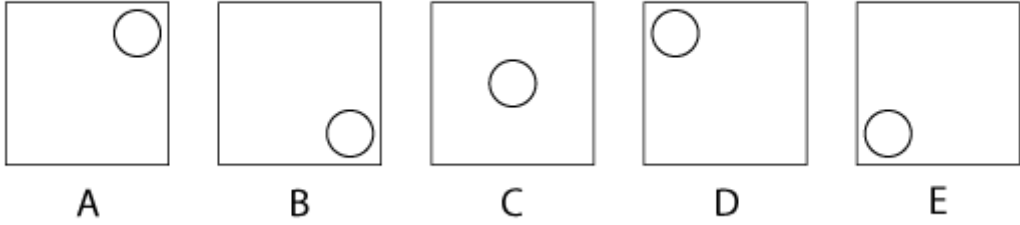
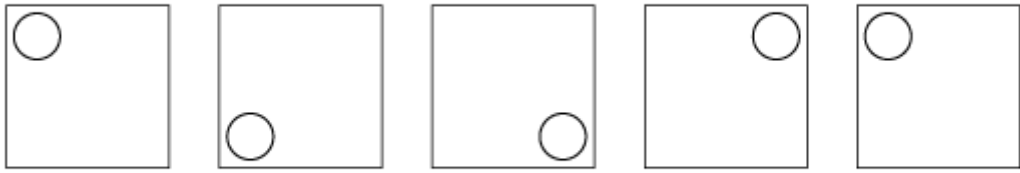
E

**Q1** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A

One Rule: Two bricks are added each time, starting from the centre and working outwards. Each row is completed before the next is started, and addition of two half bricks counts as adding one whole brick.

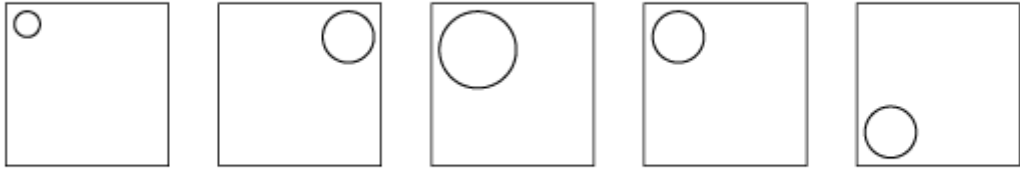
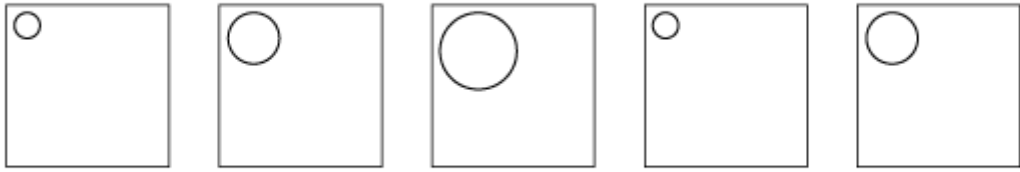


**Q2** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

One Rule: The shapes move one corner anticlockwise each time.



