Section I - Quantitative & Numerical Ability – 40 qs

1. If $a^2 + b^2 + c^2 + d^2 = ab + bc + cd + da$, then which of the following is true
   a) a = b = c = d   b) 4a = 3b = 2c =d   c) a = 2b = 3c = 4d   d) None of these

1. $a^2+b^2+c^2+d^2 = ab+bc+cd+da$
   $\Rightarrow 2(a^2+b^2+c^2+d^2 -ab-bc-cd-da) = 0$
   $\Rightarrow (a-b)^2+(b-c)^2+(c-d)^2+(d-a)^2=0 \Rightarrow a-b = b-c = c-d = d-a = 0 \Rightarrow a = b = c = d$

2. If Dig company hires a machine to extract oil from mustard seeds, it will have to pay Rs. 6000 per month as rent but can extract oil at a cost of Rs. 1.5 per 100 gallons. If it leases a factory, there will be no initial payment but the cost of extraction would go up to 300%. At what volume of extraction of oil would both the alternatives cost equal?
   a) 1500   **b) 2000**   c) 3000   d) None of these

2. $6000 + 1.5x = 4.5x$ ($\therefore$ increase is to 300% and not by 300%)
   $\therefore 3x = 6000 \therefore x = 2000$. Hence, [2].

3. The distance between Esplanade to Airport is 6 km. A bus starts from Esplanade with 10 passengers and initial speed 45 km / hr. There are bus stoppages at the interval of 1 km. A bus stops at stoppages for 5 minutes. If every passenger has to go 2 km and at every stoppage 5 passengers boarded the bus. Find the time taken by bus to reach Airport. Speed of bus is inversely proportional to number of passenger in the bus.
   a) 33 minutes 10sec.   b) 34 minutes 10sec.
   c) 33 minutes 20sec.   **d) 33 minutes 40sec.**

3. Let 's' be the speed of bus and 'n' be the number of passengers.
   $\therefore s\alpha \dfrac{1}{n} \Rightarrow s = \dfrac{k}{n}$

   Now speed is 45 when n = 10 $\Rightarrow$ 45 = k / 10 $\Rightarrow$ k = 450
   Now, at first stoppage,
   number of passengers = 10 + 5 = 15
   $\therefore$ Speed = 450 / 15 = 30 km / hr.

   At second stoppage,
   number of passengers = 15 – 10 + 5 = 10
   So after that the bus had only 10 passengers.
   $\therefore$ Speed for rest of journey = 45 km/hr.

   $\therefore$ Total time taken = $\dfrac{5}{45}$ $+ \dfrac{1}{30}$ $+ \dfrac{25}{60}$
   (to cover 5 km)   (to cover from stoppage 1 to 2)   (total time taken at stoppage)

   $= \dfrac{20+6+75}{180} = \dfrac{101}{180}$ hours. = 33 minutes 40 seconds. Hence, option (5)

4. The price in Rupees for the US Dollar increased by 25% from Jan. 1 to Feb. 1. This year, S.K. Jain, a havala dealer, bought some Dollars on Feb.1. On Mar. 1, the price had increased by a further 10%, so Jain sold all his dollars to a customer, charging him Rs. 12 for Dollars worth Rs. 11. He invested the 15 lakh he got in the process, in a land deal. On Apr.1., the land prices stood at 16.66% lower than on Mar.1.
   How much money did S.K. Jain invest in Dollars?
   a) Rs. 10 lakh   **b) Rs. 12.5 lakh**   c) Rs. 15 lakh   d) Rs. 13.75 lakh

4.   After a 10% hike, the price now is Rs. 11. He bought it at Rs.10.
   $\therefore$ Cost price of 1 Dollar = 10. SP of one dollar = 12. $\therefore$ Amount invested $= {}^{10}/_{12} \times 15$ lakh = 12.5 lakhs. Hence, 2.

5. $f(x, y) = \cfrac{x}{1+\cfrac{y}{1+\cfrac{x}{1+\cfrac{y}{1+x...}}}}$ (x and y are positive)

   f(x, y) can be expressed as

   a) $\dfrac{x}{y}$ b) $\dfrac{x+1}{y+1}$ c) $\dfrac{x}{1+\dfrac{y}{x}}$ **d) None of these**

5. Say $f(x, y) = z$

$$z = \cfrac{x}{1+\cfrac{y}{1+\cfrac{x}{1+\cfrac{y}{1+x...}}}} = \cfrac{x}{1+\cfrac{y}{1+z}}$$

or $z = \dfrac{x(1+z)}{(1+y+z)}$ or $z + yz + z^2$

$= x + zx$ or $z^2 + z(y - x+1) - x = 0$

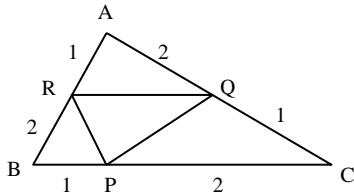$\therefore z = \dfrac{(x-y-1) \pm \sqrt{(y-x+1)^2 + 4x}}{2}$

$= \dfrac{(x-y-1) + \sqrt{(x-y-1)^2 + 4x}}{2}$

$\{ \because x, y \text{ positive, } z \text{ will also be positive}\}$

6. P, Q, R are points on sides BC, CA, AB respectively of $\triangle ABC$, such that $\dfrac{BP}{PC} = \dfrac{CQ}{QA} = \dfrac{AR}{RB} = \dfrac{1}{2}$, the area of $\triangle PQR$ is K times the area of $\triangle ABC$, then K equals :

   a) $\dfrac{1}{2}$ **b)** $\dfrac{1}{3}$ c) $\dfrac{1}{4}$ d) $\dfrac{2}{3}$

46. (b); Area of PQR by area of ABC is

$1 - 3\left(\dfrac{1}{3} \times \dfrac{2}{3}\right) = 1 - \dfrac{2}{3} = \dfrac{1}{3}$. Hence option b).

7. A lane runs perpendicular to a road 64 feet wide. If it is just possible to carry a pole 125 feet long from the road into the lane, keeping it horizontal, then the minimum width of the lane must be (in feet) :

   a) $\dfrac{125}{\sqrt{2}} - 64$ b) 16   **c) 27**   d) 36

47. In the figure, let AB be the pole of length 125 ft. which is taken into the lane from the road horizontally. The end A will rest in contact with the side of the road and the end B will rest in contact with the side of the lane. The point C denotes the pivotal point through which the pole turns as it enters the lane just horizontally, such that the width of the lane is maximum.

Let CD = y

Now AC + CB = 125

$\dfrac{64}{AC} = \cos \alpha$ $\therefore AC = \dfrac{64}{\cos \alpha}$

$\therefore CB = 125 - \dfrac{64}{\cos \alpha}$

$y = CD = CB \sin \alpha = \sin \alpha \left[125 - \dfrac{64}{\cos \alpha} \right]$
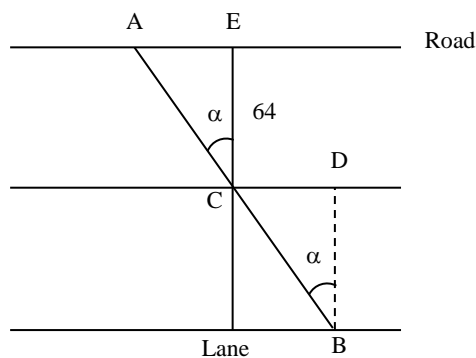
$= 125 \sin \alpha - 64 \tan \alpha$

$\dfrac{dy}{dx} = 125 \cos \alpha - 64 \sec^2 \alpha = 0$

$\therefore \cos \alpha = \dfrac{4}{5}$ $\therefore \sin \alpha = \dfrac{3}{5}$, $\tan \alpha = \dfrac{3}{4}$

$y_{max} = 125 \times \dfrac{3}{5} - 64 \times \dfrac{3}{4}$

$= 75 - 48 = 27$ ft.   Hence, option (3)

8. Meena and Radhika have 200 and 150 marbles each. They decide to play a simple game: Meena will give 5% of her marbles to Radhika who will then give 5% of her marbles to Meena. The game will continue till any one of them has a number of marbles 10% different than the number held at the beginning. Rules of the game dictate that the marbles to be exchanged must be integral in number (rounded off to next higher integer). How many times will the exchange take place before the game stops?

a) 10   b) 16   c) 14   **d) 9**

8.

No. of exchanges	Meena	Radhika
0	200	150
1	190	160
2	198	152
3	188	162
4	197	153
5	187	163
6	196	154
7	186	164
8	195	155
9	185	165

Thus, after 9 exchanges, Radhika has 165 marbles, which is $\left(\dfrac{165 - 150}{150} \times 100\right)\% = 10\%$ more than the number held at the beginning.

∴ Option (4) is correct.

9. If $\log_{10}2$, $\log_{10}(2^x-1)$ and $\log_{10}(2^x+3)$ are in A.P., then X equals

a) $\log_5 2$;   **b) $\log_2 5$;**   c) $\log_3 2$;   d) $\log_2 3$

9. Clearly, $2 \log_{10}(2^x-1) = \log_{10}2 + \log_{10}(2^x+3)$
$\Rightarrow (2^x-1)^2 = 2(2^x+3)$
Putting $y = 2^x$, we get $(y-1)^2 = 2(y+3)$
Solving for y, we get $y = -1$ or 5, but $y = 2^x \ne -1$
Hence $y = 2^x = 5 = x = \log_2 5$

Alternative Method
Working with options. If we use the second option, then we see that the three quantities are $\log_{10}2$, $\log_{10}4$, $\log_{10}8 = \log_{10}2$, $2\log_{10}2$, $3\log_{10}2$, which clearly is in A.P. with common difference $\log_{10}2$.

