

Mock CAT 2014 - 03*

Section I: QA & DI

1. When $f(x) = px^3 + qx^2 + rx + t$, where p, q, r and t are natural numbers, is divided by x, the remainder is a^4 , where 'a' is a prime number. The square root of the remainder when $f(x)$ is divided by $(x - a)$ is the perfect cube of a natural number. If p, q, r and t, in the same order, are in an increasing Geometric Progression, find the value of 'a'.

(a) 2

(b) 3

(c) 5

(d) 7

1. a When $f(x)$ is divided by x, the remainder will be

$$f(0) = t = a^4$$

Now, 'a' is a prime number and p, q, r and t are in the form of an increasing G.P.

$$\therefore r = a^3, q = a^2, p = a \text{ (because } p, q, r, t \in N\text{)}$$

So the remainder when $f(x)$ is divided by $(x - a)$, i.e. $f(a) = 4 \times a^4$

$$\text{So square root of } f(a) = 2a^2$$

It will be in the form of a perfect cube only when $a = 2$.

2. Find the second rightmost non-zero digit of 2070^{47} .

(a) 3

(b) 5

(c) 4

(d) 6

$$2070^{47} = 207^{47} \times 10^{47}$$

The second right most non-zero digit in the number will be the digit at the ten's place of the number 207^{47} , until and unless the digit at the ten's place is zero itself. Then we will have to check for the digit at the hundred's place and so on.

$$\text{Now, } 207^{47} = (200 + 07)^{47}$$

When we expand this using binomial theorem, every term except the last term i.e. 7^{47} , will contain at least one power of 200 and these terms will not make any impact on the last two digits of 207^{47}

$$7^1 = 07$$

$$7^2 = 49$$

$$7^3 = 43 \text{ (last two digits)}$$

$$7^4 = 01 \text{ (last two digits)}$$

$$7^5 = 07 \text{ (last two digits)}$$

So, the cyclicity for last two digits of 7^{47} is '4'.

$$7^{47} = (7^4)^{11} \times 7^3$$

So, last two digits of 7^{47} will be same as that of 7^3 i.e. 43.

Hence, the answer is '4'.

3. There are three natural numbers X, Y and Z, such that the LCM of (X, 120) is 1320, the LCM of (Y, 120) is 1680 and the LCM of (Z, 120) is 1800. Which of the following statements is definitely true?

(a) Only X and Z can be perfect squares.

(b) Only Y can be a perfect square as well as a perfect cube.

(c) Z is definitely a perfect square.

(d) Z can be a perfect square.

3. d Factorizing the numbers:

$$120 = 2^3 \times 3^1 \times 5^1$$

$$1320 = 120 \times 11 = 2^3 \times 3^1 \times 5^1 \times 11$$

Thus, X has to be a multiple of 11 but it cannot be a perfect square as 1320 does not contain 11^2 .

$$1680 = 120 \times 2 \times 7 = 2^4 \times 3^1 \times 5^1 \times 7^1$$

Also, Y should be a multiple of $2^4 \times 7^1$ but it cannot be a perfect square as 1680 does not contain 7^2 .

$$1800 = 120 \times 3 \times 5 = 2^3 \times 3^2 \times 5^2$$

Since the LCM of 120 and Z is 1800, Z can be a perfect square. One of the possible values of Z can be $3^2 \times 5^2$.

But it is not necessary that Z has to be perfect square as it can be a multiple of $3^2 \times 5^2$.

4. How many five-digit numbers that are multiples of either 3 or 4 but not both can be formed, without repetition of digits, by using the first 6 natural numbers?
(a) 432 (b) 372 (c) **312** (d) 240
4. c The sum of first six natural numbers is 21, which is a multiple of 3.
So, for a 5-digit number to be a multiple of 3, we can remove either 3 or 6. So, the number of numbers that are multiples of 3 is $2 \times 5!$, i.e. 240 numbers.
For divisibility by 4, the last two places can be filled in 8 ways.
(12, 16, 24, 32, 36, 52, 56 or 64), i.e. 8 possibilities.
The remaining 3 places can be filled in ${}^4C_3 \times 3!$ ways
So, the number of multiples of 4 is ${}^4C_3 \times 3! \times 8$, i.e. 192 numbers.
Now, we have to check the number of multiple of 12. If 12, 24 and 52 are the last two digits of the numbers, other three places can be filled in $2 \times 3!$ ways. So total number is $2 \times 3! \times 3$, i.e. 36.
If 16, 32, 56 and 64 are the last two digits of the numbers, other three places can be filled in 3! ways. So the total numbers of ways is $3! \times 4$, i.e. 24. If 36 is the last two digits of the number, it cannot be multiple of 3.
So, the total numbers which are multiple of 3 or 4 but not both = $240 + 192 - 2(36 + 24) = 312$.
5. What is the largest term in the sequence whose nth term is given by $n^{\frac{1}{n}}$, where n is a natural number greater than 1?
(a) $2^{\frac{1}{2}}$ (b) $3^{\frac{1}{3}}$ (c) $100^{\frac{1}{100}}$ (d) None of the above
5. b Considering $2^{1/2}$, $3^{1/3}$ and $4^{1/4}$.
After raising each of the above numbers to the power of 12, we get 2^6 , 3^4 and 4^3 , i.e. 64, 81 and 64. Hence, $3^{1/3}$ is the highest among them.
Now considering $4^{1/4}$ and $5^{1/5}$ and raising each one of these two to the power of 20, we get 4^5 and 5^4 , i.e. 1024 and 625. Hence, $5^{1/5}$ is smaller than $4^{1/4}$.
Similarly, we can see that as the value of n increases the value of $n^{1/n}$ will keep on decreasing.
Hence, $3^{1/3}$ is the highest, for all natural values of n.
Note: ($e^{1/e}$ will be the highest possible value of the expression $n^{1/n}$, if n is a real number.)
6. Sanjay adds 'x' litres water to pure milk to make a 52-litre milk-water solution. He sells this solution at a price that is 10% more than the cost price of pure milk and makes a profit of 43% on this transaction. If he adds 'x' litres water to 60 litres pure milk and sells the resulting solution at the cost price of pure milk, then what is his profit percentage in this transaction?
(Assume that water comes free of cost)
(a) 25% (b) 32% (c) 30% (d) **20%**
6. d Let the original cost price of milk per litre = Rs.y
Total cost price of the solution = Rs.((52 - x) × y)
Total selling price of the solution = Rs.(52 × 1.1 × y)
 $\text{Profit percentage} = \frac{(52 \times 1.1 \times y) - ((52 - x) \times y)}{((52 - x) \times y)} = \frac{43}{100}$
 $\Rightarrow x = 12 \text{ litres}$
Total cost price of the solution when 12 litres of water is added to 60 litres of pure milk = Rs.(60 × y)
Total selling price of the solution when 12 litres of water is added to 60 litres of pure milk = Rs.(72 × y)
 $\therefore \text{Profit percentage} = \left(\frac{72 - 60}{60} \right) \times 100 = 20\%$.

7. A group comprising some men and women can complete a piece of work in 120 days. If a woman in the group is replaced by a man, the resulting group can complete the same work in 96 days. If two women in the original group are replaced by two men, then in how many days can the resulting group complete the work?

(a) 88

(b) 80

(c) 72

(d) 70

7. b Let, a man and a woman can complete the work alone in 'M' and 'W' days respectively and the group initially has 'm' men and 'n' women.

$$\therefore \frac{m}{M} + \frac{n}{W} = \frac{1}{120} \quad \dots(i)$$

$$\Rightarrow \frac{(m+1)}{M} + \frac{(n-1)}{W} = \frac{1}{96} \quad \dots(ii)$$

Assume that after two women have been replaced by two men, the group can complete the same work in 'p' days.

$$\Rightarrow \frac{(m+2)}{M} + \frac{(n-2)}{W} = \frac{1}{p} \quad \dots(iii)$$

Now, (ii) - (i) = (iii) - (ii)

$$\Rightarrow \frac{1}{96} - \frac{1}{120} = \frac{1}{p} - \frac{1}{96} \Rightarrow p = 80.$$

8. Each of A, B and C has a certain number of coins with him. The ratio of the number of coins with A to that with C is 1 : 3 and the ratio of the number of coins with C to that with B is 2 : 7. If the number of coins with B is 18 more than six times the number of coins with A, then find the total number of coins with A, B and C put together.

(a) 87

(b) 54

(c) 116

(d) 58

8. d Let the number of coins with A, B and C be 'a', 'b' and 'c' respectively.

$$\therefore \frac{a}{c} = \frac{1}{3} \text{ and } \frac{c}{b} = \frac{2}{7}$$

$$\Rightarrow \frac{a}{c} \times \frac{c}{b} = \frac{1}{3} \times \frac{2}{7} = \frac{2}{21} \Rightarrow \frac{a}{b} = \frac{2}{21} \Rightarrow \frac{a}{6a+18} = \frac{2}{21} \Rightarrow 9a = 36 \Rightarrow a = 4$$

$$\therefore c = 12 \text{ and } b = 42$$

Therefore, the total number of coins with A, B and C = 4 + 12 + 42 = 58.

9. 50 litres of a cocktail of vodka and 'lime cordial' contains 32 litres of vodka. Initially, 10 litres of the cocktail is taken out and is replaced with water, and then, 20 litres of resulting cocktail is taken out and is replaced with lime cordial. The percentage of vodka in the final cocktail is

(a) 17.28%

(b) 20.56%

(c) 28.8%

(d) 30.72%

9. d The important thing to understand here is that if we need to focus on the concentration of vodka, it does not matter that the replaced fluid is water or lime cordial or any other fluid as this does not affect the concentration of vodka. What matters is the quantity of mixture replaced only.

$$\text{Initial concentration of vodka} = \frac{32}{50} = \frac{16}{25}$$

After the first operation, it becomes

$$\left(\frac{16}{25}\right) \times \left\{\frac{(50-10)}{50}\right\} = \left(\frac{16}{25}\right) \times \left(\frac{4}{5}\right) = \frac{64}{125}$$

After the second operation, it becomes

$$\left(\frac{64}{125}\right) \times \left\{\frac{(50-20)}{50}\right\} = \left(\frac{64}{125}\right) \times \left(\frac{3}{5}\right) = \frac{192}{625} = 30.72\%.$$

10. Ayesha started running from one end of a straight road at 0500 hrs. Bhumika, standing at the other end of the road, started running towards Ayesha at 0600 hrs and met Ayesha for the first time at point P on the road. They continued running till they reached the opposite ends. Immediately after reaching their respective ends, they turned back towards their starting points and coincidentally met again at the same point P. If they met for the first time at 0700 hrs, then what was the ratio of the speed of Ayesha to that of Bhumika?

(a) 1 : 1

(b) 1 : $\sqrt{2}$

(c) $\sqrt{2} : \sqrt{3}$

(d) 1 : 2



Let the speeds of Ayesha and Bhumika be 'a' and 'b' units respectively.

Since Ayesha and Bhumika started running at 0500 hrs and 0600 hrs respectively and they met at 0700 hrs for the first time, the ratio of the distance AP : PB = 2a : b

It is also given that they met at the same point P for the second time.

Thus, $2AP : 2PB = b : a$

$$\therefore \frac{2a}{b} = \frac{b}{a} \Rightarrow \left(\frac{a}{b}\right)^2 = \frac{1}{2} \text{ or } \frac{a}{b} = \frac{1}{\sqrt{2}}.$$

Directions for questions 11 to 13: Answer the questions on the basis of the information given below.

Following table shows the number of movies released in Jollywood as on August 15, 2014.

Name of genre	Action	Romance	Drama	Patriotic	Thriller
Total number of movies	192	250	300	77	216

The following table gives data related to hit and flop status of Jollywood movies, released during the given period, including that of a Jollywood star named STS.

Name of genre	Action	Romance	Drama	Patriotic	Thriller
Hit movies as a percentage of total number of movies	37.5	36	33.33	28.56	44.44
Hit movies by STS as a percentage of total number of movies by STS	50	60	16.66	50	66.66
Flop movies by STS as a percentage of total number of flop movies	10	6.25	12.5	20	5

Additional information with reference to the two tables given above is as follows:

- Every movie that releases in Jollywood belongs to exactly one of the five genres, Action, Romance, Drama, Patriotic and Thriller.
- Every movie that releases in Jollywood falls in exactly one of the two categories, Hit and Flop.

11. The total number of STS's hit movies, during the given period, across the three genres Drama, Patriotic and Thriller put together was

(a) 28

(b) 70

(c) 32

(d) Cannot be determined

12. What percentage of the total movies released during the given period across the five genres were flop movies?
(a) 62.89 (b) 61.72 (c) **63.28** (d) 64.19
13. For how many genres, was the number of STS's hit movies at least 50% of his flop movies?
(a) 1 (b) 2 (c) 3 (d) **4**

For questions 11 to 13:

Considering the Action genre:

$$\text{Total number of hit movies} = \frac{37.5}{100} \times 192 = 72$$

$$\therefore \text{Total number of flop movies} = 192 - 72 = 120.$$

$$\text{Number of flop movies by STS} = \frac{10}{100} \times 120 = 12$$

Now, 50% of the movies of STS are hit and the rest 50% flop.

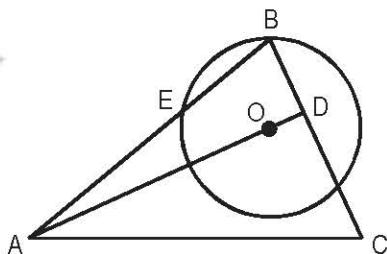
$$\text{Number of hit movies by STS} = 12$$

$$\therefore \text{Total number of movies by STS} = 12 + 12 = 24.$$

Similarly, we can determine these values for other genres. The whole information has been summarized in the table below.