A

B

C

D

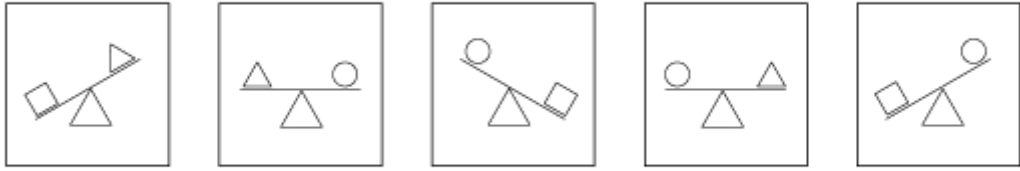
E

**Q3** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

One Rule: The shapes grow small, medium, then large, then start again



A

B

C

D

E

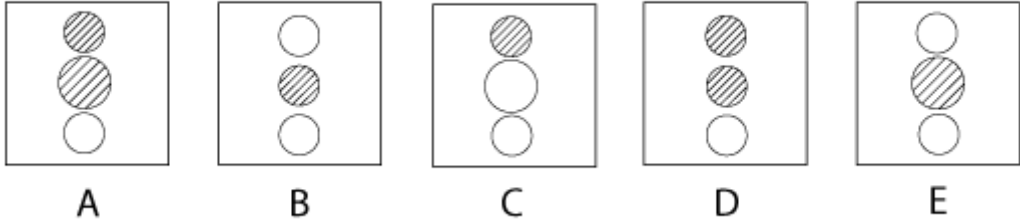
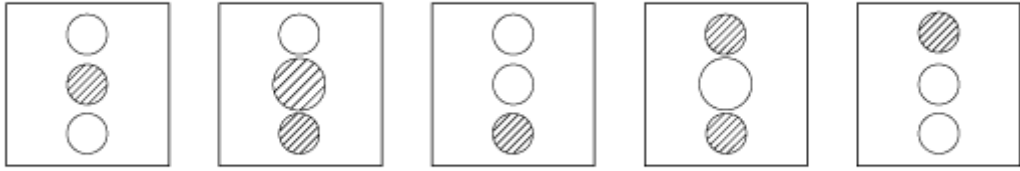
**Q4** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A

First Rule: The scales are tipped fully to the left, then straight, then tipped fully to the right, then straight. This sequence then repeats.

Second Rule: Squares weigh more than triangles and circles, which weigh the same as each other.



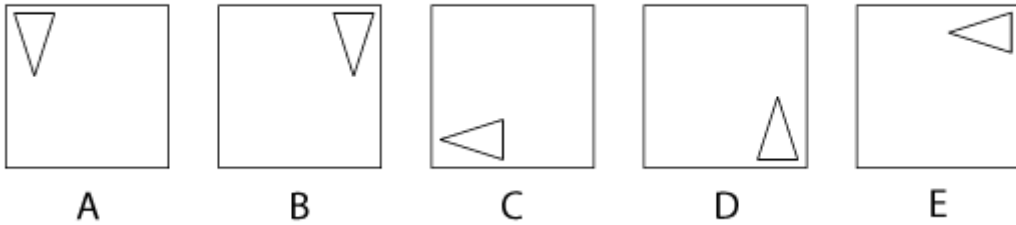
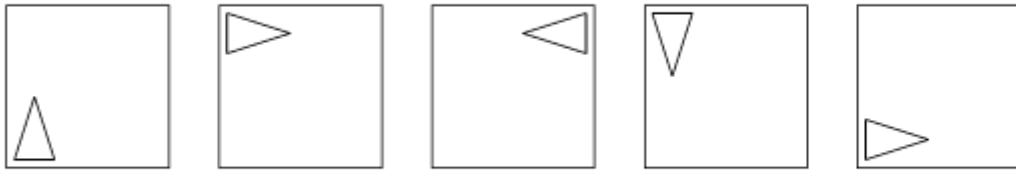
**Q5** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A

**First Rule:** The cross-hatching alternates between being applied to the circle below the shaded one (wrapping round to the top when no circle is available below) and removed from the circle that has had the cross-hatching for two consecutive figures.

**Second Rule:** The middle circle alternates between being the same size as the other two and being bigger than both of them.