10. The numbers expressing (in metres) the length of a fast and slow train are three times the numbers expressing (in kmph) the speeds of the slow and fast train respectively. The speeds of the slow train and that of the fast train consist of the same two digits but in the reverse order. The time taken by the two trains to pass each other, when traveling in opposite directions on parallel lines, will be:

a) 5/6 sec   b) 9.78 sec   **c) 10.8 sec**   d) 5/18 sec

10. Let the speeds (in kmph) of slow and fast train respectively be $10a + b$ and $10b + a$.
$\Rightarrow$ The length (in m) of fast slow trains = $3(10a + b)$ and $3(10b + a)$ respectively
∴ Total distance to be covered = $3(11a + 11b)$

Relative speed = $(11a + 11b)$ kmph = $(11a + 11b) \times \dfrac{5}{18}$ m/sec

∴ Required time = $\dfrac{3(11a+11b)}{(11a+11b)} \times \dfrac{18}{5} = 10.8\,\text{sec}.$

11. Four horses are tethered at four corners of a square plot of side 14 meters so that the adjacent horses can just reach one another. There is a small circular pond of area 20 m² at the centre. The area left ungrazed is

a) 22 m²   b) 42 m²   c) 84 m²   d) 168 m²

11. DE = 7 m
∴ Area of shaded portion
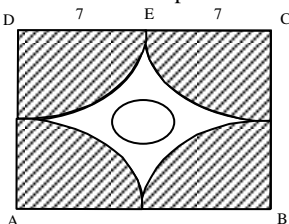
$$= \frac{4 \times \pi \times 7^2}{4} = \frac{22}{7} \times 7^2 = 154 \text{ m}^2$$

∴ Area left ungreased

= Area of sq. – Area of shaded portion – Area of Pond = 196 – 154 - 20 = 22 m².
Hence, option (a).

12. Two traders A and B have 30 horses between them. They sell their horses at different prices, but each receives the same sum. If A had sold his horses at B's price, he would have received Rs. 2160. Had B sold his horses at A's price he would have received   Rs. 960. How many horses did A have?
   a) 10   b) 14   **c) 18**   d) 12

12. Let x and y be the number of horses with A and B. ∴ x + y = 30.
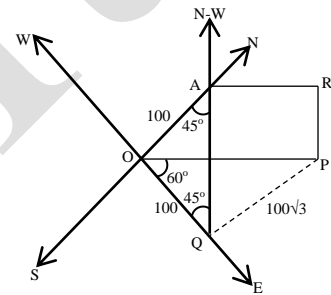   Let the selling price of the horses with A and B be A and B, respectively.
   ∴ Bx = 2160 ⇒ x = 2160/B and Ay = 960 ⇒ y = 960/A. Now, Ax = By.
   ∴A(2160/B) = B(960/A) ⇒ A²/B² = 960/2160 = 4/9 ⇒A/B = 2/3.
   ∴ 2x = 3y and x + y = 30. Solving, we get, x = 18 and y = 12. Hence (3).

13. A man standing at a point O finds that a balloon at a height 'h' metres due east of him has an angle of elevation 60^0. He walks due north while balloon moves north–west (45^0 west of north) remaining at the same height. After he walks for 100 metres, he finds that the balloon is vertically above him. Then the value of 'h' in metres is :
   a) $25\sqrt{3}$ b) 50   c) $50\sqrt{3}$ **d) 100 $\sqrt{3}$**

13. O is the initial position of the man. P is the initial position of the kite.
   OA is the distance covered by the man towards north and PR is the movement
   of the kite along northwest at an angle of 45°.
   R is the position of the kite when it is just above the point A, the position of the man.
   Therefore, ∠OAQ = ∠OQA = 45°
   ∴ OA = OQ = 100
   ∴ PQ = h = 100√3 (∵ Δ OPQ is right-angled by 30° – 60° – 90°)
   Hence option (d) is the answer.

Directions for questions 14 to 16: Following questions are based on the graphs given below.

Falling numbers in core business…

76,954   70,548   76,437   79,237

67,780   69,362   70,571   62,927

58,006
55,920

1998   1999   2000   2001   2002

◇ Uvs (volume sales)   ○ Tractors (volume sales)

…Lead to near stagnant sales and falling profits

Sales (Rs. Crore): 4,052 (1998), 4,166 (1999), 4,409 (2000), 4,352 (2001), 3,949 (2002)
Profit (Rs crore): 251 (1998), 226 (1999), 263 (2000), 120 (2001), 103 (2002)
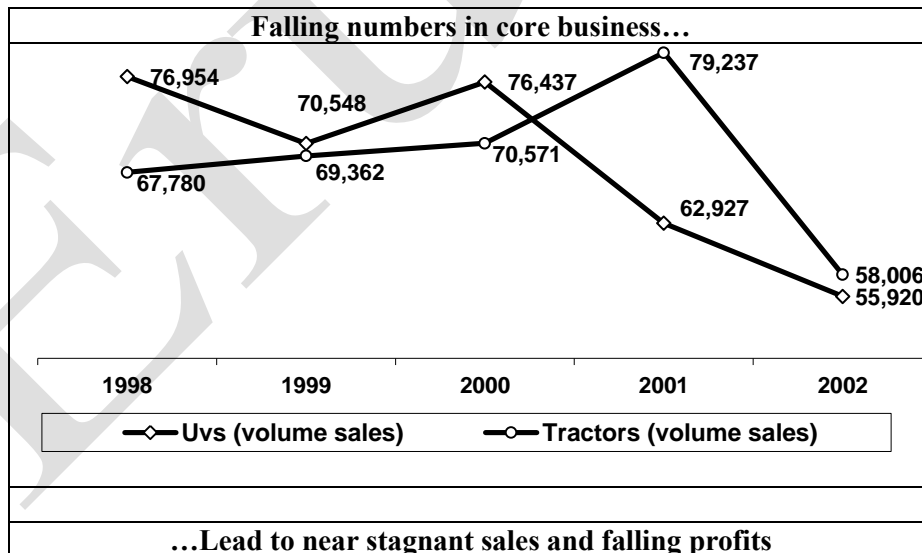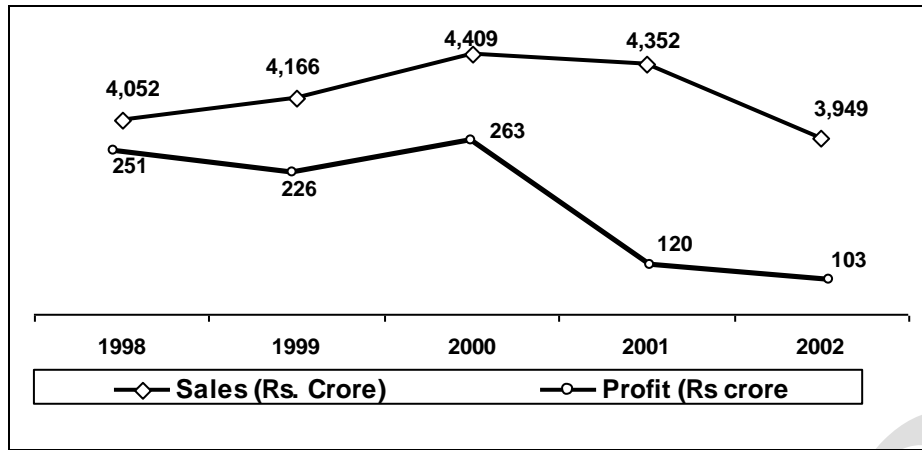
14. For which year did the number of UVs sold fall the most?
   a) 1999   b) 2000   **c) 2001**   d) 2002

14. Clearly, from the graph, the greatest fall is in 2001. Hence (3)

15. If the percentage decrease in 2003 is same as in 2002 find the number of UVs sold in 2003?
   a) 51202   **b) 49713**   c) 42921   d) 44312

15. Percentage decrease in 2002 = 7007/62927 × 100 = 11.1%
   ∴ Decrease in 2003 = 11.1/100 × 55920 ≈ 6207
   ∴ No. of UV's in 2003 = 55920 – 6207 = 49713. Hence (2)

16. The ratio of profit as a percent of sales in 1999 to that in 2002 is
   a) 2 : 1   b) 2 : 3   c) 7 : 4   d) 9 : 4

16. Profit as a % of sales in 1999 = 226/4166 × 100
   Profit as % of sales in 2002 = 103/3949 × 100
   ∴ Ratio = (226/4166) × (3949/103) = 2.08. Hence (1)

17. The area of a rectangle is 8 sq. cm. Find its minimum perimeter in cm.
   a) $4\sqrt{2}$ cm   **b) $8\sqrt{2}$ cm**   c) $16\sqrt{2}$ cm   d) 4 cm

17. Perimeter of a rectangle is minimum when the length and breadth are equal.
   ∴ 1 side = $\sqrt{8}$ = $2\sqrt{2}$ cm.
   ∴ Perimeter = 4 × $2\sqrt{2}$ cm. = $8\sqrt{2}$ cm. Hence, option (2).