Genre	Action	Romance	Drama	Patriotic	Thriller	Total
Total	192	250	300	77	216	1035
Total number of hit movies	72	90	100	22	96	380
Total number of flop movies	120	160	200	55	120	655
Number of flop movies by STS	12	10	25	11	6	64
Number of hit movies by STS	12	15	5	11	12	55
Total number of movies by STS	24	25	30	22	18	119

11. a Number of hit movies by STS which belonged to one of three genres Drama, Patriotic or Thriller = $5 + 11 + 12 = 28$.
12. c Number of flop movies as a percentage of total number of movies across all five genres = $\frac{655}{1035} \times 100 = 63.28\%$.
13. d The number of hit movies by STS is at least 50% of the number of flop movies by STS in all genres, except Drama.
14. In the given figure, O is the center of the circle, AO: OD: AC: OB = 56 : 4 : 61 : 5 and $\angle ADC = 90^\circ$. What is the ratio of the area of $\triangle ABC$ to that of $\triangle ABD$?



(a) 11 : 14

(b) **14 : 3**

(c) 3 : 11

(d) 11 : 9

14. b Let AO, OD, AC and OB be $56x$, $4x$, $61x$ and $5x$ respectively.

$$\text{In } \triangle ADC, DC = \sqrt{AC^2 - AD^2} = \sqrt{(61x)^2 - (60x)^2} = 11x$$

$$\text{In } \triangle OBD, BD = \sqrt{OB^2 - OD^2} = \sqrt{(5x)^2 - (4x)^2} = 3x$$

$$\text{The required ratio} = \frac{\frac{1}{2} \times AD \times BC}{\frac{1}{2} \times AD \times BD} = \frac{(BD + DC)}{BD} = \frac{14x}{3x} = \frac{14}{3}$$

\therefore The required ratio = 14 : 3.

15. The roots of the equation $x^2 - 9x + p = 0$ are real. If the difference between the roots is less than 7, then which of the following is definitely correct?

(a) $0 < p < \frac{81}{4}$ (b) $8 < p < \frac{81}{4}$ (c) $8 < p \leq \frac{81}{4}$ (d) $-8 < p < 0$

15. c Here the roots are real.

$$\text{So, } (-9)^2 - 4p \geq 0 \text{ or } p \leq \frac{81}{4}$$

$$\text{Now, } (\alpha - \beta)^2 < 7^2 \text{ or } (\alpha + \beta)^2 - 4\alpha\beta < 7^2$$

$$81 - 4p < 7^2 \text{ or } 8 < p. \text{ Hence } 8 < p \leq \frac{81}{4}.$$

16. In a factory having 100 identical machines for producing bolts, the manager realizes that he would overshoot his deadline due to some of the machines going offline 10 days before the deadline. He replaces the faulty machines with twice their number, two days before the deadline. The maximum number of days by which he could still overshoot his deadline is

(a) 2 (b) 3 (c) 5 (d) 4

16. b Let each machine does an unit amount of work per day and the number of faulty machines be x .

The amount of work to be done in the last 10 days = $100 \times 10 = 1000$ units.

$$\text{The work that was completed in the last 10 days} = 8 \times (100 - x) + 2 \times (100 + x) = 1000 - 6x$$

$$\text{Days of work left} = \text{work remaining/machines at work} = \frac{6x}{100 + x}$$

The number of days taken to complete the rest $6x$ units of work will be the maximum when $x = 100$.

$$\therefore \text{The required answer} = \frac{6 \times 100}{100 + 100} = \frac{600}{200} = 3 \text{ days.}$$

17. If P and Q are real numbers such that $P > 0$, $Q > 0$ and $P + Q \leq 6$, then which of the following is not necessarily true?

(a) $3P + 3Q \leq 35$ (b) $2P + 3Q \leq 23$ (c) $3P + 4Q < 21$ (d) $2P + 3Q \leq 25$

17. c Lets check option-wise.

Option 1:

$$P + Q \leq 6$$

$$\Rightarrow 3(P + Q) \leq 18. \text{ Hence, option (a) is necessarily true.}$$

Option 2:

$$2P + 3Q = 2(P + Q) + Q \leq 12 + Q \leq 18 \text{ (as } 0 < Q < 6\text{). Hence, option (b) is necessarily true.}$$

Option 3:

$$3P + 4Q = 3(P + Q) + Q \leq 18 + Q \leq 24 \text{ (as } 0 < Q < 6\text{).}$$

Hence, option (c) is not necessarily true.

Option 4:

$$2P + 3Q = 2(P + Q) + Q \leq 12 + Q \leq 18 \text{ (as } 0 < Q < 6\text{). Hence, option (d) is necessarily true.}$$

18. If $2f(x+3) = \frac{3x}{5}$ and $3g(x-2) = -2x$ for all real values of 'x', then the value of $f(g(6))$ is
- (a) $-\frac{5}{2}$ (b) $-\frac{7}{2}$ (c) $\frac{3}{2}$ (d) $-\frac{3}{2}$

18. a Given that $g(x-2) = -\frac{2x}{3}$

$$\therefore g(6) = -\frac{(2 \times 8)}{3} = -\frac{16}{3}$$

Given that $f(x+3) = \frac{3x}{10}$

$$\therefore f(g(6)) = \frac{3}{10} \left(-\left(\frac{16}{3} + 3 \right) \right) = -\frac{5}{2}.$$

19. Raj scored 98 marks in the second last test of a test-series, thereby increasing his average score by 1. In the last test, he scored 70 marks, as a result of which his average dropped by 2. The number of tests in the test-series was
- (a) 8 (b) 9 (c) **10** (d) 11

19. c Let the number of tests in the test-series be 'n' and his average score before the penultimate test be m.
 \therefore Total score before the penultimate test (S) = $m(n - 2)$
 Average score after the penultimate test,

$$m + 1 = \frac{S + 98}{n - 1}$$

$$\Rightarrow (n - 1)(m + 1) = S + 98$$

$$\Rightarrow n + m = 99 \quad \dots (i)$$

$$\text{Average after the last test, } m - 1 = \frac{S + 98 + 70}{n}$$

$$\Rightarrow (m - 1)n = S + 168$$

$$\Rightarrow 2m - n = 168 \quad \dots (ii)$$

Solving equations (i) and (ii), we get
 $n = 10$ and $m = 89$.

20. What is the least integral value of 'p' for which the following inequality holds true for all real values of 'x'?

$$x^2 - (2p-2)x + \left[\left(\frac{3}{4} \right)p^2 + \left(\frac{7}{3} \right)p - \frac{25}{2} \right] > 0$$

- (a) 5 (b) 6 (c) 4 (d) 3

20. a $x^2 - 2(p-1)x + \left[\frac{3}{4}p^2 + \frac{7}{3}p - \frac{25}{2} \right] > 0$

As this holds true for all values of x, its discriminant has to be negative (i.e. no real roots as the entire graph lies above x-axis).

$$\text{Hence, } (2p-2)^2 - 4 \left(\frac{3}{4}p^2 + \frac{7}{3}p - \frac{25}{2} \right) < 0$$

$$\Rightarrow p^2 - \frac{52}{3}p + 54 < 0$$

The least integral value of p for which this is true is 5.

21. If $a + 15b + 25c = 77$, where 'a', 'b' and 'c' are natural numbers, the number of values that ordered triplet (a, b, c) can have is
(a) 14 (b) 8 (c) 12 (d) 4

21. d We can deduce from the equation that $1 = c < 3$.

When $c = 1$:

The equation reduces to $a + 15b = 52$. b can acquire the values 1, 2 and 3.

Hence, the possible triplets are (37, 1, 1); (22, 2, 1); (7, 3, 1).

When $c = 2$:

The equation reduces to $a + 15b = 27$. b can only acquire the value of 1.

Hence, the only possible triplet is (12, 1, 2).

Hence, in all there are 4 ordered triplets (a, b, c) possible.

22. The coordinates of vertices of triangle ABC are A (-3, 8), B (1, -4) and C (5, 0). Points D, E and F are marked on sides AB, BC and AC respectively and then joined to form triangle DEF. If $AD : DB = 1 : 3$, $BE : EC = 1 : 1$ and $AF : FC = 3 : 1$, then what is the area (in sq. units) of triangle DEF?
(a) 9.5 (b) 10 (c) 10.5 (d) 11

22. b As the co-ordinates of the vertices and the ratio in which D, E and F divide the respective lines are given, we can find out the co-ordinates of these points.

$$X \text{ co-ordinate of } D = \frac{(-3) \times 3 + 1 \times 1}{3 + 1} = -2$$

$$Y \text{ co-ordinate of } D = \frac{8 \times 3 + (-4) \times 1}{3 + 1} = 5$$

Similarly, co-ordinates of E and F are (3, -2) and (3, 2) respectively.

∴ Area of the $\triangle DEF$

$$= \frac{1}{2} [(-2)((-2) - 2) + 3(2 - 5) + 3(5 - (-2))]$$

$$= \frac{1}{2} [8 - 9 + 21] = 10 \text{ sq. units}$$

23. If $54!^{20}$ is completely divisible by 2^a , where 'a' is a natural number, the maximum value that 'a' can assume is

23. a The powers of 2 in 54!

$$\begin{aligned} &= \left[\frac{54}{2} \right] + \left[\frac{54}{2^2} \right] + \left[\frac{54}{2^3} \right] + \left[\frac{54}{2^4} \right] + \left[\frac{54}{2^5} \right] \\ &= 27 + 13 + 6 + 3 + 1 = 50 \end{aligned}$$

∴ The highest power of 2 with which $(54!)^{20}$ is divisible = $(2^{50})^{20} = 2^{1000} = 2^a$

So, 'a' can attain the maximum value of $\sqrt[3]{1000} = 10$.

24. A survey was conducted among 600 people to gauge the popularity of three teams – Bayern Munich, Dortmund and Liverpool. After the survey, the following observations were made about the number of supporters:
 Bayern Munich: 150; Both Bayern Munich and Dortmund: 5; Both Dortmund and Liverpool: 103; Only Dortmund: 80. The ratio of the number of supporters of Bayern Munich to the number of supporters of Liverpool was 1 : 2. It is also known that the number of people who supported all the three teams was an odd prime number which does not belong to the set $S = \{6n - 1, 6n + 1\}$, where $n \in \mathbb{N}$. The number of people who did not support any of the three teams is the highest number less than 100 in set S.

How many people supported Bayer Munich and Liverpool but not Dortmund?

(a) 24

(b) 25

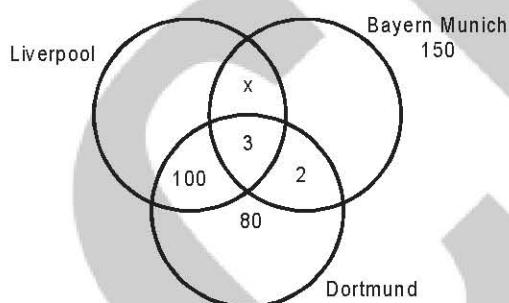
(c) 70

(d) 19

24. a The number of people supported all the three teams is 3.

The number of people who did not support any team was 97. So the number of people who supported atleast one team was $600 - 97 = 503$.

The derived conclusions can be depicted as follows:



The number of people supporting only Liverpool = $503 - (150 + 100 + 80) = 503 - 330 = 173$

Total number of Liverpool supporters = $2 \times 150 = 300$

So the number of surveyed people who supported all the teams but Dortmund = $300 - (173 + 3 + 100) = 300 - 276 = 24$.

Directions for questions 25 to 27: Answer the questions on the basis of the information given below.

Chintamani, who is a renowned investor, was looking at the investments that he had made a year ago. He had invested in 6 companies belonging to 3 sectors – Telecom, Insurance and Retail – with two companies in each sector. The following table shows the share prices of the 6 companies that Chintamani bought on June 5, 2006 in the years 2006 and 2007 on the same date. It is also known that he bought shares of each company in a multiple of 10.

Company	Share prices as on 5th June 2006 (Rs.)	Share prices as on 5th June 2007 (Rs.)
A	150	230
B	500	575
C	200	320
D	400	440
E	800	900
F	175	245

25. If the shares that witnessed the top two absolute changes in their prices belonged to Telecom sector, while the shares that witnessed the bottom two absolute changes in their share prices belonged to Insurance sector, what was the approximate percentage change in the combined share price value of the two Retail companies during the given period?
- (a) 20% **(b) 24%** (c) 30% (d) 40%
26. If Chintamani purchased a total of 60 shares belonging to 4 out of the six companies, then the maximum possible percentage return that he could realise on these 60 shares during the given period was
- (a) 41%** (b) 32% (c) 36% (d) 37%
27. If shares that witnessed the highest and lowest percentage change in their prices belonged to Telecom sector, then what was the percentage change in the combined share price value of the two Telecom companies during the given period?
- (a) 26.67%** (b) 35.66% (c) 40.33% (d) 45.33%

For questions 25 to 27: The absolute and percentage variation in the prices of the shares over the given period are as follows:

Company	Share prices as on 5th June 2006	Share prices as on 5th June 2007	Absolute variation	% variation
A	150	230	80	53.3%
B	500	575	75	15.0%
C	200	320	120	60.0%
D	400	440	40	10.0%
E	800	900	100	12.5%
F	175	245	70	40.0%

25. b The two Telecom companies showed the highest absolute change in the value of the share prices. Therefore C and E must be the two Telecom companies. Also, the two Insurance companies showed the lowest absolute change in the value of the share prices. Therefore D and F must be the two Insurance companies. Hence, that A and B must be the two Retail companies.

$$\text{Percentage change} = \frac{(805 - 650)}{650} = \left(\frac{155}{650} \right) \times 100 = 24\% \text{ (approx.)}$$

26. a Chintamani had purchased 60 shares across 4 companies and we need to calculate the maximum percentage return. This would have been possible if he had purchased 30 shares giving the maximum percentage return i.e. of company C and minimum 10 shares each of the remaining 3 companies providing the next higher percentage returns i.e 10 shares each of companies A, F and B.