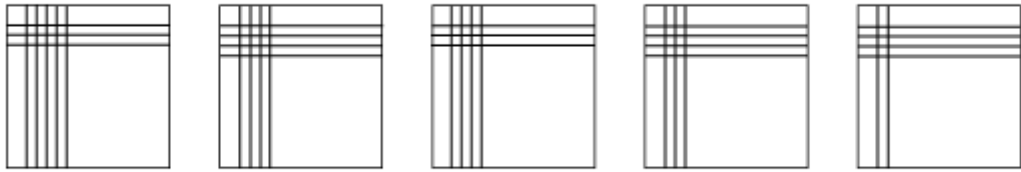
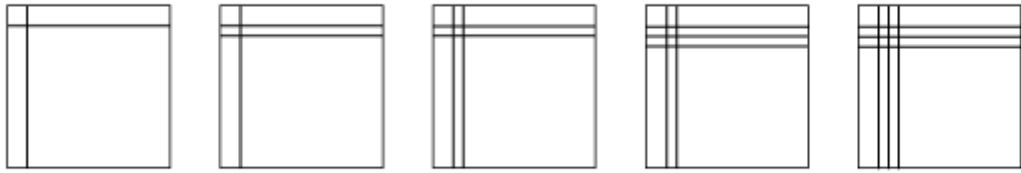
**Q6** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

One Rule: The position of the shapes in the current item is determined by the direction the triangle is pointing in the previous item. There is no rule to determine the direction of the arrow in the current item, only its position.





A

B

C

D

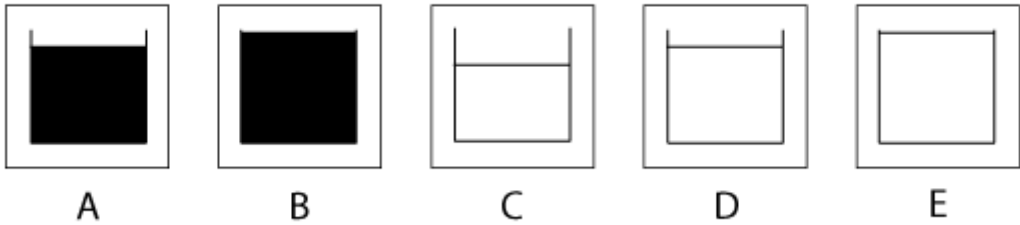
E

**Q7** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D.

One Rule: The number of lines increases by one each time, alternating between adding a horizontal line, then a vertical.



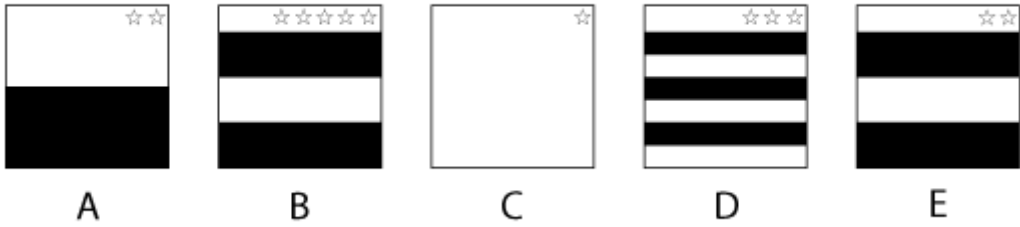
**Q8** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

First Rule: The level of the liquid in the container rises by a consistent amount every time.

Second Rule: The liquid alternates between being light and dark (with the liquid in the first image being dark but non-visible).

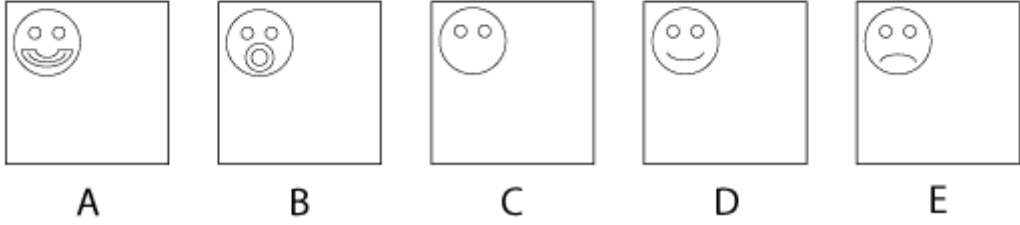


**Q9** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A.

One Rule: The number of stars in the top right determines how many horizontal lines will be in the next box.