18. Set T consists of 82 consecutive odd integers. If the sum of the integers is 3^8 - 165, what is the median of set T?
   a) 78   b) 79   c) 80   d) 81

18. A number of integers, so median= average = (41st+42nd)/2

   here we are given sum and we know total number, so median = 38−1658238−16582
   choice give us the answer..
   1) median will be a EVEN integer
   2) it will be a multiple of 3, as numerator has 3 in it and denominator does not
   ONLY 78 matches

   otherwise
   38−16582=3(37−55)82=3(2187−55)82=7838−16582=3(37−55)82=3(2187−55)82=78

19. Once Ramanujan, the great Indian mathematician was travelling in a car with his friend. His friend saw a car in front of them having the number 1729. His friend then said Ramanujan, look! What an odd car number! Ramanujan thought for a while and answered wah! What a beautiful number! This is number which can be expressed as the sum of the cubes in two different ways. i.e. $1^3+12^3 = 9^3 + 10^3$. His friend then asked, how many more such number are there?
   a) 0   b) 1   c) 2   d) **None of these**

19. $1729n^3 = (n)^3 + (12n)^3 = (9n)^3 + (10n)^3$.
   Where n is a natural number. Hence, number of solutions is infinite. Hence, option (4)

20. A dog was chasing a cat. The cat found a tree and started climbing upwards. At a particular instant the angle of elevation become 30^0. After 1 minute the cat has moved up by 3 m while the dog is now $3\sqrt{3}$ m away from the tree. If the angle of elevation is now 60^0, find the dog's speed in meters/min.

   a) 9   b) 3   **c) $3\sqrt{3}$**   d) Data not sufficient

20.

$$\tan 60^0 = \frac{OC_2}{OD_2} = \frac{OC_2}{3\sqrt{3}}$$

$$\Rightarrow OC_2 = 3\sqrt{3}\tan 60^0 = 3\sqrt{3} \times \sqrt{3} = 9$$

$$\therefore OC_1 = 9 - 3 = 6$$

$$\tan 30^0 = \frac{OC_1}{OD_1} = \frac{6}{OD_1}$$
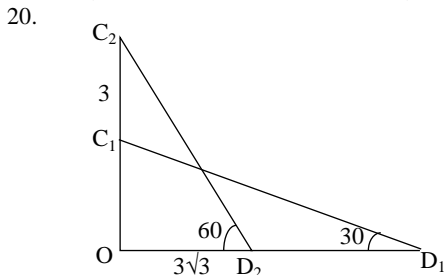
$$\Rightarrow OD_1 = \frac{6}{\tan 30^0} = \frac{6}{\frac{-1}{\sqrt{3}}} = 6\sqrt{3}$$

$$\therefore D_2 D_1 = 6\sqrt{3} - 3\sqrt{3} = 3\sqrt{3}$$

$\therefore$ Reqd. speed = $3\sqrt{3}$ meters/min

21. If Min. of $(a, b, c) \times$ Max. $(a, b, c) =$ HCF of $(a, b, c) \times$ LCM of (a, b, c); where b is a prime number which of the following is true?

   I. b is the least number.

   II. If b is the least number a and c are multiple of b.

   III. If b is the greatest number then one of a and c is multiple of the other.

   a) I only   b) II only   c) III only   **d) None of these**

21. (i) If $a < c \Rightarrow b < a < c$, then LHS = bc and RHS = (HCF = 1 or b) $\times$ (LCM = no fixed value).
   hence, LHS $\neq$ RHS
   If $a > c$, same way, LHS $\neq$ RHS
   (ii) Let $b < a < c$ then LHS = bc and RHS = (HCF = b) $\times$ (LCM = no fixed value).
   $\therefore$LHS $\neq$ RHS.
   Again, if $b < c < a$, same way, LHS $\neq$ RHS.
   (iii) Let $a < c < b$, then LHS = ac, and RHS = (HCF = no fixed value) $\times$ (LCM = not a fixed value).
   $\therefore$ LHS $\neq$ RHS, similarly LHS $\neq$ RHS for $c < a < b$
   So, none of I, II and III are true. Hence, [option – 4]

22. Tata, Birla and Bajaj together make a total of 8 cars in one day. Together they were assigned a job of making 80 cars. Tata started the work without Birla and Bajaj joining him. After a few days Tata quit and immediately Birla and Bajaj took over and together completed the job after a few more days. If it took a total of 20 days to complete the entire work and Tata makes at least 5 cars per day, how many days did Tata work on the job?

   a) 9   **b) 10**   c) 15   d) None of these

22 Let the number of cars which can be made by each of Tata, Birla and Bajaj be x, y, z respectively.
   Let us say that Tata worked alone for a days.
   We known, $x + y + z = 8$
   $ax + (20 - a)(y + z) = 80$
   $\Rightarrow ax + (20 - a)(8 - x) = 80$
   $\Rightarrow (a - 10)(2a - 8) = 0$
   $\therefore$ Solving we get $a = 10$ or $x = 4$
   Given $x \geq 5$
   $a = 10$. Hence, option (2).

23. Find the ratio of the perimeter of the regular hexagon ABCDEF and the hexagon obtained by joining the mid-points of the sides of the hexagon PQRSTU.

   a) 2 : 1   **b) 2 : $\sqrt{3}$**   c) $\sqrt{3}$: 2   d) 3 : 1

23. Let the side of the hexagon ABCDEF be x.

∴ The side of the hexagon PQRSTU, which is obtained by joining the mid-points $= \frac{x\sqrt{3}}{2}$

∴ Ratio of the Perimeter $= 6x : _{6\times}\frac{x\sqrt{3}}{2} = 2 : \sqrt{3}$. Hence option (2)

24. The probability of a man hitting a target is 0.25. If he fires seven times, then the probability of his hitting the target at least twice, is:

a) $\dfrac{3}{4}$
b) $\dfrac{7}{24}$
c) $1 - \left(\dfrac{10 \times 3^6}{4^7}\right)$
d) $1 - \left(\dfrac{10 \times 3^7}{4^7}\right)$

24. $P = \frac{1}{4}$, $q = \left(1 - \frac{1}{4}\right) = \frac{3}{4}$ and n = 7.

Required Probability
$= 1 - P\,(\,X < 2\,) = 1 - [\,P\,(\,X = 0\,) + P\,(\,X = 1\,)\,]$
$= 1 - \left(\dfrac{3}{4}\right)^7 - 7 \times \dfrac{1}{4} \times \left(\dfrac{3}{4}\right)^6 = \left(1 - \dfrac{10 \times 3^6}{4^7}\right).$

Direction for questions 25 to 28: Refer to the graphs given below and answer the questions.

A school takes a certain number of its students on a camping trip. All these students are divided into four houses – TAGORE, RAMAN, SUBHASH & GANDHI. The students set up 10 tents numbered I, II, III, IV, V, VI, VII, VIII, IX & X and each of these tents is assigned to any of the four houses.

According to classes, the number of students in each tent is one of the five numbers 12, 15, 20, 25 and 30. It is known that no two tents assigned to the same house have equal number of students in them. Each tent will house students of only that house to which it is assigned.

The following bar graphs provide information about the number of tents assigned to each house and about the number of tents that have different number of students.
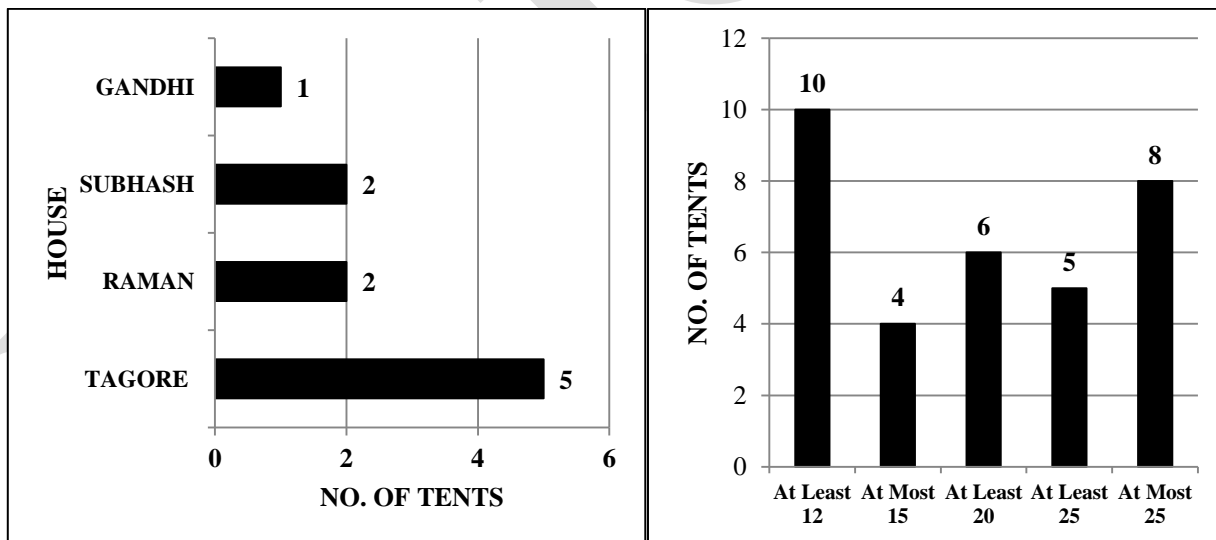
25. What is the total number of students in all the tents that are assigned to Tagore house?
a) 102
b) 92
c) 95
d) 105

25. The number of tents that are assigned to the houses Gandhi, Subhash, Raman and Tagore is 1, 2, 2, 5 respectively. It is given that no two tents assigned to the same house have an equal no. of students. It is also given that the no. of students in each of the ten tents is 12, 15, 20, 25 and 30.
Also, since there are five tents that are assigned to Tagore, the numbers of students in these tents are 12, 15, 20, 25 and 30.
From the second bar chart, it can also be observed that the no. of tents that have 30, 25, 20 and 15 or less students is 2, 3, 1 and 4 respectively.
The derived conclusion can be tabulated as

No. of students	No. of tents
12	1 – 3
15	1 – 3
20	1

25	3
30	2

The total no. of students in all tents assigned to Tagore house = 12 + 15 + 20 + 25 + 30 = 102

26. The total no. of students in all the ten tents put together is at the most
    a) 202　　　　　　　b) 207　　　　　　**c) 212**　　　　　　d) 222

26. The number of tents that are assigned to the houses Gandhi, Subhash, Raman and Tagore is 1, 2, 2, 5 respectively. It is given that no two tents assigned to the same house have an equal no. of students. It is also given that the no. of students in each of the ten tents is 12, 15, 20, 25 and 30.