Initial Value of shares purchased

$$30 \times 200 = \text{Rs. } 6000$$

$$10 \times 150 = \text{Rs. } 1500$$

$$10 \times 175 = \text{Rs. } 1750$$

$$10 \times 500 = \text{Rs. } 5000$$

$$\text{Total Value} = \text{Rs. } 14250$$

Final values of the shares purchased

$$30 \times 320 = \text{Rs. } 9600$$

$$10 \times 230 = \text{Rs. } 2300$$

$$10 \times 245 = \text{Rs. } 2450$$

$$10 \times 575 = \text{Rs. } 5750$$

$$\text{Total value} = \text{Rs. } 20100$$

$$\text{Therefore percentage change} = \frac{(20100 - 14250)}{14250} = 41\%$$

27. a One of the two Telecom companies showed the highest percentage change in the value of the share prices and the other Telecom company showed the lowest percentage change in the value of the share prices. Therefore the two Telecom companies are C and D.

Initial combined share price = $200 + 400 = \text{Rs. } 600$

Final combined price = $320 + 440 = \text{Rs. } 760$

$$\text{Percentage change} = \frac{(760 - 600)}{600} = 26.66\%.$$

28. In rhombus ABCD, E, F, G and H are the midpoints of sides AB, BC, CD and DA respectively. O is the point of intersection of the diagonals of the rhombus. M and N are the mid points of FO and OG respectively. Find the ratio of the area of pentagon MNGCF to area of quadrilateral EHNM.

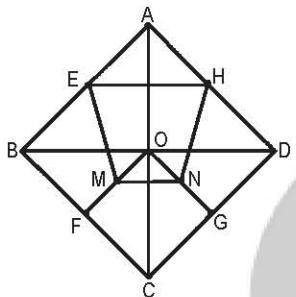
(a) 7 : 9

(b) 2 : 3

(c) 8 : 9

(d) 5 : 6

28. a



Let the length of BD and AC be x and y respectively.

$$\text{Area of the } \triangle OGC = \frac{1}{2} \times \frac{1}{2} (OC) \times (OD) = \frac{xy}{16}$$

$$\text{Area of the } \triangle BDC = \frac{1}{2} (BD) \times (OC) = \frac{1}{2} \times x \times \frac{y}{2} = \frac{xy}{4}$$

$$\text{Area of } \triangle FGC = \frac{1}{4} \Delta BDC = \frac{xy}{16}$$

$$\text{Area of } OFCG = 2\Delta OGC = \frac{xy}{8}$$

$$\text{Area of } \triangle OFG = \frac{xy}{8} - \frac{xy}{16} = \frac{xy}{16}$$

$$\Delta OMN = \frac{1}{4} \left(\frac{xy}{16} \right) = \frac{xy}{64}$$

$$\text{Area of } MNGCF = \frac{xy}{8} - \frac{xy}{64} = \frac{7xy}{64}$$

EHNM is a trapezium

$$\text{Height of the trapezium EHNM} = \frac{y}{4} + \frac{y}{8} = \frac{3y}{8}$$

Area of

$$EHNM = \frac{1}{2} (EH + MN) \times \frac{3y}{8} = \frac{3y}{16} \left(\frac{x}{2} + \frac{x}{4} \right) = \frac{9xy}{64}$$

$$\text{Required Ratio} = \frac{7xy}{64} \times \frac{64}{9xy} = \frac{7}{9}$$

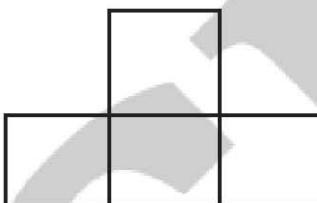
29. If the sum of three of the sides of a rectangle is 100 units, what is the maximum possible area of the rectangle?
 (a) 1110.9 sq. units (b) **1250 sq. unit** (c) 990 sq. units (d) 1008 sq. units

29. b Given $2a + b = 100$ and area = ab
 Assuming, $2a = s$

$$\Rightarrow s + b = 100 \text{ and area} = \frac{1}{2} sb$$

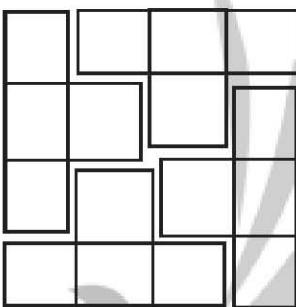
For Area to be maximum, s and b should be equal.
 So, $b = 50$ units, $a = 25$ units
 So, Area = $50 \times 25 = 1250$ sq. units.

30. The following tile consists of four identical tiles of unit area each.



If the tiles can be placed in any orientation as long as no two tiles overlap each other, then what is the minimum possible number of such tiles required to obtain a rectangular figure?

- (a) 6 (b) **4** (c) 3 (d) 5
30. b One of the possible combinations out of the choices.



So, dimension of the rectangle is (4×4) and the minimum numbers of blocks required is 4.

Directions for question 31 and 32: Answer the questions on the basis of the information given below.

There is a $N \times N$ square matrix having N^2 cells of dimensions 1×1 each, where N is an odd natural number. Every cell in the matrix is given an identity (i, j) , where i and j are integers. The identity of the centralmost cell is $(0, 0)$. Every other cell is given an identity as per the Cartesian Coordinate System. All identities are given with reference to the centralmost cell. For example, the cell to the immediate right of $(0, 0)$ along the same row is given an identity $(1, 0)$. Similarly, the cell above $(0, 0)$ along the same column is given an identity $(0, 1)$.

31. If the identities of the cells sharing a common point or a common boundary with the cell having the identity (i, j) are $(i_1, j_1), \dots, (i_m, j_m)$, then what is the value of $|(i - i_1)| + \dots + |(i - i_m)|$?
 (a) Either 2 or 4 (b) Either 2 or 3 or 6 (c) Either 2 or 3 (d) **Either 2 or 3 or 4 or 6**

31. d We need to focus only on the cells which have a different x-coordinate than i. Also notice that, each of the neighboring cell [of the cell having address (i, j)] can have the first coordinate of its address as i, i+1 or i-1, i.e. absolute difference of either 1 or 0. The number of neighboring cells having a value different than i will depend on the position of the cell having address (i,j). Four such positions are possible:

Cell is not on the boundary of the matrix and hence is surrounded by 8 cells:
6 neighboring cells have an absolute difference of 1, vis a vis i.

Cells at the corner and hence surrounded by 3 cells:
2 neighboring cells have an absolute difference of 1, vis a vis i.

Cells at the vertical border and hence surrounded by 5 cells:
3 neighboring cells have an absolute difference of 1, vis a vis i.

Cells at the horizontal border and hence surrounded by 5 cells:
4 neighboring cells have an absolute difference of 1, vis a vis i.

Hence, the possible value of the expression can be 2, 3, 4 or 6, depending on the position of the cell in question.

32. If the value of N is 5, then how many distinct pair of cells have exactly one common vertex?
 (a) 16 (b) **32** (c) 14 (d) 28

32. b Method 1:

The cells having exactly one common vertex will be those that lie parallel to either of the two diagonals of the matrix, i.e. those cells that share only one corner/vertex. 16 such pairs are there parallel to one diagonal.
Hence, total number of such pairs = 32.

Method 2:

There are 16 vertexes inside the 5×5 matrix. Each such vertex will be shared by 2 pairs of cells, lying parallel to the two diagonals of the matrix.

Hence, the total number of such pairs of cells = $16 \times 2 = 32$.

33. A triangular field has to be fenced with iron wire. The cost of fencing is Rs.24 per meter. If the sum of lengths of any two sides of the triangular field is 30 meters, then which of the following cannot be the cost of fencing the field?
 (a) **Rs.1448** (b) Rs.1416 (c) Rs.1080 (d) Rs.724

33. a Given that the sum of length of any two sides of the triangular field = 30 meters.

Let, the length of sides of the triangular field be a, b and c.

If $a + b = 30$ meters, then $0 < c < 30$.

$$\Rightarrow 30 < (a + b + c) < 60.$$

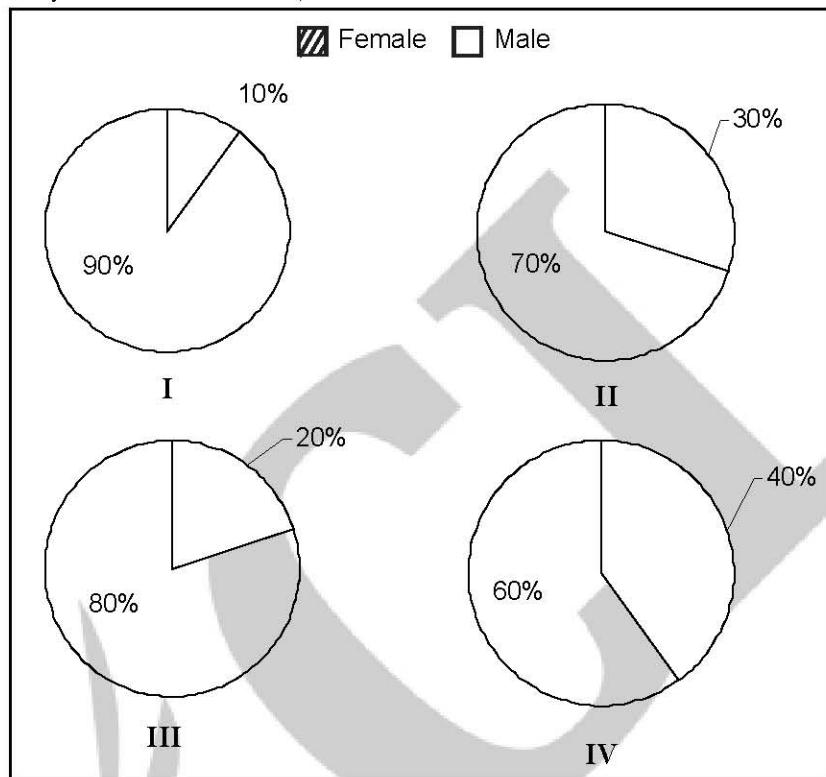
Therefore, the range of values of the cost incurred on fencing the triangular field is Rs. $30 \times 24 < \text{Cost} < 60 \times 24$.

$$\Rightarrow \text{Rs. } 720 < \text{Cost} < \text{Rs. } 1448.$$

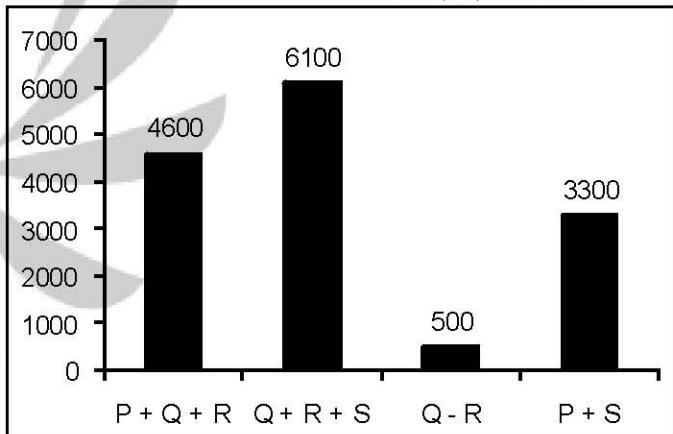
Hence, option (a) is the correct choice.

Directions for questions 34 to 37: Answer the questions on the basis of the information given below.

The following pie-charts – I, II, III and IV give gender-wise distributions of professors in four universities – A, B, C and D respectively as on December 31, 2012.



The number of female professors in the universities A, B, C and D was P, Q, R and S respectively. The following bar-graph provides information about the values of P, Q, R and S.



34. What was the absolute difference between the number of male professors in university A and the number of female professors in university D?
(a) 6700 (b) 6300 (c) 5700 (d) 7100

35. What was the ratio of the total number of professors in university D to the number of male professors in university C?
 (a) 16 : 15 (b) 3 : 4 (c) 4 : 3 (d) **15 : 16**

Additional Information for questions 36 and 37:

In 2013, a total of 2000 professors join universities A, B, C and D in the ratio 4 : 3 : 2 : 1.

36. In which of the mentioned universities, was the number of male professors as a percentage of the total number of professors in that university the maximum?
 (a) B (b) C (c) **A** (d) Cannot be determined
37. If the total number of female professors who joined the four universities put together was equal to the number of female professors in university A after the joining, then the total number of male professors who joined the four universities put together in 2013 cannot be less than
 (a) 200 (b) **300** (c) 400 (d) 800

For questions 34 to 37:

Given that $P + Q + R = 4600$, $Q + R + S = 6100$ and $P + S = 3300$

$$2(P + Q + R + S) = (P + Q + R) + (Q + R + S) + (P + S) = 14000$$

$$P + Q + R + S = 7000$$

Therefore, $S = 2400$ and $P = 900$.

Also, $Q - R = 500$, therefore, $Q = 2100$ and $R = 1600$.

34. c The absolute difference between the number of male professors in university A and the number of female professors in university D is $8100 - 2400 = 5700$.
35. d The ratio of the total number of professors in university D to the number of male professors in university C is $6000 : 6400 = 15 : 16$.

For questions 36 and 37:

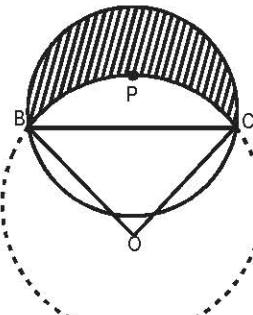
Given that 2000 professors are transferred to the universities A, B, C and D in the ratio 4:3:2:1.

Therefore, the number of professors transferred to the universities A, B, C and D is 800, 600, 400 and 200 respectively.