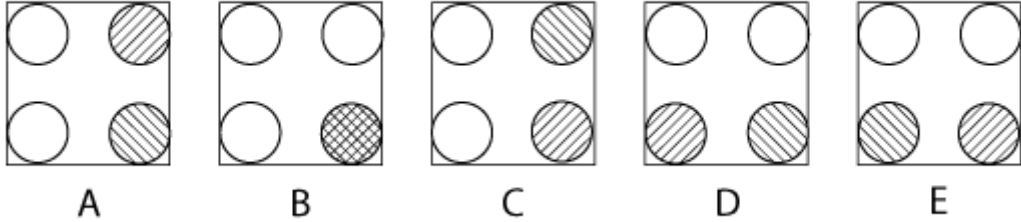
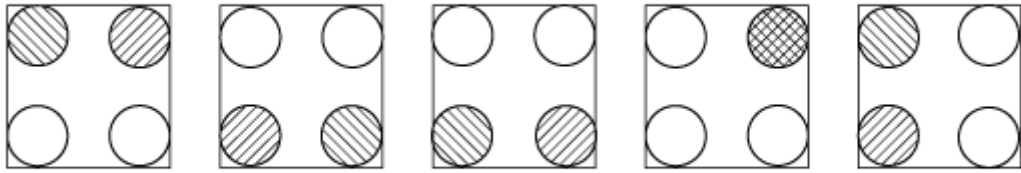


**Q10** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

One Rule: The face changes in sequence from smiley to ambivalent to frowning.



**Q11** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

The correct answer is B

First Rule: The downward sloping cross-hatching follows the sequence top left circle, bottom right circle, bottom left circle, top right circle. This sequence then repeats.

Second Rule: The upward sloping cross-hatching follows the sequence top right circle, bottom left circle, bottom right circle. This sequence then repeats.



A

B

C

D

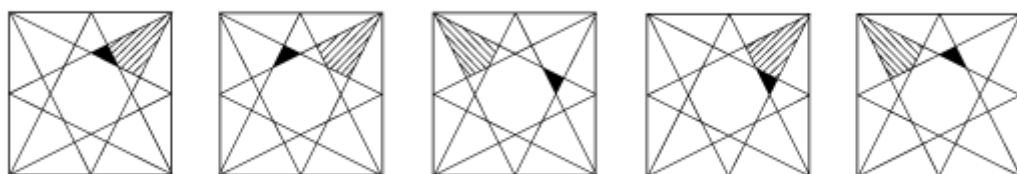
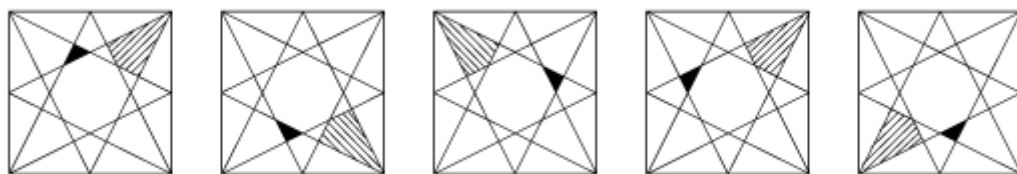
E

**Q12** What comes next in the sequence

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

One Rule: The nose changes in sequence from hook to oval to none.



A

B

C

D

E

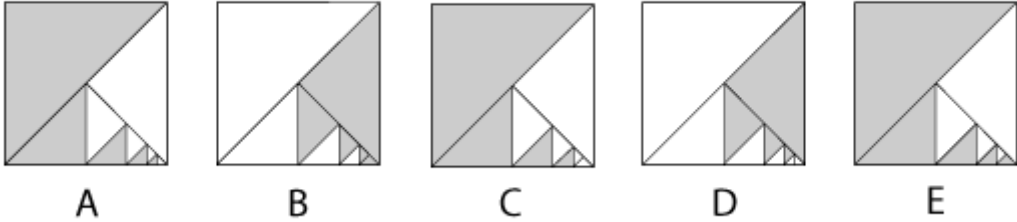
**Q13** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

First Rule: The shading of the small triangles moves 3 triangles anti-clockwise each time.