    Also, since there are five tents that are assigned to Tagore, the numbers of students in these tents are 12, 15, 20, 25 and 30.

    From the second bar chart, it can also be observed that the no. of tents that have 30, 25, 20 and 5 or less students is 2, 3, 1 and 4 respectively.

    The derived conclusion can be tabulated as

No. of students	No. of tents
12	1 − 3
15	1 − 3
20	1
25	3
30	2

    The total number of students in all the ten tents will be maximum when there are 3 tents that have 15 students each and there is only one tent that has 12 students.

    Therefore the total number of students is at most = $1 \times 12 + 3 \times 15 + 1 \times 20 + 3 \times 25 + 2 \times 30 = 212$.

27. If the numbers of students in the tent that is assigned to Gandhi house is 30, which of the following can be the total numbers of students in all the tents that are assigned to Raman house?
    a) 27　　　　　　　b) 37　　　　　　c) 40　　　　　　**d) Either (b) or (c)**

27. The number of tents that are assigned to the houses Gandhi, Subhash, Raman and Tagore is 1, 2, 2, 5 respectively. It is given that no two tents assigned to the same house have an equal no. of students. It is also given that the no. of students in each of the ten tents is 12, 15, 20, 25 and 30.

    Also, since there are five tents that are assigned to Tagore, the numbers of students in these tents are 12, 15, 20, 25 and 30.

    From the second bar chart, it can also be observed that the no. of tents that have 30, 25, 20 and 5 or less students is 2, 3, 1 and 4 respectively.

    The derived conclusion can be tabulated as

No. of students	No. of tents
12	1 − 3
15	1 − 3
20	1
25	3
30	2

    We already know that the numbers of students in 5 tents that are assigned to Tagore house are 12, 15, 20, 25 and 30 given that the no. of students in that tent assigned to Gandhi house is 30.

    Total no. of tents assigned to Raman house is 2.

    Total no. of students in the tents assigned to Raman house can be (25 + 12 = 37), (25 + 15 = 40), but it cannot be 12 + 15 = 27. As the number 25 must be assigned among 3 houses and it cannot be assigned to Gandhi house, so Raman house has one tent having 25 students. The other tent can have either 12 or 15. The number 20 is ruled out as Tagore house has assigned that only one group of 20. Hence option (d).

28. If the total no. of students in the tents that are assigned to Subhash house is the maximum possible and the total no. of students in all the tents put together is the least, then what is the numbers of students in the tent assigned to Gandhi house?
    a) 25　　　　　　　b) 30　　　　　　c) 15　　　　　　**d) 12**

28. The number of tents that are assigned to the houses Gandhi, Subhash, Raman and Tagore is 1, 2, 2, 5 respectively. It is given that no two tents assigned to the same house have an equal no. of students. It is also given that the no. of students in each of the ten tents is 12, 15, 20, 25 and 30.

    Also, since there are five tents that are assigned to Tagore, the numbers of students in these tents are 12, 15, 20, 25 and 30.

    From the second bar chart, it can also be observed that the no. of tents that have 30, 25, 20 and 5 or less students is 2, 3, 1 and 4 respectively.

    The derived conclusion can be tabulated as

No. of students	No. of tents
12	1 − 3
15	1 − 3
20	1
25	3
30	2

    Given that the total number of students in the tents that are assigned to Shubhash house is maximum possible, which means that, the total numbers of students in the tents assigned to Shubhash house is 25 + 30 = 55.

Also, since the total no. of students in all the tents is the least, which means the number of tents in which there are 15 students and 12 students is 1 and 3 respectively.
As Shubash house has not been assigned a tent with 12 students, and this number needs to be assigned to 3 houses, the tent assigned to Gandhi house has 12 students.

29. A vessel can be filled by a pipe in 25 mins. and it is emptied by a waste pipe in 20 min. If both pipes are opened when vessel is full, when will it be empty?
   a) 2 hr   **b) 100 min**   c) 110 min   d) none of these

29. When both pipes are opened, $\left(\dfrac{1}{20} - \dfrac{1}{25}\right)$ is emptied is 1 min.

   So, the whole is emptied in 100 min.

30. A man borrows a sum of Rs. 80,000 for two years at 15% per annum, compound interest being compounded annually. If he repays Rs. 46000 at the end of the second year and clears the debt, how much did he pay at the end of the first year?
   a) Rs. 60,000   b) Rs. 45,000   **c) Rs. 52,000**   d) Rs. 57,000

30. Amount after 1 year = $80000 \times \dfrac{115}{100} = 92000$

   Let he pays Rs. x

   $\therefore (92000 - x) \times \dfrac{115}{100} = 46000$

   $92000 - x = 40000$

   x = Rs. 52000. Hence, option (3).

Direction for questions 31 to 33: Refer to the following information:

An MNC wants to enter India. It has short-listed 3 locations of which it will choose one. It is looking at 3 indices for each of the locations.

2012 Beginning	Health	Infrastructure	Anti-regionalism
Ahmedabad	60	70	80
Surat	40	50	90
Bangalore	110	60	20

Satisfaction (in Rs. lakhs) = 4 x (health index) + 3 x (infrastructure) + 2 x (anti-regionalism index)

31. Assuming a growth rate of 10% p.a. (compounded) in the indices, in which year (at the start) can the MNC enter Ahmedabad, if it wants a satisfaction of Rs. 815 lakhs minimum?
   a) 2013   b) 2014   c) 2015   **d) 2016**

71. For Ahmedabad,
   Satisfaction (2012) = 4 × 60 + 3 × 70 + 2 × 80
   = 240 + 210 + 160 = 610 lakhs
   If indices are growing by 10% p.a. then it will reach 815 lakhs in the year,

   $610 \times \left(1 + \dfrac{10}{100}\right)^N = 815$

   $610 \times (1.1)^N = 815$

   From above we get N = 4
   So, by 2016 the MNC can enter Ahmedabad.

32. Taking the original data, Ahmedabad has launched a campaign saying that its indices will grow at 15% p.a. In what year can the MNC enter Ahmedabad (minimum = `815 lakhs)?
   a) 2013   b) 2014   **c) 2015**   d) 2016

72. Approach as the previous question. Option (3) is the right option.

33. A new index (MBA index) has been introduced. Satisfaction is now found by adding 5 x MBA index to the original score. Which is the least desired city now (other data from original table)?

a) Surat   b) Bangalore   c) Bangalore, Surat   **d) Bangalore, Ahmedabad**

73. Ahmedabad = $4 \times 60 + 3 \times 70 + 2 \times 80 + 5 \times 45 = 835$
Surat = $4 \times 40 + 3 \times 50 + 2 \times 90 + 5 \times 70 = 840$
Bangalore = $4 \times 110 + 3 \times 60 + 2 \times 20 + 5 \times 35 = 835$
The least derived cities are Ahmedabad and Bangalore. Hence option (4).

Direction for questions 34 and 35: Based on the information given below, answer the following questions.

A natural number between 499 and 1233 is divisible by 4 such that all the digits of the number are distinct and non-zero.

34. How many such numbers are possible?
a) 63   b) 65   c) 73   d) 90

34. The multiples of 4 are (last 2 digit of 3 digit numbers)
00 04 08 12 16 20 24 28 32 36 40 44 48 52
56 60 64 68 72 76 80 84 88 92 96

Now the only shortlisted numbers will be (no numbers repeated, no zeros)
12 16 24 28 32 36 48 52 56 64 68 72 76
84 92 96
Thus for number starting from 500 – 599 the different possibilities are = 14 (no 5's should be there).

For 600 – 699 the possibilities are = 9 (no 6's should be present)
For 700 – 799 the possibilities are = 14 (no 7's should be present)
For 800 – 899 the possibilities are = 12 (no 8's should be present)
For 900 – 999 the possibilities are = 14 (no 9's should be present)
For 1000 – 1233 the possibilities are = 0 (numbers are getting repeated)
∴ Total possibilities are = 14 + 12 + 14 + 9 + 14 = 63
Hence, option (a).