36. c Even if we assume that all the professors that have been transferred to university A are all females and all the professors transferred to the university B, C and D are males, then also the number of male professors as a percentage of the total number of professors in university A is maximum.
37. b Given that the total number of female professors that have been transferred is equal to the number of female professors in university A.
 Maximum female professors that could have been transferred to university A is 800. Therefore, total number of female professors in university A = $900 + 800 = 1700$.
 So, the number of male professors that have been transferred to all the given four universities cannot be less than $2000 - 1700 = 300$.
38. Jerry's field is circular in shape. He has a long rod which he places in his field such that both the ends of this rod just touch the periphery of this field. Furthermore, he finds that the boundary on one side of this rod is 400% longer than that on the other side. Jerry's son Micky arrives in a while, takes a 200π m long iron coil and describes the smallest possible circle around that rod. He, then discarded the remaining 50π m of the coil. What is the area of the region outside Jerry's field and inside Micky's circle?

$$(a) \left(\frac{\pi}{8} - \frac{\sqrt{3}}{4}\right)150^2 \text{ m}^2 \quad (b) \left(\frac{\pi}{3} + \frac{\sqrt{3}}{2}\right)150^2 \text{ m}^2 \quad (c) \left(\frac{\sqrt{3}}{4} - \frac{\pi}{24}\right)150^2 \text{ m}^2 \quad (d) \left[\frac{\sqrt{3}}{4} - \frac{\pi}{12}\right]150^2 \text{ m}^2$$

38. c



If BC is the rod, major arc BC = 5 × minor arc BC

⇒ If O be the centre of Jerry's field,

$$\angle BOC = \frac{360^\circ}{6} = 60^\circ$$

⇒ ΔBOC is an equilateral triangle.

Also,

$$\pi \times BC = 200\pi - 50\pi$$

$$\Rightarrow BC = 150 \text{ m} = OB = OC = R$$

Required area = area of semicircle having BC as diameter – area of segment BPC.

$$\text{Area of segment BC} = \frac{1}{6} \times \pi \times 150^2 - \frac{\sqrt{3}}{4} \times 150^2 = \left(\frac{\pi}{6} - \frac{\sqrt{3}}{4} \right) 150^2$$

$$\Rightarrow \text{The required area} = \frac{\pi \times \left(\frac{150}{2} \right)^2}{2} - \left(\frac{\pi}{6} - \frac{\sqrt{3}}{4} \right) 150^2 = \left(\frac{\sqrt{3}}{4} - \frac{\pi}{24} \right) 150^2 \text{ m}^2$$

39. Some children were standing around a circle. It was observed that the number of distinct pairs in which children were standing side by side was one-fifth of the number of distinct pairs in which children were not standing side by side. Find the number of children.

(a) 10

(b) 13

(c) 24

(d) 65

39. b Consider a regular polygon inscribed in that circle having number of vertices = number of children = n
If each child stood on one of the vertices, then,
number of diagonals = 5 × number of sides.

$$\Rightarrow {}^nC_2 - n = 5n \Rightarrow n = 13.$$

40. A bag has 10 balls – each of them is either red, blue or green. In every trial, one ball is drawn and put back in the bag before the next trial. The probability of not getting a blue ball in two consecutive trials

is $\frac{81}{100}$. The probability of getting two green balls in two consecutive trials is $\frac{49}{100}$. What is the probability of getting balls of three different colours in three consecutive trials?

(a) $\frac{7}{100}$

(b) $\frac{21}{250}$

(c) $\frac{7}{250}$

(d) $\frac{21}{500}$

40. b Probability of not getting a blue ball in two consecutive draws = $(P(\bar{B}))^2 = \frac{81}{100}$

$$\Rightarrow P(\bar{B}) = \frac{9}{10} \Rightarrow P(B) = \frac{1}{10}$$

⇒ There is only one blue ball in the box.

$$\text{Similarly, as } (P(G))^2 = \frac{49}{100} = \left(\frac{7}{10}\right)^2$$

⇒ There are 7 Green balls.

⇒ There are $10 - (7+1) = 2$ Red Balls.

There are 6 different ways of getting 3 different balls of 3 different colours viz. RGB, RBG, BGR, BRG, GBR, and GRB.

$$\text{The probability corresponding to each of the six cases is } \frac{2}{10} \times \frac{7}{10} \times \frac{1}{10} = \frac{7}{500}$$

$$\Rightarrow \text{The required probability} = 6 \times \frac{7}{500} = \frac{21}{250}.$$

Directions for questions 41 to 45: Each of the following questions is followed by two statements, I and II. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (b) if the question can be answered by using either statement alone.

Mark (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Mark (d) if the question cannot be answered even by using both the statements together.

41. Is a ball point pen costlier than an ink pen?

- The cost of 5 sets of 4 ball point and 3 ink pens is the same as the cost of 4 sets of 3 ball point and 5 ink pens.
- The cost of 6 sets of 6 ball point and 4 ink pens is the same as the cost of 12 sets of 3 ball point and 2 ink pens.

41. a Let the prices of ink and ball point pen be i & b respectively.

The first statement gives $5 \times (4b + 3i) = 4 \times (3b + 5i)$. Using this we can find the ratio of the price of a ball-point pen and an ink pen. So statement I alone is sufficient.

From statement II, we get $6 \times (6b + 4i) = 12 \times (3b + 2i)$, which will boil down to $0 = 0$. Hence using statement II, we cannot answer the question.

42. There are three rods of lengths L_1 cms, L_2 cms and L_3 cms such that no two of them are of the same length. If L_1 , L_2 and L_3 are integers, can we exactly measure X cm using the three rods, where X is an integer?

- $L_1 + L_2 = 100$ cms
- $L_2 + L_3 = 201$ cms

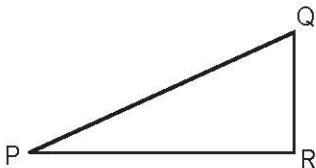
42. c Neither of the statement alone can be used to answer the question.

Using both the statements:

$$L_2 + L_3 - 2(L_1 + L_2) = 201 - 200 = 1 \text{ cm.}$$

Hence, any integral multiple of length can be measured.

43. Is $\triangle PQR$ a right angled triangle?



- I. $\angle Q - \angle P > 0$
- II. The value of $\frac{\angle P + \angle Q}{\angle R}$ is equal to 1.

43. a Statement I do not provide any information regarding $\angle R$. Hence, it's not sufficient alone.
We know that $\angle R + \angle P + \angle Q = 180^\circ$

Using statement II, we get $\angle R + \angle R = 180^\circ$

$$\Rightarrow \angle R = 90^\circ$$

$\Rightarrow \triangle PQR$ is a right angled triangle.

Hence, statement II alone is sufficient.

44. If m and n are consecutive positive integers, is $m > n$?

- I. $m - 1$ and $n + 1$ are consecutive positive integers.
- II. m is an even integer.

44. a Note that for two consecutive integers the larger must be 1 more than the smaller.

Considering particular values for m and n. For example, if $m = 4$, then $n = 3$ or 5 since m and n are consecutive. Then $m - 1 = 3$ and $n + 1 = 4$ or 6 . Since $m - 1$ and $n + 1$ are consecutive integers, $n = 3$. Thus, $m = n + 1$, or $m > n$.

\therefore Statement I alone is sufficient.

The fact given in statement II that m is even is irrelevant.

45. If a, b and c are integers, is $(a - b + c)$ greater than $(a + b - c)$?

- I. b is positive.
- II. c is negative.

45. c $a - b + c > a + b - c$

$$\Rightarrow c > b$$

Either statements I or II alone is not sufficient to answer the question.

Using both the statements together, we can say for sure that $c < b$.

Hence, $(a - b + c) < (a + b - c)$

46. Rohan, a young scientist, was caught inside a science lab that got engulfed in fire. It had 5 exit doors in a row, and the doors could be opened one after the another. Each door opens with the fingerprints of a person. To open any of the five doors, a person needs to use any two of his fingers. Also any combination of two fingers once used to open a door cannot be used to open any other door and all the five fingers of right hand can be used. In how many ways could Rohan open all the doors and escape out of the lab?

(a) 24192

(b) 6048

(c) ${}^{10}C_5 \times 4!$

(d) ${}^{10}C_5 \times 5!$

46. d When Rohan encounters the first gate, he can select any 2 out of the five fingers of his right hand.

It implies he has 5C_2 (i.e. 10) number of choices.

Since two doors can have at most 1 finger common.

He is left with 9 choices at the second door.

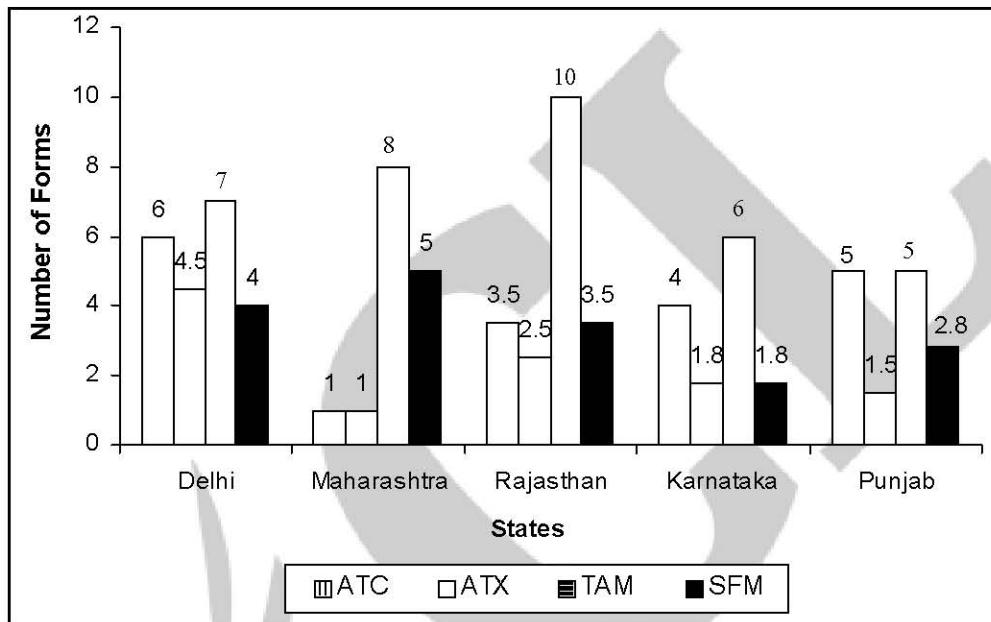
Similarly at the 3rd door he is left with 8 choices.

Total number of ways to open all 5 doors = $10 \times 9 \times 8 \times 7 \times 6 = 30240$

It can also be denoted as ${}^{10}C_5 \times 5!$.

Directions for questions 47 to 50: Answer the questions on the basis of the information given below.

The following bar graph provides information about the number of forms (in 000's) sold for four different MBA entrance tests namely ATC, ATX, TAM and SFM, in 5 different states of India, in August 2007. The price at which each form of ATC, ATX, TAM and SFM was sold was Rs. 1300, Rs. 1000, Rs. 700 and Rs. 1100 respectively. Assume that these are the only five states in India where the forms of the abovementioned MBA entrance tests were sold and no other form except the forms of the mentioned tests were sold in the given states.



47. In August 2007, for which MBA entrance test was the revenue generated through the sales of forms in Rajasthan the second lowest?

(a) ATC

(b) ATX

(c) SFM

(d) TAM

47. c Percentage contribution of Rajasthan in the revenue generated by the sale of ATC forms = $\left(\frac{3.5}{19.5}\right) \times 100 = 17.94\%$

Percentage contribution of Rajasthan in the revenue generated by the sale of ATX forms = $\left(\frac{2.5}{11.3}\right) \times 100 = 22.12\%$

Percentage contribution of Rajasthan in the revenue generated by the sale of TAM forms = $\left(\frac{10}{36}\right) \times 100 = 27.77\%$

Percentage contribution of Rajasthan in the revenue generated by the sale of SFM forms = $\left(\frac{3.5}{17.1}\right) \times 100 = 20.46\%$

Hence, in August 2007, the MBA entrance test for which the revenue contribution of Rajasthan is second lowest is SFM. Hence, option (c) is the correct choice.

48. If the number of forms sold for ATX in August 2008 increased by 25% compared to that in August 2007 and the total revenue generated through the sales of forms for the four tests put together in August 2008 increased by 15% compared to that in August 2007, then what was the approximate percentage change in the price of an ATX form in August 2008 over that in August 2007? (Assume that the price and the number of forms sold for the mentioned tests other than ATX remained the same in August 2008.)

(a) 66

(b) 55

(c) 51

(d) 48

48. a Total revenue (in thousands) generated through the sale of the forms of the mentioned tests in August 2007 = $\text{Rs.}(19.5 \times 1300 + 11.3 \times 1000 + 36 \times 700 + 17.1 \times 1100) = \text{Rs.}80660$.

Total revenue (in thousands) generated through the sale of the forms of the mentioned tests in August 2008 = $\text{Rs.}(1.15 \times 80660) = \text{Rs.}92759$

Revenue generated (in thousands) through the sale of ATX forms in 2007 = $\text{Rs.}11300$

Revenue generated (in thousands) through the sale of ATX forms in 2008 = $\text{Rs. } 11300 + \text{Rs. } 12099 = \text{Rs.}23399$

Total number of ATX forms sold in August 2008 = $1.25 \times 11300 = 14125$

$$\text{Price of an ATX form in August 2008} = \text{Rs.} \left(\frac{23399}{14125} \right) = \text{Rs.}1656.56$$

Required percentage change = 65.65%

Hence, option (a) is the correct choice.

49. In August 2007, the percentage contribution of Delhi in the total revenue generated through the sales of forms of the four tests put together was closest to

(a) 29%

(b) 27%

(c) 41%

(d) 33%

49. b Required percentage contribution = $\left(\frac{6 \times 1300 + 4.5 \times 1000 + 7 \times 700 + 4 \times 1100}{80660} \right) \times 100 \approx 27$.

50. In August 2007, in which state(s) was the number of TAM forms sold less than 30% of the total number of forms sold for the four tests put together in that particular state?

(a) Punjab, Delhi and Maharashtra

(b) Only Maharashtra

(c) Delhi and Maharashtra

(d) None of these

50. d Required percentage contribution in Delhi = $\left(\frac{7}{21.5} \right) \times 100 = 32.55\%$

$$\text{Required percentage contribution in Maharashtra} = \left(\frac{8}{15} \right) \times 100 = 53.33\%$$

$$\text{Required percentage contribution in Rajasthan} = \left(\frac{10}{19.5} \right) \times 100 = 51.28\%$$

$$\text{Required percentage contribution in Karnataka} = \left(\frac{6}{13.6} \right) \times 100 = 44.11\%$$

$$\text{Required percentage contribution in Punjab} = \left(\frac{5}{14.3} \right) \times 100 = 34.96\%$$

Hence, option (d) is the correct choice.