Second Rule: The cross-hatching on the kite shapes near the corners of the figure, which is always in the direction of the nearest corner, moves clockwise, alternating between moving one shape and moving two.



**Q14** What comes next in the sequence?

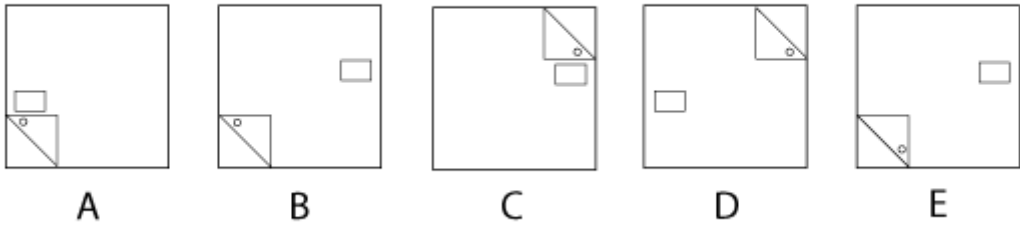
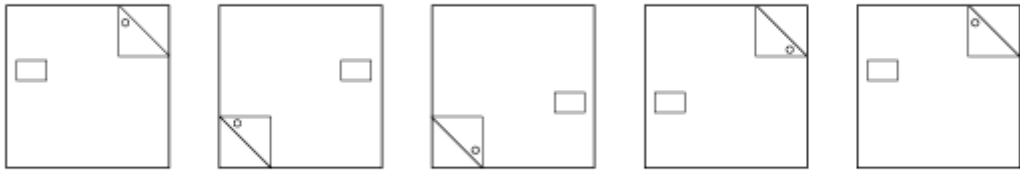
- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

First Rule: Every time, the small triangle nearest the bottom right corner is split into two equal triangles of the same proportions.

Second Rule: The two, newly created, smallest triangles are always unshaded. The rest alternate between being shaded and unshaded in each image.





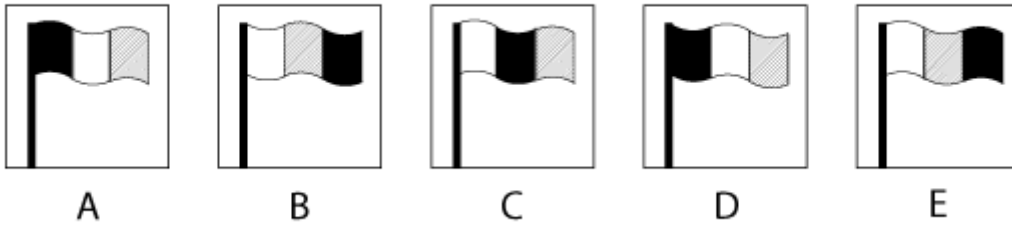
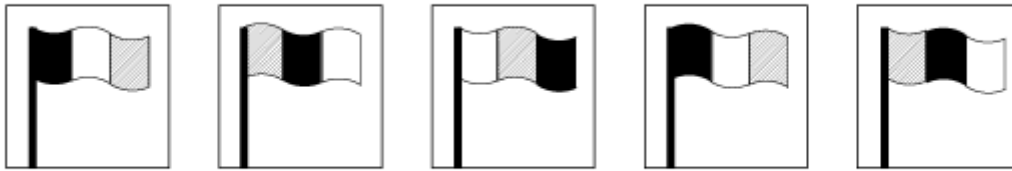
**Q15** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

The correct answer is B

First Rule: The triangle with a dot in one corner alternates between mirrored in a diagonal from the top left of the figure to the bottom right and mirrored in a diagonal from the top right of the figure to the bottom left.