35. Find the probability that this number has 6 as one of its middle digit.
a) 14/63   b) 10/63   c) 5/21   **d) 1/9**

35. Now the numbers with 6 as the middle digit are 564, 568, 764 ,768, 864, 964, 968 = 7 different possibilities.
∴ The probability = 7/63 = 1/9. Hence, option (d).

36. Rajesh was asked to do an assignment by a teacher. He was asked to find the sum of the first 12 natural numbers. However, he made a mistake by replacing '+' sign with 'x' sign in some places and accordingly got his answer as 150. Find at least in how many places Rajesh should commit the mistake to get the answer as 150?
a) 4   b) 2   **c) 3**   d) Cannot be determined.

36. Rajesh was asked to find the sum of first twelve natural numbers, which should have been 1+2+3+4+5+6+7+8+9+10+11+12=78, but he got the answer as 150 as he had by mistake used 'x' instead of '+' at some places. We could represent the number of instances of such replacements as follows :

1   2   3   4   5   6   7   8   9   10   11   12
|___|___|___|___|___|___|___|___|___|___|___|
  -1   1   5   11   19   29   41   55   71   89   109

The numbers at the bottom represent the difference between the product and the sum of the two numbers.
Now, Rajesh got the answer as 150, 72 more than the right answer.
This 72 could be obtained by making minimum number of mistakes is 2(71+ 01=72).
The sign between (2, 3) and (9, 10) was changed to 'x' i.e. minimum 2 instances of incorrect placements. ∴ Option (3) is correct.

37. The large square above consists of squares and isosceles right triangles. If the large square has side 4 cm. Then the area of the darkened portion in square cm is
   a) 4
   b) 6
   c) 8
   c) 12

37. Taking the equal sides of the corner isosceles right triangles as x, the equal sides of the isosceles triangles in the middle are x√2.
   ∴The hypotenuse of the isosceles triangles in the middle =2x.
   ∴The side of the smaller square is =√2
   ∴Area of the 4 smaller squares=8
   ∴Area of the darkened portion=16-8=8.

38. The average of a set of five distinct integers is 300. If each number is less than 2,000, and the median of the set is the greatest possible value, what is the sum of the two smallest numbers?
   a) -4,494
   b) -3,997
   c) -3,494
   d) -3,194

38. There are 5 distinct numbers that must have an average of 300
   5=3005=300
   xa+xb+xc+xd+xe=1500xa+xb+xc+xd+xe=1500

   We want to know the sum of the two smallest values, therefore:
   xa+xb=1500−xc−xd−xexa+xb=1500−xc−xd−xe
   The largest value, xexe can at most be 1999, then xdxd is 1998 and the median xcxc is 1997.

   Therefore:
   xa+xb=1500−1997−1998−1999xa+xb=1500−1997−1998−1999
   xa+xb=−4494xa+xb=−4494

   Answer is A

39. A train, 100 m. long, is approaching an unmanned railway crossing. The train is traveling at an uniform speed of 90 km/hr and is 1 km away from the crossing .A bus is coming towards the crossing and is 700 m. away from it . Assuming that the bus is also travelling at a uniform speed of N, for what range of value of N will the bus collide with the train ?
   a) 59 km/hr $< N <$ 61 km/hr
   b) 57 km/hr $< N <$ 63 km/hr
   c) 55 km/hr $< N <$ 65 km/hr
   d) 53 km/hr $< N <$ 67 km/hr

39. The speed of the train = 90 kmph or, $90 \times \frac{5}{18} = 25$ m/sec

   ∴The bus can take $\frac{100}{25} = 4$ sec. more to reach the crossing point as the train requires 4 sec. to completely cross the crossing point.

   The train takes → $\frac{1000}{25} = 40$ sec. to reach the crossing

   ∴The bus can take 40 to 44 sec. or the speed of the bus can be from $\frac{700}{40}$ m/s to $\frac{700}{44}$ m/s

   or $\left(\frac{700}{40} \times \frac{18}{5}\right)$ km/hr. to $\left(\frac{700}{44} \times \frac{18}{5}\right)$ km/hr.
   or, 63 km/hr.   to 57 km/hr.
   Hence , option (b).

40. How many perfect square less than 10^6 are multiples of 24?
   a) 50
   b) 81
   c) 82
   d) 83

40. We have
   $24 = 2^3 . 3$
   Each square must have 3 factors of 2 and 1 factor of 3.
   This means each square is of the from $(12c)^2$,when c is positive integer .
   ∴ there are $[\frac{1000}{12}] = 83$ numbers.   Hence option (4)

Section II - Reasoning & General Intelligence – 40 qs

Direction for questions 41 to 44: Refer to the information given below and answer the following questions.

During the recent Children's Day event at St. Josephs School, the teacher ordered six and one third dozen of toffees to distribute among the students. However the shop owner from where the toffees were to be purchased could not supply the required amount of toffees at one go. The teacher sent four students Anil, Bickram, Chandan and Dinesh to purchase toffees. They together among themselves purchased the total amount of toffees. But the constrain was that they can deliver one by one and each of them can carry a prime number of toffees. It is known that Anil and Dinesh together carried number of toffees that are multiple of 4 and have 6 positive factors.

41. The number of ways in which the toffees can be delivered, so that Bickram and Chandan together deliver the maximum number of toffees is:
    a) **20** b) 15 c) 24 d) 28

41. Total number of toffees to be delivered = 76
    Since Anil and Dinesh delivered total number of toffees that were multiplex of 4 and have 6 factors. So the possibilities of the number of toffees delivered by them together are 12, 20, 28, 32, 44, 52 and 68. If Anil and Dinesh had 12 toffees, so obviously Bickram and Chandan had delivered 64.
    Let, Anil = A, Bickram = B, Chandan = C,
    Dinesh = D.

    I.   A + D = 12 and B + C = 64
         $12 \rightarrow$ (5, 7) (7, 5)
         $64 \rightarrow$ (3, 61), (61, 3), (5, 59), (59, 5), (11, 53), (53, 11), (17, 42), (42, 17), (23, 41), (41, 23)
         So, total number of ways = $2 \times 10 = 20$ ways.
         Similarly, we can calculate for other cases also.
    II. A + D = 20 and B + A = 56
         $20 \rightarrow$ (3, 17), (7, 13), (13, 7), (17, 3)
         $56 \rightarrow$ (3, 53), (13, 43), (19, 37), (37, 19), (43, 13), (53, 3)
         So, total number of ways = $4 \times 6 = 24$ ways.
    III. A + D = 28 and B + C = 48
         $28 \rightarrow$ (5, 23), (23, 5), (11, 17), (17, 11)
         $48 \rightarrow$ (5, 43), (43, 5), (7, 41), (41, 7), (11, 37), (37, 11), (19, 29), (29, 19)
         So, total number of ways = $4 \times 10 = 40$ ways
    IV. A + D = 32 and B + C = 44
         $32 \rightarrow$ (3, 29), (29, 3), (13, 19), (19, 13)
         $44 \rightarrow$ (3, 41), (41, 3), (37, 7), (7, 37), (13, 31), (31, 13)
         So, total number of ways = $4 \times 6 = 24$ ways
    V.   A + D = 52 and B + C = 24
         $52 \rightarrow$ (5, 47), (47, 5), (11, 41), (41, 11), (23, 29), (29, 23)
         $24 \rightarrow$ (5, 19), (19, 5), (7, 17), (17, 7), (11, 13), (13, 11)
         So, total number of ways = $6 \times 6 = 36$ ways.
    VI. A + D = 68 and B + C = 8
         $68 \rightarrow$ (7, 61), (61, 7), (31, 37), (37, 31)
         $8 \rightarrow$ (3, 5), (5, 3)
         So, total number of ways = $4 \times 2 = 8$ ways
    VII. A + D = 44 and B + C = 32
         $44 \rightarrow$ (3, 41), (41, 3), (7, 37), (37, 7), (13, 31), (31, 13),
         $32 \rightarrow$ (3, 29), (29, 3), (13, 19), (19, 13)
         So, total number of ways = $6 \times 4 = 24$ ways

    Clearly from the cases given above, the maximum number of toffees delivered by Bickram and Chandan can be 64. The number of ways of getting the toffee delivered in that case is 20.
    Hence, option (a).

42. If Anil and Chandan deliver $3\dfrac{1}{3}$ dozen of toffee together, then in how many ways the delivery can be executed?
    a) 4 b) 6 c) 7 d) **8**

42. <mark>Total number of toffees to be delivered = 76</mark>
<mark>Since Anil and Dinesh delivered total number of toffees that were multiplex of 4 and have 6 factors. So the possibilities of the number of toffees delivered by them together are 12, 20, 28, 32, 44, 52 and 68. If Anil and Dinesh had 12 toffees, so obviously Bickram and Chandan had delivered 64.</mark>
<mark>Let, Anil = A, Bickram = B, Chandan = C,</mark>
Dinesh = D.