Section II: VA & LR

51. The following question has a paragraph from which the last sentence has been deleted. From the given options, choose the sentence that completes the paragraph in the most appropriate way.

So, how come existence? At the end of the day, all the approaches I have discussed are likely to prove unsatisfactory. In fact, in reviewing them they all seem to me to be either ridiculous or hopelessly inadequate: a unique universe which just happens to permit life by a fluke; a stupendous number of alternative parallel universes which exist for no reason; a pre-existing God who is somehow self-explanatory; or a self-creating, self-explaining, self-understanding universe-with observers, entailing backward causation and teleology. _____.

- (a) Both religion and science draw their methodology from ancient modes of thought honed by many millennia of evolutionary and cultural pressures.
 - (b) Perhaps we have reached a fundamental impasse dictated by the limitations of the human intellect.**
 - (c) The whole paraphernalia of gods and laws, of space, time and matter, of purpose and design, rationality and absurdity, meaning and mystery, may yet be swept away and replaced by revelations as yet undreamt of.
 - (d) We are free of Darwinian evolution and able to create our own real and virtual worlds.
51. b The paragraph indicates that the author talked about certain approaches to answer the question of how life came into existence but ultimately ended up finding all of them either ridiculous or inadequate. So, the sentence that follows the given paragraph should carry the idea forward by explaining the reason for this. The given paragraph builds up to an 'impasse' and option (b) states the possible reason for it: the limitations of human intellect. Option (a) is inappropriate because the passage does not talk about religion or science. Options (c) and (d) can be ruled out because they are irrelevant.
52. Given below is a sentence, part of which is underlined. Beneath the sentence you will find four ways of phrasing the underlined part. Select the correct answer in terms of grammar and usage.
- His blackened finger was testimony of the fact that not only had he played in pain but also hardly gave up.
- (a) testimony of the fact that not only had he played in pain but also hardly
 - (b) testimony to the fact that not only had he played in pain but hardly**
 - (c) testimony to the fact that not only did he play in pain but also hardly ever
 - (d) testimony of the fact that not only did he play in pain but hardly ever
52. b Options (a) and (d) can be eliminated because, in this context, 'testimony' should be followed by the preposition 'to', instead of 'of'. Out of options (b) and (c), option (b) is the right answer because 'hardly ever' answers the question 'how often does he give up?' and not hardly.

-
1. Stupendous (adj) : extremely impressive
2. Testimony (n) : evidence or proof of something
-

53. The following question has a paragraph from which the last sentence has been deleted. From the given options, choose the sentence that completes the paragraph in the most appropriate way.

Another interesting example occurs when Freud points out: The most striking distinction between the erotic life of antiquity and that of our own no doubt lies in the fact that the ancients laid stress upon the instinct itself, whereas we emphasize its object. The ancients glorified the instinct and were prepared on its account to honour even an inferior object; _____

- (a) While we give respect to the instincts which in turn lead us to develop a sense of respect for inferior objects.
- (b) While we lack in instinct, the force that drives us towards morality.
- (c) While we despise the instinctual activity itself, and find excuses for it only in the merits of the object.**
- (d) While Freud found it difficult to approve any role of instinct in human behavior.

53. c The passage, while making a distinction between the ancients' and our erotic life, states that where our ancients gave importance to instinct, we give importance to the object of instinct. The given paragraph cites a difference in what our ancestors focused on and what we focus on. Further, the paragraph describes the approach of the ancients. So, the sentence that follows it should describe our approach. Option (c) provides this contrast and is therefore the answer. Option (a) is not correct as it does not create a contrast to the idea in the last line of the paragraph. Option (b) is inappropriate as the paragraph does not talk of lacking in instinct. Option (d) is also eliminated since 'the ancients' in the paragraph are contrasted with the people of the present age, but not with Freud.

54. The following question has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

The belief in temporary incarnation or inspiration is worldwide. Certain people are supposed to be possessed from time to time by a spirit or deity; while the possession lasts, their own personality lies in abeyance, the presence of the spirit is revealed by convulsive₃ shivering and shaking of the man's whole body, by wild gestures and excited looks, all of which refer, not to the man himself, but to the spirit which has entered into him; and in this abnormal state all his utterances are accepted as the voice of the god or spirit dwelling in him and speaking through him. _____

- (a) In this respect, there was a striking resemblance between the military tactics of the Polynesians, and those of the celebrated nations of ancient Greece.
- (b) Thus, for example, in the Sandwich Islands, the king, imitating the god, uttered the responses of the oracle from his concealment in a frame of wickerwork₄.
- (c) As soon as the god was supposed to have entered a man, the latter became violently agitated, and worked himself up to the highest pitch of apparent frenzy.**
- (d) In this state, he often rolled on the earth, foaming at the mouth, and revealed his desires.

54. c The passage states that when a person is possessed by a God or deity, all the actions he does are those of the spirit and not his. Option (c) follows immediately after the passage as it continues the description of a man in this state.

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3. Convulsive (adj) : jerky, uncontrollable
4. Wickerwork (n) : furniture or other items made of wicker
-

55. The sentences given in the following question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.
- A. In effect, labour becomes warm hot bodies applying muscle not brains.
 - B. Education and training adds to the stock of 'human capital'.
 - C. In conventional terms, labour refers to the physical and mental effort of a human being applied to the production of goods and services.
 - D. Labour, unlike capital, has been subject to definitional reduction through time rather than expansion.
 - E. Similarly, entrepreneurship and management have become detached from labour.
- (a) BEDCA (b) **DCBEA** (c) DCEAB (d) ACBED
55. b C should begin the paragraph as it introduces the main idea that runs throughout the paragraph – what one understands by the word labour conventionally. D takes the idea further by explaining how the term has got reduced with time. DB is a mandatory pair because D talks about how labour is different from human capital and B discusses what that difference is. Then, E and A discuss the consequence of this difference – "entrepreneurship and management have become detached from labour" and "labour becomes warm hot bodies applying muscle not brains".
56. The sentences given in the following question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.
- A. This is a fault.
 - B. The highest as the lowest form of criticism is a mode of autobiography.
 - C. The critic is he who can translate into another manner or a new material his impression of beautiful things.
 - D. The artist is the creator of beautiful things; to reveal art and conceal the artist is art's aim.
 - E. Those who find ugly meanings in beautiful things are corrupt without being charming.
- (a) ABCDE (b) **DCBEA** (c) BAEDC (d) EBCDA

56. b Statement D discusses the artist, C goes on to describe the critic in contrast, so, DC forms a mandatory pair essentially through the association of comparison. This is followed immediately with a description of criticism in B – that criticism is the lowest form of art. E goes on to give the reason for this and A makes a closing comment.

Directions for question 57: The following question is followed by two statements, I and II. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (b) if the question can be answered by using either statement alone.

Mark (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Mark (d) if the question cannot be answered even by using both the statements together.

57. Harpu, who is a non-vegetarian, eats chicken only on Tuesdays, Saturdays and Sundays. Did he eat chicken today?
- I. He ate chicken yesterday.
 - II. He ate chicken two days before yesterday.

57. d From statement I: Since he had chicken yesterday, today could be either Sunday, Monday or Wednesday.
Hence, statement I alone is not sufficient.
From statement II: Today is either Friday, Tuesday or Wednesday.
Hence, statement II alone is not sufficient.
By combining the two statements, it can be deduced that today is Wednesday and so, he did not eat chicken today.
Hence, both the statements together are sufficient.

Directions for questions 58 to 61: The passage given below is followed by a set of four questions. Choose the most appropriate answer to each question.

Daniel C. Dennett is advancing on free will. In "Freedom Evolves," he wants to show how evolution can get us "all the way from senseless atoms to freely chosen actions." And he succeeds in his aim, given what he means by freedom. But he doesn't establish the kind of absolute free will and moral responsibility that most people want to believe in and do believe in. That can't be done, and he knows it.

So what does Dennett mean by freedom? Well, he's a "compatibilist": he thinks that freedom is wholly compatible with determinism, although determinism is the view that everything that happens in the universe is necessitated by what has already happened, so that nothing can ever occur otherwise than it actually does. He thinks, in other words, that you can be wholly free and morally responsible for your choices and actions even if every single one of them was determined by events that happened long before your birth. You think this a strange notion of freedom? But here Dennett is part of an old tradition that stretches from the ancient Greeks through Hobbes, Locke, Hume, Mill and many others, and was the orthodoxy among analytic philosophers for most of the 20th century.

This compatibilist freedom — call it C-freedom — seems intensely unsatisfactory. It doesn't give us what we want and are sure we have: ultimate, buck-stopping responsibility for what we do, of a kind that can make blame and punishment and praise and reward truly just and fair. It allows, after all, that the whole course of our lives may be fixed down to the last detail before we've even been conceived. But one of Dennett's main aims is precisely to convince us that C-freedom is all that is really worth having in the way of freedom.

Dennett is a compatibilist about freedom, but a compatibilist can be a creationist and believe that we have immaterial souls. Dennett will have none of that. He not only grants that determinism may be true, he is also an "uncompromising" materialist, one who holds that every phenomenon in the universe is wholly physical or material. He is also committed to a completely "naturalistic" approach to the problem: one that rules out the existence of anything that would be classified as supernatural from the perspective of the natural sciences. And he thinks that everything about us can be explained within the framework of the theory of evolution. His claim, then, is that the existence of human freedom, free choice, free action, free will is entirely compatible with materialism, naturalism, determinism and the theory of evolution.

Is this plausible? Yes. Given that Dennett is talking only about C-freedom, I'm sure he's right. I'm sure he's right that all the freedom of choice and action and will that we actually have is a product of evolution. But his rhetoric is all wrong. He stands forth as the lone ranger of hard truth, the indomitable⁵, beleaguered⁶ word-warrior fighting a vast rampant dragon of misguided and aggressive orthodoxy. But most philosophers fully agree with him that determinism may be true and that a materialist, naturalistic, evolutionary approach is

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5. **Indomitable** (adj) : impossible to subdue or defeat
6. **Beleaguered** (adj) : sieged, troubled
-

best, and find it obvious that C-freedom is compatible with all these things. They also know that there is no way in which the falsity of determinism — the existence of truly random or indeterministic occurrences in the universe — could help to give us greater freedom of will or moral responsibility.

As for the basic story of how evolution gives rise to C-freedom, Dennettian free will, it's just the story of how we evolved, period. It has no special features. So if you already accept the general idea that we are products of evolution, you don't really have to look any farther to accept that C-freedom evolved. How does the story go? Well, it's obvious that we have more freedom than a chemically switched bacterium, or a clam that clams up by reflex when something strikes its shell, or a clever rat. We have more freedom than a bird that is as free as a bird, or a dog. And we have more freedom, we take it, than a small child.

How so? It's simply that we have evolved into self-conscious, self-monitoring agents, language users, with all that that entails. We are creatures who are able to reflect consciously and deliberately on alternative courses of action before choosing between them. We are also creatures who live in complex societies, creatures whom evolution has endowed with natural concern for others, a conscience, a moral sense.

What is most striking, perhaps, is that our evolution into self-conscious agents has had the consequence that we find it impossible not to believe that we are radically free and responsible in our choices and actions, even if we're not: even if determinism is true and we have only C-freedom. And there is a peculiar respect, noted by Kant and Sartre, among others, in which we can seem to be rendered truly free for all the everyday purposes of life simply by believing that we are.

This belief in radical freedom, in ultimate responsibility, cannot actually make radical freedom exist. To be absolutely responsible for what one does, one would have to be *causa sui*, the cause of oneself, and this is impossible. There is nonetheless a sense in which our conviction that we are radically free provides a robust foundation for the whole sociocultural edifice,⁷ of treating people as responsible and in particular as morally responsible; it provides an effective basis for all our ordinary practices of punishment, reward and so on, even though these things can never be totally fair or just.

This, then, is the sense in which freedom and moral responsibility have evolved: they have evolved by cultural evolution on top of biological evolution. This is Dennett's story, which he is trying to make palatable⁸ to those who fear materialism, naturalism, determinism and the implacable beauty of evolution.

It's a worthy enterprise. But where is the lovely, ingenious Dennett? Scarcely to be found here. "Freedom Evolves" is a festival of his favourite themes, from memes to game theory to the Grand Old Problem of consciousness. But the book is cluttered, overlong and too concerned with theatricals. Dennett claims dramatically that determinism does not imply inevitability, and is "perfectly compatible with the notion that some events have no cause at all," but the first claim is a linguistic quibble,⁹ and the second, embedded in a seriously muddled account of causality, is false by definition. There is an important point here — the point that fatalism,¹⁰ is false even if determinism is true — but it's best stated in a couple of paragraphs, not buried in 40 pages of unnecessary complication.