Second Rule: The rectangle alternates between being mirrored vertically and mirrored horizontally.



**Q16** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

First Rule: The shading type furthest from the flagpole on one figure becomes the shading closest to the flagpole on the next figure, and every other form of shading moves one band to the right.

Second Rule: The flag alternates between the wave going down first and the wave going up first.



A

B

C

D

E

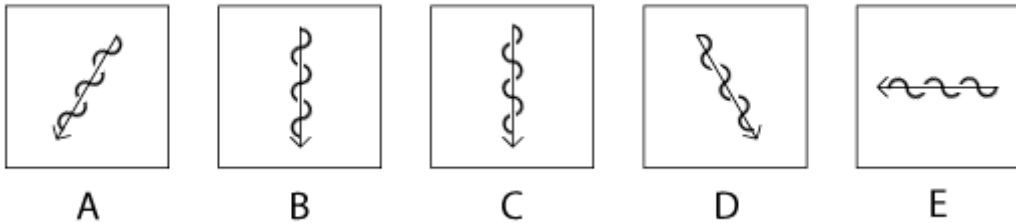
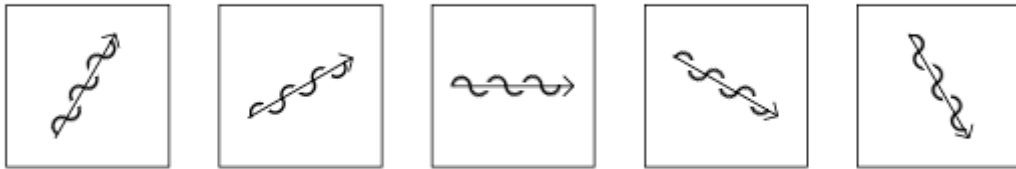
**Q17** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

First Rule: The matchstick giraffe visits the corners in the order top left, top right, bottom left, bottom right. The sequence then repeats.

Second Rule: The matchstick giraffe faces right when it is at the top and left when it is at the bottom. Or Right, Right, Left, Left, Right....



**Q18** What comes next in the sequence?

- (A) A
- (B) B
- (C) C**
- (D) D
- (E) E

The correct answer is C

First Rule: The direction of the arrow rotates by  $30^\circ$  each time.

Second Rule: Following it in the direction of the arrow, the wavy line alternates between crossing in front of the straight line first and crossing behind it first.



A

B

C

D

E

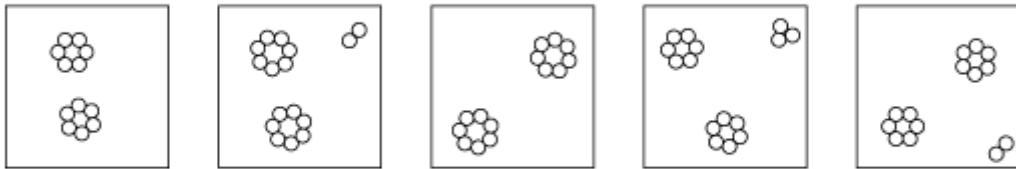
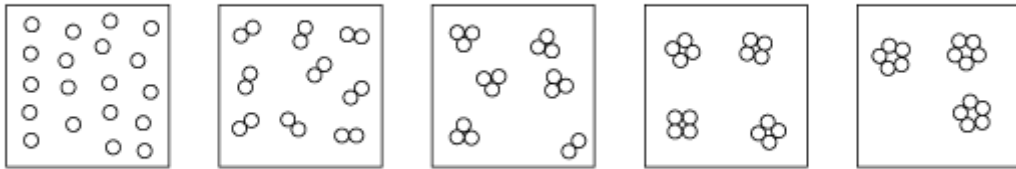
**Q19** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

The correct answer is A

First Rule: The door moves to the right, centre, left then centre, always in line with the window immediately above it, and then the pattern repeats.