I.   <mark>A + D = 12 and B + C = 64</mark>
     <mark>12 → (5, 7) (7, 5)</mark>
     <mark>64 → (3, 61), (61, 3), (5, 59), (59, 5), (11, 53), (53, 11), (17, 42), (42, 17), (23, 41), (41, 23)</mark>
     <mark>So, total number of ways = 2 × 10 = 20 ways.</mark>
     <mark>Similarly, we can calculate for other cases also.</mark>
II. <mark>A + D = 20 and B + A = 56</mark>
     <mark>20 → (3, 17), (7, 13), (13, 7), (17, 3)</mark>
     <mark>56 → (3, 53), (13, 43), (19, 37), (37, 19), (43, 13), (53, 3)</mark>
     <mark>So, total number of ways = 4 × 6 = 24 ways.</mark>
III. <mark>A + D = 28 and B + C = 48</mark>
     <mark>28 → (5, 23), (23, 5), (11, 17), (17, 11)</mark>
     <mark>48 → (5, 43), (43, 5), (7, 41), (41, 7), (11, 37), (37, 11), (19, 29), (29, 19)</mark>
     <mark>So, total number of ways = 4 × 10 = 40 ways</mark>
IV. <mark>A + D = 32 and B + C = 44</mark>
     <mark>32 → (3, 29), (29, 3), (13, 19), (19, 13)</mark>
     <mark>44 → (3, 41), (41, 3), (37, 7), (7, 37), (13, 31), (31, 13)</mark>
     <mark>So, total number of ways = 4 × 6 = 24 ways</mark>
V.   <mark>A + D = 52 and B + C = 24</mark>
     <mark>52 → (5, 47), (47, 5), (11, 41), (41, 11), (23, 29), (29, 23)</mark>
     <mark>24 → (5, 19), (19, 5), (7, 17), (17, 7), (11, 13), (13, 11)</mark>
     <mark>So, total number of ways = 6 × 6 = 36 ways.</mark>
VI. <mark>A + D = 68 and B + C = 8</mark>
     <mark>68 → (7, 61), (61, 7), (31, 37), (37, 31)</mark>
     <mark>8 → (3, 5), (5, 3)</mark>
     <mark>So, total number of ways = 4 × 2 = 8 ways</mark>
VII. <mark>A + D = 44 and B + C = 32</mark>
     <mark>44 → (3, 41), (41, 3), (7, 37), (37, 7), (13, 31), (31, 13),</mark>
     <mark>32 → (3, 29), (29, 3), (13, 19), (19, 13)</mark>
     <mark>So, total number of ways = 6 × 4 = 24 ways</mark>

Anil and Chandan delivered 40 toffees as per the question. This is possible in the following cases:

A	B	C	D
3	11	37	17
23	31	17	5
11	19	29	17
3	7	37	28
37	28	3	7
23	7	17	28
29	13	11	23
37	5	3	31

So, the total number of possibilities is 8.
Hence, option (d).

43. The number of ways in which the toffee can be delivered such that Bickram and Chandan together deliver the least number of toffees is
a) 12   b) **8**   c) 16   d) 20

43. <mark>Total number of toffees to be delivered = 76</mark>
<mark>Since Anil and Dinesh delivered total number of toffees that were multiplex of 4 and have 6 factors. So the possibilities of the number of toffees delivered by them together are 12, 20, 28, 32, 44, 52 and 68. If Anil and Dinesh had 12 toffees, so obviously Bickram and Chandan had delivered 64.</mark>

Let, Anil = A, Bickram = B, Chandan = C, Dinesh = D.

I.   A + D = 12 and B + C = 64
     12 → (5, 7) (7, 5)
     64 → (3, 61), (61, 3), (5, 59), (59, 5), (11, 53), (53, 11), (17, 42), (42, 17), (23, 41), (41, 23)
     So, total number of ways = 2 × 10 = 20 ways.
     Similarly, we can calculate for other cases also.
II. A + D = 20 and B + A = 56
     20 → (3, 17), (7, 13), (13, 7), (17, 3)
     56 → (3, 53), (13, 43), (19, 37), (37, 19), (43, 13), (53, 3)
     So, total number of ways = 4 × 6 = 24 ways.
III. A + D = 28 and B + C = 48
     28 → (5, 23), (23, 5), (11, 17), (17, 11)
     48 → (5, 43), (43, 5), (7, 41), (41, 7), (11, 37),
     (37, 11), (19, 29), (29, 19)
     So, total number of ways = 4 × 10 = 40 ways
IV. A + D = 32 and B + C = 44
     32 → (3, 29), (29, 3), (13, 19), (19, 13)
     44 → (3, 41), (41, 3), (37, 7), (7, 37), (13, 31),
     (31, 13)
     So, total number of ways = 4 × 6 = 24 ways
V.   A + D = 52 and B + C = 24
     52 → (5, 47), (47, 5), (11, 41), (41, 11), (23, 29), (29, 23)
     24 → (5, 19), (19, 5), (7, 17), (17, 7), (11, 13),
     (13, 11)
     So, total number of ways = 6 × 6 = 36 ways.
VI. A + D = 68 and B + C = 8
     68 → (7, 61), (61, 7), (31, 37), (37, 31)
     8 → (3, 5), (5, 3)
     So, total number of ways = 4 × 2 = 8 ways
VII. A + D = 44 and B + C = 32
     44 → (3, 41), (41, 3), (7, 37), (37, 7), (13, 31),
     (31, 13),
     32 → (3, 29), (29, 3), (13, 19), (19, 13)
     So, total number of ways = 6 × 4 = 24 ways

The least number of toffees that Bickram and Chandan can deliver = 8. So total number of ways in this case will be 8. Hence, option (b).

44. The total number of ways in which the shop owner can get the toffees delivered is:
    a) 144   b) 164   c) **176**   d) 172

44. Total number of toffees to be delivered = 76
    Since Anil and Dinesh delivered total number of toffees that were multiplex of 4 and have 6 factors. So the possibilities of the number of toffees delivered by them together are 12, 20, 28, 32, 44, 52 and 68. If Anil and Dinesh had 12 toffees, so obviously Bickram and Chandan had delivered 64.
    Let, Anil = A, Bickram = B, Chandan = C, Dinesh = D.

I.   A + D = 12 and B + C = 64
     12 → (5, 7) (7, 5)
     64 → (3, 61), (61, 3), (5, 59), (59, 5), (11, 53), (53, 11), (17, 42), (42, 17), (23, 41), (41, 23)
     So, total number of ways = 2 × 10 = 20 ways.
     Similarly, we can calculate for other cases also.
II. A + D = 20 and B + A = 56
     20 → (3, 17), (7, 13), (13, 7), (17, 3)
     56 → (3, 53), (13, 43), (19, 37), (37, 19), (43, 13), (53, 3)
     So, total number of ways = 4 × 6 = 24 ways.
III. A + D = 28 and B + C = 48
     28 → (5, 23), (23, 5), (11, 17), (17, 11)
     48 → (5, 43), (43, 5), (7, 41), (41, 7), (11, 37),
     (37, 11), (19, 29), (29, 19)
     So, total number of ways = 4 × 10 = 40 ways
IV. A + D = 32 and B + C = 44
     32 → (3, 29), (29, 3), (13, 19), (19, 13)
     44 → (3, 41), (41, 3), (37, 7), (7, 37), (13, 31),
     (31, 13)
     So, total number of ways = 4 × 6 = 24 ways
V.   A + D = 52 and B + C = 24

Total number of ways in which toffees can be delivered is = 20 + 24 + 40 + 24 + 36 + 8 + 24 = 176. Hence, option (c)

Directions for questions 45 to 48: In each of these questions given below, a group of number/symbol followed by four combinations of letters numbers (a),(b),(c) and (d) is given. You have to find out which of the combinations correctly represents the group of number/symbol based on the given coding system and the conditions and mark the number of that combination as your answer. If none of the four combinations correctly represents the group of number/symbol, give (e) i.e. "none of these" as your answer.

Number/symbol	*	8	@	7	#	9	1	$	&	6	%	4	^	3	2
Letters Code:	A	N	Y	R	U	O	P	W	S	D	L	G	F	Q	C

Conditions:
- If the first element is a symbol and the last element is an odd number, the codes for both these are to be interchanged.
- If both the first and last elements are odd digits, both these are to be coded for the first odd digit.
- If the first element is a symbol and the last element is a perfect square, both these are to be coded as '+'.

45. #17*93
    a) **QPRAOU**   b) UOPARQ   c) QPWAQU   d) None of these

45.
As first element is a symbol and last element is a odd number so symbols will be interchanged.
So, # 1 7 * 9 3 is Q P R A O U

46. 7@12%9
    a) RYPCLO   b) **RYPCLR**   c) RYLPCO   d) None of these

46.
As first last element are odd digit so both will be coded from first odd digit. So, 7@12%9 is RYPCLR

47. @$9674
    a) +WDRO+   b) +WORD+   c) **+WODR+**   d) WORD++

47.
As first element is symbol & last element perfect square so both will be coded as '+'. So @$9674 is +WODR+. Hence option (c)

48. ^%7623
    a) FLRDCQ   b) FDCRLQ   c) QLRCDF   d) **QLRDCF**

48.
As first element is symbol & last element is odd number so symbols will be interchanged.
So, ^%7623 is Q L R D C F. Hence option (d)

Directions for questions 49 to 52: Read the given information carefully and answer the questions.
There are six members in a family i.e. A, B, C, D, E, F. There generations are there and two married couples. They have six different professions i.e. Architect, Engineer, Chartered Accountant, Clerk, Painter, Businessman.
− E is married to A who is a Architect.
− D who is a Painter, is the mother of A.

− B is the grandfather of a C who is an Engineer.
− E who is the father of Engineer, is not a Clerk.
− F is the granddaughter of D and is a Chartered Accountant.