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- | | | |
|---------------------------|---|---|
| 7. Edifice (n) | : | a complex system of beliefs |
| 8. Palatable (adj) | : | pleasant to taste |
| 9. Quibble (n) | : | a slight objection or criticism |
| 10. Fatalism (n) | : | the belief that all events are predetermined and therefore inevitable |
-

58. Given below are four statements, of which only one can be adequately inferred from the passage. Which one is it?
- (a) The author of 'Freedom Evolves' considers Determinism and Fatalism to mean the same thing
 - (b) The author of the passage believes that being moral is determined by birth rather than being a process of acculturation¹¹
 - (c) The author of the passage believes that C-freedom is at best an unstable compromise between Determinism and Free Will
 - (d) The author of the passage believes the proposition that practically, complete and radical freedom is an impossibility**
58. d Talking about Dennett's book, the author says, 'This belief in radical freedom, in ultimate responsibility, cannot actually make radical freedom exist. To be absolutely responsible for what one does, one would have to be *causa sui*, the cause of oneself, and this is impossible.' This makes option (d) correct.
59. An appropriate title for the passage will be
- (a) "Freedom Dissolves" - Dissolution explains it all
 - (b) The Radical thought of Daniel C. Dennett
 - (c) "Freedom Evolves" – Determinism taken apart
 - (d) "Freedom Evolves"- Evolution Explains it All**
59. d Option (d) is the best possible title, for throughout the passage the author talks of how Dennett's book tries to explain the philosophical paradox of the co-existence of determinism and free will by using the theory of Evolution.
60. According to the author, one problem with Dennett's book is that
- (a) it does not satisfactorily explain the paradox of an absolute free will existing with a deterministic philosophy
 - (b) it does not take into account the causality of events, focusing only upon their moral implications
 - (c) it assumes a grandiloquent,¹² manner of explaining the difference between determinism and fatalism**
 - (d) even while it makes evolution as the basis for every physical as well as moral phenomenon, it is unable to account for the immateriality of the soul
60. c The passage states, 'But the book is cluttered, overlong and too concerned with theatricals. Dennett claims dramatically that determinism does not imply inevitability...fatalism is false even if determinism is true — but it's best stated in a couple of paragraphs, not buried in 40 pages of unnecessary complication.'
61. The tone of the passage can be best described as
- (a) Introspective
 - (b) Objective**
 - (c) Appreciative
 - (d) Poignant
61. b The tone of the passage comes across as objective, making option (b) the correct answer. The author reviews Dennett's book and presents both the highs and lows of the book without any bias. Thus, the tone cannot be introspective, which means meditative or poignant which means moving or emotional.

11. **Acculturation (n)** : process in which members of one cultural group adopt the beliefs and behaviors of another group

12. **Grandiloquent (adj)** : pompous or extravagant in language, style, or manner, especially in a way that is intended to impress

62. Given below is a sentence, part of which is underlined. Beneath the sentence you will find four ways of phrasing the underlined part. Select the correct answer in terms of grammar and usage.
- A. The problem of noise is a typical example of an environmental pollution problem which cannot be solved merely by protective measures, but will require the adoption of active measures.
B. The cost of a complete protection against noise are so prohibitive as to make it unthinkable even in the economically most developed countries.
C. At the same time, it would not seem feasible, either economically or politically, to force the population to carry the costs of individual protection against noise.
D. A solution of this problem probably cannot be found in the near future.
- (a) A and D (b) B and C (c) C and D **(d) B and D**
62. d In the second sentence, the subject-verb agreement is incorrect. 'The cost' is singular and so, the verb should be changed from 'are' to 'is'. In the last sentence the preposition 'of' should be replaced with the word 'to' because there is a solution 'to' a problem not 'of' a problem.
- Directions for questions 63 to 66:** Answer the questions on the basis of the information given below.
- A team is to be selected out of a group comprising five men, namely A, B, C, D and E, and six women, namely L, M, N, O, P and Q. In the group, A, B and N are lecturers; C, D, L, M and O are engineers; and the rest are doctors. It is also known that:
- I. If at least one out of N and D is selected, B cannot be selected.
II. If L is selected, P must be selected and vice versa.
III. If any one out of A, L, or Q is selected, the other two must also be selected.
IV. D and L cannot be selected together.
V. If E is selected, M must be selected and vice versa.
VI. L and O cannot be selected together.
63. If the team consists of one lecturer, two engineers and three doctors, which of the following is the composition of the team?
- (a) BELMPA (b) ALEDPQ **(c) AELMPQ** (d) ADEMPQ
64. If the team consists of two male lecturers, two female doctors and one engineer, which of the following is the composition of the team?
- (a) ABLPQ** (b) ABLEQ (c) AQBLO (d) ABLOP
65. If the team consists of two lecturers, two engineers, two doctors and not more than three women, which of the following is the composition of the team?
- (a) ABELPQ **(b) ABCLPQ** (c) ABCLMQ (d) ABELNQ
66. The number of members in the team cannot be more than
- (a) 9 **(b) 8** (c) 7 (d) None of these

For questions 63 to 66: According to the given information, we can draw the following table.

	Men					Women					
	A	B	C	D	E	L	M	N	O	P	Q
Lecturer	✓	✓						✓			
Engineer				✓	✓	✓	✓	✓			
Doctor					✓				✓	✓	
With in the same group											
1						✓			✓		
2		✓				✓				✓	
3					✓	✓					
Not in the same group											
1		x						x			
2		x	x								
3			x	x							
4				x				x			

63. c As all the three doctors P, Q and E are selected, A and L will have to be selected due the presence of Q, and M due to presence of E. So, the composition of the team is AELMPQ.
64. a As the team contains two male lecturers, A and B are selected. Due to the presence of A, L and Q have to be in the team. P's presence in the team will ensure L's presence. So, the composition of the team is ABLPQ.
65. b If two doctors P and Q are selected, then L and A have to be selected. So P, Q and L are three women. So B has to be selected and the left one is only C. Hence, members of the team are ABCLPQ. If E and Q are considered as doctors, then the team will be ABELMQ (choice not given).
66. b From statements (II), (III) and (IV) and (VI), it can be observed that to maximize the number of members in the team, L has to be selected. Now, from (IV) and (VI), it can be seen that in the event of L's selection, D and O cannot be selected. Also, from statement (I), out of B and N, only one can be selected. Except these three persons, all the other members can be selected together in the team. Hence, the maximum number of members in the team can be 8.

Directions for questions 67 to 70: The passage given below is followed by a set of four questions. Choose the most appropriate answer to each question.

Not every American president has been able to resist his nation's call for war. Studies have shown that the main determinant is the kind of childhood the president has experienced. Jimmy Carter was unusual in being able to draw upon his having had fairly loving parents, in particular a mother who encouraged his individuality and independence, a very unusual quality for a parent in the 1920s. It is no coincidence that when I once collected all the childhood photos I could find of American presidents I noticed that only those of Jimmy Carter and Dwight Eisenhower (another president who resisted being drawn into war) showed their mothers smiling.

Ronald Reagan's childhood, in contrast, was more like that of most presidents: a nightmare of neglect and abuse, in his case dominated by an obsessively religious mother and a violent, alcoholic father who, he said, used to "kick him with his boot" and "clobber" him and his brother. The result, as I have documented in my book, *Reagan's America*, was a childhood of phobias and fears "to the point of hysteria," buried

feelings of rage and severe castration,¹³ anxieties (the title of his autobiography was *Where Is The Rest of Me?*). As an adult, Reagan took to carrying a loaded pistol, and once considered suicide, only to be saved by the defensive maneuver of taking up politics and becoming an anti-communist warrior, crusading¹⁴ against imaginary "enemies" who were blamed for the feelings he denied in himself.

George Bush's childhood, though not as chaotic as Reagan's, was also full of fear and punishments. Psychohistorian Suzy Kane, interviewing George's brother, Prescott, Jr., discovered that Bush's father often beat him on the buttocks with a belt or a razor strap, the anticipation of which, Prescott, Jr. recalled, made them "quiver" with fear. "He took us over his knee and whopped us with his belt," Prescott said. "He had a strong arm, and boy, did we feel it." As he admitted to Kane, "We were all scared of him. We were scared to death of Dad when we were younger." Childhood classmates of George described his father as "aloof and distant...formidable¹⁵ and stern...very austere and not a warm person." "Dad was really scary," George himself once admitted. As a result, a desperate need to please was George's main trait as a child, and a depressive personality with an overwhelming need to placate became his trademarks as president.

The mood of America as Bush ran for the presidency was also quite depressed, which favored his election over that of his less depressed opponent. During the Eighties, in what was often misnamed "A Decade of Indulgence," America had had an unprecedented period of peace and prosperity, the latter based mainly on manic spending binges on the military and on financial speculation, both financed by borrowing. As will be shown, manic periods such as these usually climax in wars. In 1989, however, America's traditional enemy, the Soviet Union, had collapsed, and a period of unprecedented world peace without any real enemies had "broken out all over," as Newsweek put it. Soon after the end of the Evil Empire, both America and Europe were plunged into depression. Beisel summarized the feeling:

The New York Times speaks of "An Empty Feeling...Infecting Eastern Europe." An authority on Britain finds the British undergoing "self-doubt and self-humiliation...greater now than at any time...over the last thirty years." The cover of the World Press Review speaks of "Germany's Reunified Blues"...Europe is depressed. Just three years ago, Germans were "delirious in the days before and after reunification," said Current History. "A couple of months later, their euphoria had turned to gloom."

America, too, felt just terrible after the downfall of the Berlin Wall. "Democracy is winning," said *The New York Times* on March 4, 1990. "The arms race is over. Villains are friendly now...the jackpot so long desired was America's. So then why doesn't it feel better?" Everywhere were predictions of doom, decline and the death of the American dream. The media wondered why, despite the fact that world peace had been achieved and the American economy was expanding, "People are incredibly depressed" (*The New York Times*), "In the past month, there has been a distinct odor of collapse and doom around the city," (*New York Post*), and "There is something catastrophic coming" (*Washington Post*). With no foreign enemy onto whom we could project our fears, America had only one option to end its feelings of depression: have a sacrificial economic recession that would punish ourselves and our families for our peace and prosperity.

13. **Castration (n)** : neutering a male animal by removing the testicles

14. **Crusading (v)** : lead or take part in a vigorous campaign for social, political, or religious change

15. **Formidable (adj)** : inspiring fear or respect through being impressively large, powerful, intense, or capable

67. The treatment of Reagan by his father is incorrectly described by which of the following statements?
- His father used to revile him and abuse him which left him with a neglected feeling.
 - His father used to lambaste¹⁶ him which was expressed by violent and abusive behaviour.
 - In his childhood, Reagan was pummelled by his father.
- (d) His father used to verbally abuse him and his brother to the point where they developed feelings of rage.**
67. d From the passage we can conclude that Reagan's father used to beat him and his brother. However, we cannot say if their father verbally abused them. So, option (d) is the correct answer. The other statements are true.
68. Which of the following are similarities between Reagan and Bush?
- Both Reagan and Bush had a childhood dominated by fear.
 - Both had some personality problems resulting from troubled childhood experiences.
 - Both would have found it difficult to resist the call of war.
- (a) All except 1 (b) All except 2 **(c) All of the above** (d) None of the above
68. c From the passage, all three statements can be inferred.
69. Which of the following statements cannot be concluded on the basis of the passage?
- Some of the Americans did experience a feeling of depression in the period after the fall of the Berlin Wall.
 - Some of the British faced self-doubt and self-humiliation after the collapse of the Soviet empire.
 - Periods of peace and prosperity may end in wars.
- (d) The American economic recession was caused by the Americans themselves due to their feelings of depression.**
69. d Option (d) cannot be concluded from the passage - we cannot conclude that America deliberately caused economic recession. All other options can be inferred from the passage.
70. Which of the following statements is correct according to the passage?
- The American people felt a wave of depression, accompanied by an apocalyptic¹⁷ feeling, and this was because of the shattering of the American dream.
 - Decrease of enemies may lead to a situation where an anxious nation like America is unable to find objects to project its fears on, which can lead to a feeling of doom and depression.**
 - The apocalyptic feeling led to people wondering why the American dream was shattered in spite of the prevailing peace and prosperity.
 - A feeling of cataclysm spread among the Americans because of the breakdown of the Berlin wall, which signified the general escalation of conflict in the world.
70. b Option (b) is the correct answer – this statement can be inferred from the last paragraph of the passage.

16. Lambaste (v) : criticize (someone or something) harshly

17. Apocalyptic (adj) : describing or prophesying the complete destruction of the world

Directions for questions 71 to 73: There are two blanks in each of the following sentences. From the pairs of words given, choose the one that fills the blanks most appropriately. The first word in the pair should fill the first blank.

71. The story of coffee's journey from African obscurity to European connoisseurship to worldwide _____ shouldn't be a dull one, but Wild's storytelling skills are _____ at best.
 (a) ubiquity, mediocre (b) domination, stirring
 (c) credit, economical (d) dispersion, rare
71. a Option (a) fits in best with 'obscurity – connoisseurship – ubiquity' providing the sequence of coffee's popularity. It is a sentence that presents a contrast, making 'mediocre' the best word for the second blank.
72. The swing in the _____ has to do with the passage of time since September 11 and the return to the political agenda of more _____ issues such as outsourcing and immigration and European integration.
 (a) dialogue, challenging (b) flavour, demanding
 (c) zeitgeist, quotidian (d) floor, encouraging
72. c Option (c) makes the best sense with 'zeitgeist' which means the general beliefs and spirit of the times and 'quotidian' which means 'commonplace'. This makes option (c) correct.
73. The suggestion of bulimia persisted, carrying with it a hint of the _____ often expressed toward people in unfortunate circumstances who can be _____ to have had bad habits.
 (a) extreme, likely (b) disapproval, suspected
 (c) latency, juxtaposed (d) other, suspected
73. b Option (b) fits in best here as it is a "cause-effect" sentence. The feeling of disapproval is directed towards the set of people who are suspected to possess bad habits.

Directions for questions 74 to 77: Answer the questions on the basis of the information given below.

Twelve professionals – P, Q, R, S, T, U, V, W, X, Y, Z and F – who belong to a company named PCL India Limited – attended the 'Annual Business Review Meet 2014' at Nainital. Among the twelve professionals, P, Q, R, S, T and V were Directors, and F, U, W, X, Y and Z were Senior Executives. During the meet, they stayed in two different resorts, with six members in each, facing each other, with a room in one resort facing exactly one room in the other resort. The table given below shows the information about the room numbers in the two resorts in which the twelve professionals stayed. In the table, the room numbers in same column face each other. For example, room number 18 in Riverside faces room number 32 in Jungleview.

Resorts	Room numbers					
Riverside	20	19	18	17	16	15
Jungleview	30	31	32	33	34	35

The following are some additional information:

- I. S stayed in a room the room number of which was half the room number of the room in which P stayed.
- II. U, who stayed in the same resort as that of Y, stayed in a room the room number of which had exactly 2 factors.