Second Rule: First only upper storey windows are leaded, then only the lower storey windows are leaded, then all windows are leaded. This pattern then repeats.



A

B

C

D

E

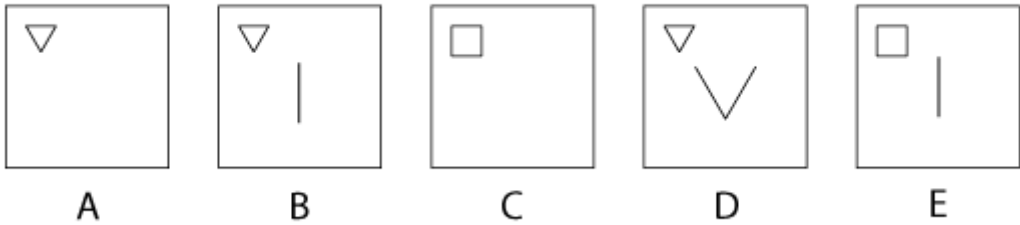
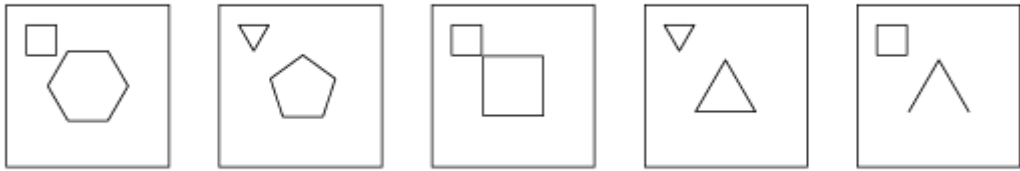
**Q20** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D
- (E) E**

The correct answer is E

First Rule: The number of circles that are grouped together increases by one every time, with the final group containing all the circles that do not fit into a whole group.

Second Rule: One circle is removed every time.



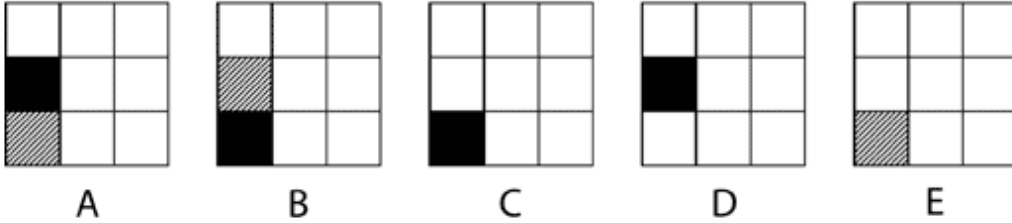
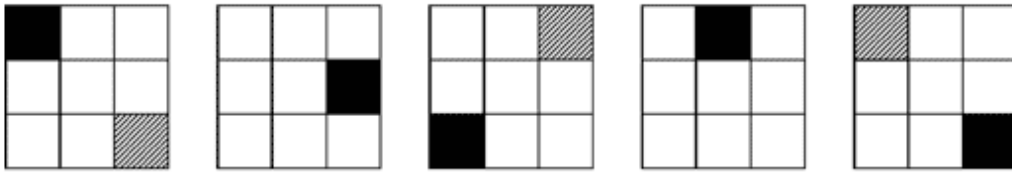
**Q21** What comes next in the sequence?

- (A) A
- (B) B**
- (C) C
- (D) D
- (E) E

The correct answer is B

First Rule: The shape in the centre comprises 1 fewer straight line every time.

Second Rule: The shape in the top left alternates between being a triangle and being a square.



**Q22** What comes next in the sequence?

- (A) A
- (B) B
- (C) C
- (D) D**
- (E) E

The correct answer is D

First Rule: Each step, the shaded square moves 3 squares clockwise round the edge of the figure.

Second Rule: Each step, the cross-hatching moves 1 square anticlockwise round the edge of the figure, disappearing behind the shading when the two coincide.