49. How C is related to F?
   a) Sister   b) Brother   c) Father   d) **Can't be determined**

49. (e)

```
B ——————————— D
Male              Female
Clerk             Painter
         |
         |
A ——————————— E
Female            Male
 Architect        Business man
         |
         |
     F                  C
   Female            Engineer
Chartered Accountant
```
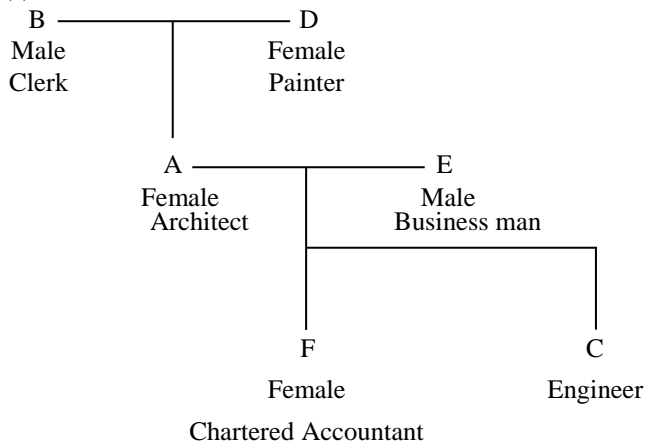
50. Who is the husband of the Painter?
   a) C   **b) B**   c) F   d) None of these

50. (b)

```
B ——————————— D
Male              Female
Clerk             Painter
         |
         |
A ——————————— E
Female            Male
 Architect        Business man
         |
         |
     F                  C
   Female            Engineer
Chartered Accountant
```
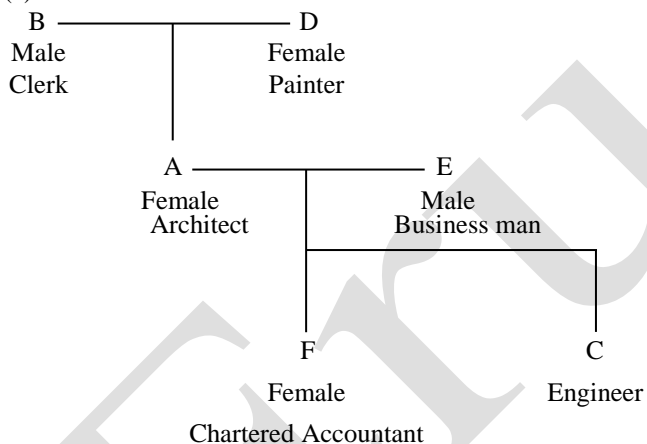
51. How many female members are there in the family?
   a) Three   b) Four   c) Two   d) **Can't be determined**

51. (d)

```
B ————————— D
Male              Female
Clerk             Painter
        |
        A ————————— E
        Female        Male
        Architect     Business man
                |
                F              C
                Female         Engineer
                Chartered Accountant
```

52. What is the profession of E?
    a) Chartered Accounted   b) Engineer
    c) Businessman   d) Architect

52. (c)
```
B ————————— D
Male              Female
Clerk             Painter
        |
        A ————————— E
        Female        Male
        Architect     Business man
                |
                F              C
                Female         Engineer
                Chartered Accountant
```
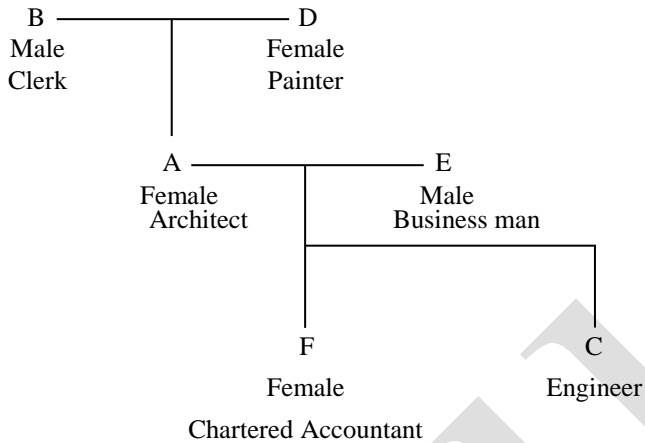
Directions for questions 53 to 55: Read the following instruction carefully:

Mark (a) : if the question can be answered by using statement (A) alone.
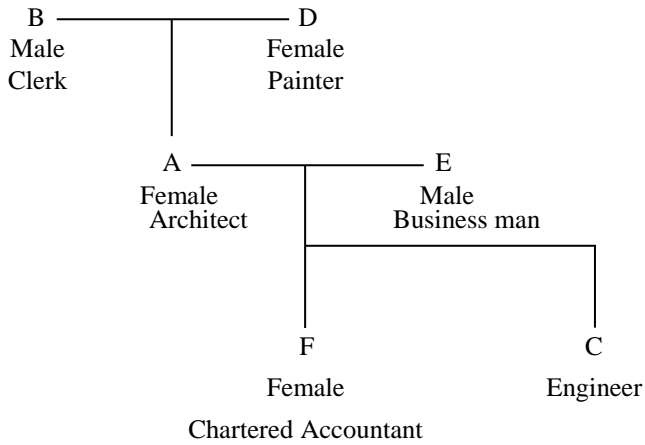**Mark (b) :** if the question can be answered by using statement (B) alone.
Mark (c) : if the question can be answered by using either of the statements alone.
Mark (d) : if the question can be answered by using both the statements together.
Mark (e) : if the question cannot be answered even by using both the statements together.

53. How is K related to Q?   **Ans. (b)**
    A : N is brother of Q and U is sister of Q.
    B : Q's mother is married to K's husband who has one son and two daughters.
    a) a
    b) b
    c) c
    d) d
    e) e

53. (b). From B, we know that Q's mother is married to K's husband, which means that K is Q's mother.

54. Q is the brother of P. How is P related to Q?   **Ans. (c)**
    A : P is the sister of R.   **B :** T is the husband of P.
    a) a
    b) b

c) c
d) d
e) e

54. (c). P is either brother or sister of Q. each one of (A) and (B) individually indicates that P is a female which means that P is Q's sister.

55. How is A related to B?   **Ans. (d)**
   A : B says, "I have only one brother".   **B :** A says, "I have only one sister".
a) a
b) b
c) c
d) d
e) e

55. (d). Both the statements do not provide any clue.

Directions for questions 56 to 59: given in input, a coding machine generates pass Codes for six batches every day, as follows:

Input: look the small cats running here and there
Pass Codes:
Batch I: running look here the and small there cats
Batch II: the and here small look there running cats
Batch III: look the there and running here cats small
Batch IV: and running there here the cat look small and so on.
The first batch timing is 10.00 a.m. and each batch is of one hour's duration. There is a rest period of one hour after the work for the fourth batch is over.

56. On a particular day, Ram was to begin to work in the batch at 11.00 a.m. with a pass code 'the peace comes to his inner flat knowledge'. However, he came late on that day hence joined the batch at 12 noon. What was his pass code then?
   a) Cannot be determined   **b) his the inner peace flat comes knowledge to**
   c) to his comes inner peace flat the knowledge   d) to knowledge comes flat peace inner the his

56. (b). Here, coding has been done in two steps after the words in the input are given a number each. In the Batch I, the words from the latter half and the first half (starting from the fifth word) are written alternately. In the Batch II, pairs of words at the positions fourth-fifth, third-sixth, second-seventh and first-eighth are written respectively. In further batches, these two steps are repeated alternately in the following way:
Input: 1 2 3 4 5 6 7 8
10:00 am **Batch I:** 5 1 6 2 7 3 8 4
 11:00 am **Batch II:** 2 7 6 3 1 8 5 4
 12:00 pm **Batch III:** 1 2 8 7 5 6 4 3
 1:00 pm **Batch IV:** 7 5 8 6 2 4 1 3
 3:00 pm **Batch V:** 2 7 4 5 1 8 3 6
 4:00 pm **Batch VI:** 5 1 4 8 7 3 2 6
Batch VI is the last batch for a single day. Here note that after four batches, ie from 2.00 pm there is a one-hour break an hence the Batch V starts at 3.00 pm.

11:00 am is the timing for the second batch an d12.00 noon is the timing for the third batch. Hence, the pass code will be as follows:
   11.00 am: the peace comes to his inner flat knowledge
            2   7   3 1   8   5   4

   12.00 noon: his the inner peace flat comes knowledge to
               1   2   8   7   5   6   4   3

57. If the pass code on a day for the second batch is 'were for suns moved they bhakti the as', what will be the pass code for the batch at 3.00 p.m. on that day?
   a) the they suns were as bhakti moved for   b) for the bhakti suns were as they moved
   c) suns were bhakti as the they for moved   **d) were for as the they bhakti moved suns**
57.   (d). Here, coding has been done in two steps after the words in the input are given a number each. In the Batch I, the words from the latter half and the first half (starting from the fifth word) are written alternately. In the Batch II, pairs of words at the positions fourth-fifth, third-sixth, second-seventh and first-eighth are written respectively. In further batches, these two steps are repeated alternately in the following way:
Input: 1 2 3 4 5 6 7 8
10:00 am **Batch I:** 5 1 6 2 7 3 8 4

11:00 am **Batch II:** 2 7 6 3 1 8 5 4
12:00 pm **Batch III:** 1 2 8 7 5 6 4 3
1:00 pm **Batch IV:** 7 5 8 6 2 4 1 3
3:00 pm **Batch V:** 2 7 4 5 1 8 3 6
4:00 pm **Batch VI:** 5 1 4 8 7 3 2 6

Batch VI is the last batch for a single day. Here note that after four batches, ie from 2.00 pm there is a one-hour break an hence the Batch V starts at 3.00 pm.