- III. Exactly four directors stayed in Jungleview, and no two directors, except P and Q, stayed in adjacent rooms.
- IV. V, who stayed in the same resort in which T stayed, stayed in a room the room number of which had the maximum number of factors.
- V. T and R, who did not stay in the same resort, stayed in the corner rooms. X stayed at Riverside. W did not stay in a room that was adjacent to that of any of the directors.
74. If Y stayed in Riverside, in how many different ways could they have stayed?
 (a) 6 **(b) 8** (c) 12 (d) 24
75. For a quiz, the 12 professionals were divided into 4 groups, with 3 members each, such that each group, all of its members staying in the same resort, comprised at least one Director and at least one Senior Executive, who among the following could not be a part of the group that included T in it?
 (a) V (b) U (c) P **(d) R**
76. Which of the following is definitely false?
 (a) Y occupied room number 19. (b) Z occupied room number 34.
(c) W's room was opposite to T's room. (d) U was in room number 17.
77. If the number of professionals each of whom stayed in a room adjacent to the room of a Director on one side and a Senior Executive on the other side was X, find the value of $(12 - X)$.
 (a) 6 (b) 7 **(c) 8** (d) 9

For questions 74 to 77:

From statement IV and V, it can be deduced that V stayed in room no. 30, which has the maximum number of factors out of the given room numbers, and T stayed in room no. 35. Now, from statements I and III, it can be concluded that P and Q stayed in room numbers 32 and 33 respectively, and S stayed in room no. 16. Now, it can be concluded that R stayed in room no. 20 as no two directors, except P and Q, stayed in the two adjacent rooms. From statement VI, it can be asserted that W stayed in room no. 18. From statement II, it can be concluded that U stayed in either room no. 17, 19 or 31.

The above derived conclusions can be tabulated as follows:

R						
20	19	18	17	16	15	Riverside
30	31	32	33	34	35	Jungleview
V	P	Q	T			

74. b As Y stayed in Riverside, U must have also stayed in Riverside. The third person in Riverside was X. U could occupy a room in Riverside in 2 ways (room number 17 or 19). The remaining 2 people could occupy the other 2 rooms in 2 different ways. Similarly, Z and F could occupy the remaining 2 rooms in Jungleview in 2 different ways. Therefore, the required number of ways
 $= 2 \times 2 \times 2 = 8$.
75. d Since R and T did not stay in the same resort, R could not be a part of the team that has T in it.
76. c W's room was not opposite to T's room.
77. c 8 professionals were not eligible for the lucky draw. The 4 eligible participants were P, Q, occupant of room number 19 and occupant of room number 17.

Directions for questions 78 to 81: The passage given below is followed by a set of four questions. Choose the most appropriate answer to each question.

Some companies forget to record their losses or record them as loans extended to specially created subsidiaries. Other companies just happen to slip in normal expenses as capital expenses, thereby removing them from the profit and loss account. In some instances, important flows of finance are simply not recorded at all and just disappear from the balance sheets. In other cases, accounting discrepancies include understatement of interest payments, fictitious investments and simply taking cash out of employees' pensions and social security funds.

In most of these cases, the numbers involved are not small and usually amount to several billion dollars. And the indications are that these malpractices are not just one off mistakes, but have been going on for some years – suggesting that auditors have been negligent or even complicit. Quite often, there is no mention of these practices in the companies' books, making it difficult to trace what exactly has been going on.

The biggest and most public scam of recent times was that concerning the energy trading multinational giant Enron which was earlier seen as the most effective symbol of the swashbuckling, new globalized capitalism of the 1990's. However it now turns out that the case of Enron – huge and dramatic as it was – was just the tip of the iceberg in terms of shady and ultimately unsustainable business practices in the international corporate world.

Obviously the story is not going to end here and many more such cases will probably emerge in the near future. What exactly is going on? What explains this sudden flurry of unsavory revelations and the apparent collapse of even minimal corporate accounting norms that these cases are bringing to light?

Forget for a moment the issues of morality, corporate ethics and all that. Forget even the interests of the unfortunate shareholders of all these companies, which include not just get-rich-quick financiers but also workers' pension fund managers and other presumably worthy groups. The real question is what all this tells us about the current phase of international capitalism and what implications there are for the near future. The first point to note is that such scams are not new or unexpected, in fact they are part of capitalism's normal functioning. Only the most naïve of interpretations of the history of capitalism would leave out the crucial role played by fraud, deceit and skullduggery in the accumulation of capital and its subsequent use. The notion that the new capitalism is somehow more open, accountable and democratic is a false illusion purveyed by media which also have major stakes in the system.

The second point is that such scams typically emerge at the end of a boom or when it is beginning to peter out. It is not that the scams cause the financial or economic collapse, rather they are symptoms of the turning point, when companies find that profit expectations are not being met and try to prevent or delay the anticipated downturn with whatever means they possess, including fraud. Thus, while many of the financial malpractices have been going on for several years, they have been exposed only recently as the economic slowdown and the stock market bear trend have fed into each other. This is characteristic of the revulsion phase of financial cycle.

The third point has to do with the specific nature of U.S. capitalism, which is capital market based rather than bank based. After the financial crisis in Japan and South Korea, bank based systems came in for a lot of criticism internationally for being opaque and prone to crony behaviour and clientelism. The current spate of scandals in the U.S. shows that capital market based systems can be even more problematic.

Not only do they allow and even encourage creative accounting, they are prone to the worst forms of insider excesses.

78. The shady and unsustainable accounting practices followed by some of the corporate giants show that
- (a) **Inflating earnings and hiding debt improperly are routine as far as some companies are concerned**
(b) The apparent collapse of even minimal ethical accounting norms has spelt doom for international capitalism
(c) Whatever regulations have so far been in place have proved rather inadequate in monitoring and regulating accounting practices
(d) All of the above
78. a Only (a) can be inferred from the first and second paragraphs of the passage. Hence option (a) is correct.
79. The revulsion phase of the financial cycle is usually accompanied by
(a) a boom followed by a downturn
(b) scams such as Enron
(c) exposure of malpractices that have been going on undetected for years
(d) capital market based economy rather than a bank based economy
79. c Refer to the last two sentences of paragraph 7. Hence option (c) is correct.
80. The phrase 'creative accounting' used in the last sentence of the last paragraph is used
(a) sarcastically (b) melodramatically (c) critically (d) to suggest horror
80. a Here creative is used synonymously with unethical. The author is obviously being sarcastic. Hence option (a) is correct.
81. What is the theme of the passage?
(a) It is clear that a slowdown in the economy is likely to trigger off financial scams that shake investor confidence and spell doom for the future of the capital market based economy.
(b) A sudden flurry of revelations of apparent collapse of minimal accounting norms brought to light by companies like Enron point to the current rot in international capitalism and has several implications for the future.
(c) Companies like Enron which were seen as potent symbols of aggressive capitalism in past decade are now symbolic of breakdown of international capitalism thanks to the sudden flurry of revelations involving mass manipulation of accounting books.
(d) New capitalism is as bad as its predecessor. The claims that it is more open and accountable and democratic have been completely washed away by the emergence and exposure of massive accounting and financial scams in corporations which were symbolic of the new capitalism.
81. b Options (a), (c) and (d) do not capture the essence of the passage fully. Option (b) fully expresses the theme of the passage and hence, is the correct answer.

Directions for questions 82 to 85: The passage given below is followed by a set of four questions. Choose the most appropriate answer to each question.

An experimental psychologist investigating the possibility of lasting happiness, Lyubomirsky understands far better than most of us the folly of pinning our hopes on a new car—or on any good fortune that comes our way. We tend to adapt, quickly returning to our usual level of happiness. The classic example of such “hedonic¹⁸ adaptation” comes from a 1970s study of lottery winners, who a year after their windfall ended up no happier than nonwinners. Hedonic adaptation helps to explain why even changes in major life circumstances—such as income, marriage, physical health and where we live—do so little to boost our overall happiness. Not only that, but studies of twins and adoptees have shown that about 50 percent of each person’s happiness is determined from birth. This “genetic set point” alone makes the happiness glass look half empty, because any upward swing in happiness seems doomed to fall back to near your baseline.

“There’s been a tension in the field,” explains Lyubomirsky’s main collaborator, psychologist Kennon M. Sheldon of the University of Missouri-Columbia. “Some people were assuming you can affect happiness if, for example, you picked the right goals, but there was all this literature that suggested it was impossible, that what goes up must come down.”

Lyubomirsky, Sheldon and another psychologist, David Schkade of the University of California, San Diego, put the existing findings together into a simple pie chart showing what determines happiness. Half the pie is the genetic set point. The smallest slice is circumstances, which explain only about 10 percent of people’s differences in happiness. So what is the remaining 40 percent? “Because nobody had put it together before, that’s unexplained,” Lyubomirsky says. But she believes that when you take away genes and circumstances, what is left besides error must be “intentional activity,” mental and behavioral strategies to counteract adaptation’s downward pull.

Lyubomirsky has been studying these activities in hopes of finding out whether and how people can stay above their set point. In theory, that is possible in much the same way regular diet and exercise can keep athletes’ weight below their genetic set points. But before Lyubomirsky began, there was “a huge vacuum of research on how to increase happiness,” she says. The lottery study in particular “made people shy away from interventions,” explains eminent University of Pennsylvania psychologist Martin E. P. Seligman, the father of positive psychology and a mentor to Lyubomirsky. When science had scrutinized happiness at all, it was mainly through correlational studies, which cannot tell what came first—the happiness or what it is linked to—let alone determine the cause and effect. Finding out that individuals with strong social ties are more satisfied with their lives than loners, for example, begs the question of whether friends make us happier or whether happy people are simply likelier to seek and attract friends.

Lyubomirsky began studying happiness as a graduate student in 1989 after an intriguing conversation with her adviser, Stanford University psychologist Lee D. Ross, who told her about a remarkably happy friend who had lost both parents to the Holocaust¹⁹. Ross explains it this way: “For this person, the meaning of the Holocaust was that it was indecent or inappropriate to be unhappy about trivial things—and that one should strive to find joy in life and human relationships.” Psychologists have long known that different people can see and think about the same events in different ways, but they had done little research on how

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18. **Hedonic** (adj) : relating to, characterized by, or considered in terms of pleasant (or unpleasant) sensations
19. **Holocaust** (n) : destruction or slaughter on a mass scale, especially caused by fire or nuclear war

these interpretations affect well-being. So Lyubomirsky had to lay some groundwork before she could go into the lab. Back then, happiness was "a fuzzy, unscientific topic," she says, and although no instrument yet exists for giving perfectly valid, reliable and precise readings of someone's happiness from session to session, Lyubomirsky has brought scientific rigor to the emerging field. From her firm belief that it is each person's self-reported happiness that matters, she developed a four-question Subjective Happiness Scale. Lyubomirsky's working definition of happiness—"a joyful, contented life"—gets at both the feelings and judgments necessary for overall happiness. (If a sleep-deprived new mom feels fulfilled but frazzled, and an aimless party girl feels empty despite loads of fun, neither would consider herself truly happy.) To this day, she rarely sees her studies' participants; they do most exercises out in the real world and answer detailed questionnaires on the computer, often from home. To assess subjects' efforts and honesty, she uses several cross-checks, such as timing them as they complete the questionnaires.

82. The author cites the example of lottery winners in order to support which one of the following?
- (a) That happiness is a result of the pursuit of the senses.
 - (b) That happiness is always motivated by the desire for pleasure
 - (c) That happiness is seldom sustained through materialism.**
 - (d) That happiness is consistently eugenic.
82. c The author is of the opinion that happiness caused by material gains such as winning lotteries is temporary and we quickly return to our usual level of happiness.
83. In the context of happiness, which one of the following factors is not mentioned in the passage?
- (a) The genetic set point.
 - (b) An individual's circumstances.
 - (d) Unintentional activity**
83. d The passage refers to 'intentional activity' not 'unintentional activity'.
84. According to the passage, which fact does the author choose to support the theory of increasing happiness?
- (a) The increase in research directed towards this subject is comforting.
 - (b) Happy people attract more friends.
 - (c) Lyubomirsky does not see her studies' participants.
 - (d) None of the above.**
84. d None of the choices a, b and c can be validly concluded from the passage and hence cannot support the theory.
85. Which of the following is in line with Lyubomirsky's views regarding happiness?
- (a) That the definition of happiness is indefinite.
 - (b) That there is no instrument to measure happiness.
 - (c) That it is indecorous to be unhappy about trivial things.
 - (d) That happiness can lead to an effervescent and satisfied life.**
85. d "Lyubomirsky's working definition of happiness—"a joyful, contented life"—gets at both the feelings and judgments necessary for overall happiness." and thus supports option (d)

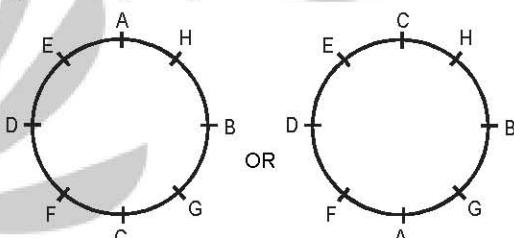
Directions for questions 86 to 88: Answer the questions on the basis of the information given below.

Eight persons – A, B, C, D, E, F, G, H – are sitting around a circular table facing the centre of the table. Each of them is wearing a T-shirt having 2 different colors out of red, blue, green, yellow and orange. It is also known that:

- (a) No male member is wearing a T-shirt having one of its colors as orange.
 (b) A, who is a girl and sitting between two persons who are wearing T-shirts having one of their colors as Red, is wearing a T-shirt having one of its colors as yellow.
 (c) A, B, E and F are sitting diametrically opposite to C, D, G and H respectively.
 (d) No pair of male members are sitting either adjacent to each other or opposite to each other.
 (e) D, who is a male, is sitting to the immediate left of F and wearing a T-shirt having one of its colors as Green but the second one not as Blue. F is wearing a T-shirt having one of its colors as orange but the second one not as Red.
 (f) G, who is wearing a T-shirt having colors as Red and Orange, is sitting to the left of B.
 (g) H is wearing a T-shirt having colors as Yellow and Red. Yellow is one of the colors of T-shirts worn by exactly two persons.
86. The number of girls, out of the eight persons, cannot be more than
 (a) 5 (b) 7 (c) 4 (d) 6
87. Which of the following is one of the colors of the T-shirt worn by D?
 (a) Red (b) Orange (c) Yellow (d) Cannot be determined
88. Three persons with their names as three consecutive letters in the English-alphabet are sitting together. Out of these three, who is sitting between the remaining two?
 (a) E (b) B (c) D (d) F

For questions 86 to 88:

Statement (c) implies that A is sitting opposite of C. Similarly, B, E and F are sitting in front of D, G and H respectively. By using statements (e) and (f), along with (c), two sitting arrangements are possible as follows:



By using statements (b) and (e), we can deduce that as F is not wearing a T-shirt having one of its colors as red and thus, he cannot be a neighbor of A. Hence, we can negate the second arrangement.

86. b D is definitely a male. By using statements (e) and (d), we can deduce that E, F and B are females. Using statements (a) and (f), we can see that G is a female. Hence, E, F, B, G and A are definitely females. C and H may be male or female. The number of females in the group cannot be more than 7.
87. a According to statement (e), D is not wearing a T-shirt having one of its colors as blue. As he is a male, he is not wearing a T-shirt having one of its colors as orange either. By using statements (g) and (b), it's clear that D is not wearing a T-shirt having one of its colors as yellow, as A and H are already wearing T-shirts having one of their colors as yellow. Hence, D must be wearing a T-shirt having colors red and green.

88. c E, D and F are sitting together and their names are also consecutive letters in the English-alphabet. Hence, D is sitting in between E and F.
89. Company X is a leading manufacturer of mozzarella cheese. Its competitors try to defame the company's product by claiming that it is adulterated. After subsequent investigation and court cases, the company comes out clean of the allegation. However, after the case, company X is not able to get the same response from its buyers and experiences a huge drop in the company's profits. What could have been the reason for this?
- (a) **People firmly believe that there can be no smoke without fire.**
- (b) The manufacturing of the cheese of company X has diminished to a large extent.
- (c) The cheese manufactured by Company X has always been more expensive than that of its competitors.
- (d) Company X, unlike its competitors, does not pay bribes.
89. a Option (a) is the correct answer because it suggests that people have taken the allegations seriously and hence, their opinions about the product of Company X has changed which reflects in the change in response and decreased profits. Option (b) can be ruled out because decrease in the production might affect profits but does not explain a change in the buyers' response. Option (c) is inappropriate because the price factor existed before and after the allegations and hence, cannot be a reason for the change in response and profits post allegation. Option (d) is also negated because it does not explain a drop in buyer response.
90. The American actress, star of Clueless, was awarded with the foot-in-the-mouth award for her comment: "I think that *Clueless* was very deep. I think it was deep in the way that it was very light. I think lightness has to come from a very deep place if it's true lightness."
- Which of the following is a valid assumption in the given passage?
- (a) The American actress ended up saying something extremely incoherent.
- (b) People believe that anyone having made such a remark would be very stupid.
- (c) **People believe that depth and lightness are opposites and cannot be associated.**
- (d) None of the above.
90. c To put one's foot in one's mouth is to say something embarrassing or wrong. Something can be described as incoherent if it is confusing or seems illogical. The actress' statement is not necessarily incoherent because she explains the logic behind it. So, option (a) is ruled out. Option (b) is irrelevant because it is not necessary for someone to be stupid to put one's foot in one's mouth. Option (c) is the correct answer because if the awardees believe that there is absolutely no relation whatsoever between depth and lightness, the actress' statement will be completely wrong and hence, would be a strong contender for the foot-in-the-mouth award.
91. Given below are five sentences. Each sentence has a pair of words that are *italicized*. From the *italicized* words, select the most appropriate words (A or B) to form correct sentences. The sentences are followed by options that indicate the words, which may be selected to correctly complete the set of sentences. From the options given, choose the most appropriate one.
- I. At the dinner, Philip was presented with a specially engraved silver *salvor* (A) / *salver* (B).
- II. A shark's tooth is an example of a *serrate* (A) / *cerate* (B) tooth.
- III. The pandas are going through *acclimation* (A) / *acclamation* (B) in their new home.
- IV. Stockhausen used close analysis of sound to compose sine waves to create *timbers* (A) / *timbres* (B).
- V. The narrow black highway ribboned smoothly down hill under a *canapé* (A) / *canopy* (B) of trees.

(a) BAABB

(b) AAABB

(c) BABAA

(d) ABABB

91. a In sentence I, ‘salver’ which refers to a tray used for serving food or drinks on formal occasions, is the correct word. ‘Salvor’ refers to a person engaged in salvage of a ship or items lost at sea. ‘Serrate’ describes something that is notched or toothed on the edge while ‘cerate’ refers to an unctuous preparation for external use consisting of wax or resin mixed with oil, lard and medicinal ingredients. So, ‘serrate’ will be the correct word in sentence II. ‘Acclimation’ is the correct word in sentence III because it is the process of adapting to a new climate or environment while ‘acclamation’ means a strong and enthusiastic approval or praise. In sentence IV, ‘timbres’ is the correct word because it refers to the quality of the sound made by a particular instrument while ‘timbers’ refers to long, heavy pieces of wood used for construction. ‘Canopy’, which refers to a layer of something that spreads over an area like a roof, is the correct word in sentence V. ‘Canapé’ is a cracker or a small, thin piece of bread spread with cheese, meat or relish and served as an appetizer.
92. Given below are five sentences. Each sentence has a pair of words that are *italicized*. From the *italicized* words, select the most appropriate words (A or B) to form correct sentences. The sentences are followed by options that indicate the words, which may be selected to correctly complete the set of sentences. From the options given, choose the most appropriate one.
- I. The pistil consists of a single *carpel* (A) / *carpal* (B) with its ovary, style, stigma and solitary ovule or twin ovules.
 - II. The main road to Enniskillen was virtually *impassable* (A)/ *impassible* (B) in winter conditions and was a major concern.
 - III. Many state convicts are employed in *levy* (A) / *levee* (B) construction, and there are convict farms at Angola, Hope, Oakley and Monticello.
 - IV. Its articles of clothing, silk goods and *millinery* (A) / *millenary* (B) also enjoy a great reputation for the taste with which they are manufactured.
 - V. The play was a *mordent* (A) / *mordant* (B) comedy about getting ahead in the corporate world.
- (a) AABBA (b) BAABB (c) **AABAB** (d) ABABA
92. c In sentence I, ‘carpel’ which is one of the individual female reproductive organs in a flower, is the correct answer. ‘Carpal’ is an adjective which describes anything related to the bones of the wrist. The correct word in sentence II is ‘impassable’ which refers to something that is impossible to cross or travel over while ‘impassible’ refers to something that is incapable of suffering or experiencing pain. ‘Levee’ is the correct word in sentence III because it refers to a low wall built on the side of a river to prevent it from flooding or to help the passengers get on to or off a boat. ‘Levy’ on the other hand is an amount of money that must be paid and is collected by a government or any other authority. In sentence IV, ‘millinery’ which refers to women’s hats, is the correct word. ‘Millenary’ is a group of 1000 units or things. ‘Mordant’ which refers to a harsh criticism especially in a funny way, is the correct word in sentence V while ‘mordent’ refers to a musical ornament made by a quick alternation of a principal tone with the tone immediately below it.
93. Four sentences are given below labeled a, b, c and d. Of these, three statements need to be arranged in a logical order to form a coherent paragraph/passage. From the given options, choose the one that does not fit the sequence.
- (a) He added, “some scientists now believe that the genetic changes follow rather than lead the process.”
 - (b) Often, the cause of an aberrant form isn’t just one thing but a mix of factors, said University of Iowa neuroscientist Mark Blumberg, author of the book *Freaks of Nature*.
 - (c) As he explained it, ”Many of the normal features that we see in animals—think elephant trunks—may have arisen as evolutionary novelties with changes in the environment that altered how the animals developed”.
 - (d) **Though less bizarre looking than some, one of the more important “freaks” emerged in the early 1900s, before the field of molecular biology even existed: the white-eyed *Drosophila* fly.**

93. d Options (b) and (c) are a mandatory pair because option (c) explains the reason behind the statement made by Mark Blumberg in option (b). Option (a) should follow option (c) as it mentions an additional statement made by the author. Option (d) is related to the book 'Freaks of Nature' but cannot come in sequence with the other statements.

Directions for questions 94 to 96: Answer the questions on the basis of the information given below.

In the following grid, letters A, B, C and D represent four natural numbers less than 50, with A being the greatest. Each of these letters is a multiple of 5. It is also known that the sum of the letters in the cells along the two diagonals in the grid is 80.

A	B	C	D
B	C	D	A
C	D	A	B
D	A	B	C

94. What is the value of $(A + C + D)$?
(a) 35 (b) 40 (c) 30 (d) Either (a) or (c)
95. Which of the following is a possible value of A?
(a) 35 (b) 20 (c) 30 (d) None of these
96. What is the minimum possible value of 'B' for which $(A + B + C + D)$ is a multiple of 4?
(a) 10 (b) 20 (c) 15 (d) 5

For questions: 94 to 96:

As per the given information,

$$2A + 2C + 4D = 80 \Rightarrow A + C + 2D = 40$$

Since, A is the largest of all the mentioned letters, A cannot be equal to 5, 10, 30 or 35.

The possible values of A are 15, 20 and 25.

94. d There are three possibilities.
Case I: When A = 15.
 $C + 2D = 25 \Rightarrow C = 5$ and $D = 10$.
Therefore, $A + C + D = 15 + 5 + 10 = 30$
Case II: When A = 20.
 $C + 2D = 20 \Rightarrow C = 10$ and $D = 5$.
Therefore, $A + C + D = 20 + 10 + 5 = 35$
Case III: When A = 25.
 $C + 2D = 15 \Rightarrow C = 5$ and $D = 5$.
Therefore, $A + C + D = 25 + 5 + 5 = 35$
Therefore, $(A + C + D)$ can have two values and these are 30 and 35. Hence, option (d) is a correct answer.
95. b 20 is a possible value of A.
96. d In order to minimize the value of B, we have to minimize the value of $(A + B + C + D)$. Since $A + C + D = 30$ or 35, therefore the minimum possible value of $(A + B + C + D)$ which is a multiple of 4 is 40. Hence, the minimum possible value of B is 5.

97. Four alternative summaries are given below the following passage. Choose the option that best captures the essence of the passage.

There are approximately 400 operational tanneries in Kanpur today. That is after some 70 were shuttered due to pollution concerns. The remaining ones are required to recycle all their water. We visit two facilities, one large and one small, and both have recycling systems, but both require electricity to run their pumps. And electricity production is notoriously unreliable in northern India. I notice power outages occurring six to eight times a day. And when it does, milky, silvery-grayish water spills down overflowing ditches in the streets, most likely headed to the river.

- (a) Kanpur faces severe water pollution because of the tanneries established in the city.
 - (b) The steps taken by the government to limit the pollution concerns caused by tanneries are inadequate.**
 - (c) The state government of Uttar Pradesh is greatly concerned about the water pollution caused by tanneries.
 - (d) The waste water produced by the tanneries does not cause water pollution once they are recycled.
97. b Option (a) is incorrect because the passage does not suggest that there is 'severe' water pollution in Kanpur. Option (c) is negated because the passage does not suggest that the Uttar Pradesh government is focusing on reducing water pollution. They have shut down tanneries due to pollution concerns but they cannot be said to be 'greatly concerned'. Option (d) is ruled out as we cannot ascertain whether recycled waste water does not pollute the river. Option (b) captures the crux of the passage.
98. Four sentences are given below labeled a, b, c and d. Of these, three statements need to be arranged in a logical order to form a coherent paragraph/passage. From the given options, choose the one that does not fit the sequence.
- (a) The Hindus believe that if a deceased's ashes are laid in the Ganges at Varanasi, their soul will be transported to heaven and escape the cycle of rebirth.
 - (b) In a culture that believes in reincarnation, this concept called moksha is profound.
 - (c) Resurrection offers the escape most people seek from a lifetime of sins and poor decisions.**
 - (d) The holier the place, the better the chances you achieve moksha and avoid returning to Earth as a cow or a cricket in your next life.
98. c While all three sentences in the sequence, i. e. (a), (b) and (d), speak of reincarnation, option (c) deviates by starting to discuss a different theory - resurrection.
99. The word given below has been used in the given sentences in four different ways. Choose the option corresponding to the sentence in which the usage of the word is *incorrect* or *inappropriate*.

Fish

- (a) I really feel like a fish out of water at her sophisticated high society charity events.
- (b) Having just said that, the shopkeeper fished up a giant squid out of the barrel and shook it in our faces.
- (c) She was right to move on after breaking up with him. There are anyway plenty more fish in the river.**
- (d) He comes across as a queer fish and proves the saying, 'like father like son'.

99. c The correction in option (c) should be 'plenty of fish in the sea.' The phrase means that many options are available. To feel like a fish out of water means to feel out of place or strange in some place. To fish up something means to pull or hoist something out, especially after searching or reaching for it. A queer fish is a strange person.
100. The word given below has been used in the given sentences in four different ways. Choose the option corresponding to the sentence in which the usage of the word is *incorrect* or *inappropriate*.

Close

- (a) He said he was only joking, but his comments were so close to the bone they weren't funny at all.
- (b) When the lions closed in for the kill, the zebras began a mad stampede.**
- (c) My god! That was a close shave with the truck passing us so close.
- (d) I know you love to play your cards close to your chest but it's my advice that you learn to trust people a bit more.
100. b The correction in option (b) should be 'closed in for the kill'. The phrase means to take ruthless or decisive action. Something close to the bone is very personal or offensively honest. A close shave means a narrow escape and to play your cards close to your chest means to distrust people.