Here, we know that 3 pm is the timing for the fifth batch. Hence, the pass code will be as follows:

    Batch II: were for suns moved they bhakti the as
       2 7   6   3   1   8   5 4

    ∴**Batch V:** were for as the they bhakti moved suns
        2 7 4 5   1   8   3   6

58. If the pass code on a day for the batch at 3.00 p.m. was 'that is the only mind that creates problems', what was the pass code for the batch at 1.00 p.m. on that day?
   a) **is only that problems that the mind** creates   b) mind that only problems creates the is that
   c) creates mind the that is only that problems   d) None of these

58.   (a). Here, coding has been done in two steps after the words in the input are given a number each. In the Batch I, the words from the latter half and the first half (starting from the fifth word) are written alternately. In the Batch II, pairs of words at the positions fourth-fifth, third-sixth, second-seventh and first-eighth are written respectively. In further batches, these two steps are repeated alternately in the following way:
Input: 1 2 3 4 5 6 7 8
10:00 am **Batch I:** 5 1 6 2 7 3 8 4
11:00 am **Batch II:** 2 7 6 3 1 8 5 4
12:00 pm **Batch III:** 1 2 8 7 5 6 4 3
1:00 pm **Batch IV:** 7 5 8 6 2 4 1 3
3:00 pm **Batch V:** 2 7 4 5 1 8 3 6
4:00 pm **Batch VI:** 5 1 4 8 7 3 2 6
Batch VI is the last batch for a single day. Here note that after four batches, ie from 2.00 pm there is a one-hour break an hence the Batch V starts at 3.00 pm.

3.00 pm and 1.00 are the timings for the fifth and the fourth batches respectively. Hence, the pass code for the fourth batch will be as follows:
    Batch V: that   is the only mind that creates problems
       2 7   4   5   1   8   3   6
    ∴**Batch IV:** is only that problems that the mind creates

59. The pass code for the batch immediately before the rest hour was 'that is the permanent solution for these problems'. What was the input for the pass code on that day?
   a) these solution problems is for permanent that the
   b) these solution permanent for is problems that the
   c) is these permanent solution that problems the for
   d) None of these

59.   (d). Here, coding has been done in two steps after the words in the input are given a number each. In the Batch I, the words from the latter half and the first half (starting from the fifth word) are written alternately. In the Batch II, pairs of words at the positions fourth-fifth, third-sixth, second-seventh and first-eighth are written respectively. In further batches, these two steps are repeated alternately in the following way:
Input: 1 2 3 4 5 6 7 8
10:00 am **Batch I:** 5 1 6 2 7 3 8 4
11:00 am **Batch II:** 2 7 6 3 1 8 5 4
12:00 pm **Batch III:** 1 2 8 7 5 6 4 3
1:00 pm **Batch IV:** 7 5 8 6 2 4 1 3
3:00 pm **Batch V:** 2 7 4 5 1 8 3 6
4:00 pm **Batch VI:** 5 1 4 8 7 3 2 6
Batch VI is the last batch for a single day. Here note that after four batches, ie from 2.00 pm there is a one-hour break an hence the Batch V starts at 3.00 pm.
The timing for the break (2.00 pm) comes after the batch IV (1.00 pm). Hence, the input will be as follows:
    Batch IV: that   is   the   permanent solution   for   these problems
        7   5   8   6   2   4   1   3
    ∴**Input:** these solution problems   for   is   permanent   that   the
        2   7   4   5   1   8   3   6

Direction for questions 60 to 67: Read the paragraph given below and answer the questions.

60. When the entire world is bearing the brunt of recession and bagging lucrative jobs has become a rare occurrence, it is indeed a very pristine signal that BBIS has landed up jobs with hefty pay packages.
   What is the conclusion that can be drawn from the above passage?
   a) The situation is not that difficult to accommodate students in big companies.

b) It's just that lady luck has been pleased and have she has endowed BBIS with property and good opportunity.
c) It is as just a strategy to consolidate its hold in the market and to get quick publicity, be it fishing in troubled water.
d) **At times fact is stranger than fiction - amidst the hue and cry of unemployment, a ray of hope has finally been seen in the firmament of professional courses.**

60. (d) is the correct answer. When we undergo tremendous pressure and helplessness, truth seems a mirage to us. BBIS must have been able to fulfill their promises by giving offer of employment to students.

61. The hospital superintendent said that an order had been issued that documents over 10 years old must be removed to a godown. But this order has been violated for the last five months.
What is the conclusion that can be drawn from the above passage?
a) Lack of manpower and administrative loopholes have led to this unforeseen delay.
b) Sometimes patient's next to kin refers to documents for clarification.
c) **Authorities of the hospital do not want their documents to be removed.**
d) At times, old documents prove to be detrimental for the hospital authority

61. (c) is the correct answer. When someone defies an order, it means, he / she doesn't want to follow that dictate. Here authority itself doesn't want anything to be removed. So the order has not been implemented.

62. Administrative inaction that has allowed transporters to spew poison into the air we breathe is at work again to let hawkers rule the pavements we are meant to walk on. Even a huge court deadline on hawkers has failed to rouse the authorities.
What can we deduce from the above passage?
a) Hawkers and transporters are aggressive, as they are defying government's verdict.
b) **Administration has no control over domestic issues; for example they cannot manage transporters and hawkers.**
c) Rules are not stringent; they are flexible and changeable.
d) The above two facts portray the helplessness of the administration. They are not for the people by the people or of the people.

62. (b). We can only conclude that administration is very relaxed and laid-back. They do not have controlling power. The cited problems exemplify this fact.

63. Tele density or the number of phones in use for every 100 individuals stands at 43.50%. High growth rate of mobile services and reduced tariffs have pushed the tele density beyond 100% in the four metros.
What could be the best conclusion from the given statements?
a) Mobile has become part and parcel of an individual.
b) Landline phones are gradually diminishing from their usage.
c) **Tariff plans have played a major role in enhancing the ratio of tele density.**
d) Tele density is only higher in four metros.

63. (c). People are using mobile as they have become accessible and economical. The tariff plans devised by different providence are always customer-friendly and pose competition to one another.

64. There is a gut feeling that there is something deeply wrong with the global economic situation today. The global economy is still stuck in "recovery" mode eight years after the global financial crisis, in spite of central banks' seemingly unending rounds of quantitative easing and, more recently, negative interest rates. Investors continue to flip-flop between risk-on and risk-off, exhibiting a behavior that is increasingly disconnected from economic fundamentals.
a) The resistance of the world economy to move on, and the swings in the mindset of investors and their disconnection from economic fundamentals suggests that the problems of the global financial crisis from eight years ago still continue.
b) The world economy has not been able to recover from the eight year old global financial crisis and thus in spite of the reform activities by the central banks, the investors' mindset remains fickle and economic fundamentals are increasingly overlooked.
c) **The world economy is still affected by the global economic crisis from eight years ago, and due to this the investors and financial institutions become increasingly detached from economic ideals.**
d) It appears as though the problems created by the global financial crisis eight years ago persist even today and thus the disconnect between investors, governments and financial institutions keeps on increasing.

64. (c) best summarizes. (a) is inverts the premise. (b) distorts the timeline with "eight year old" crisis. The last phrase of (d) is outside of the premise. Hence (c). [Summary/Logical/Medium]

65. Good decision-making depends on people having reliable, accurate facts put in a meaningful context. Journalism does not pursue truth in an absolute or philosophical sense, but in a capacity that is more down to earth. "All truths – even the laws of science – are subject to revision, but we operate by them in the meantime because they are necessary and they work," Kovach and Rosenstiel write in their book. Journalism, they continue, thus seeks "a practical and functional form of truth." It is not the truth in the absolute or philosophical or scientific sense but rather a pursuit of "the truths by which we can operate on a day-to-day basis."

a) Journalism uses a sense of truth that is more mundane than lofty but this is because it is better suited to the field of journalism which does not deal with truth in the philosophical or scientific way, but a more routine form of it.

b) In journalism the aspect of truth, the same as decision making, requires a functional form of truth, more routine, but is better suited to the operation of work, as compared to the philosophical or scientific sense of truth.

c) **Unlike decision-making, truth in journalism is not the absolute truth that is undeniably empirical and objective, but a step towards that such that the subjective may be used to make a movement towards the absolute objective.**

d) Decision making and truth take differing views of truth, for the former it is absolute and objective, for the latter it is a practical albeit day-to-day form of truth which helps in pursuing the absolute form of truth.

65. (c). The premise of the passage is that the aspect of truth in journalism is different from that in decision making. The former uses an absolute from of truth, but the latter uses a more day-to-day form and not the philosophical or scientific sense of it. (c) captures this perfectly. (a) and (d) alter the premise. (b) is incorrect as it states that decision making and journalism use the same form of truth. Hence (c). [Summary/Logical/Medium]

66. A fiduciary duty is the legal responsibility to act solely in the best interest of another party. "Fiduciary" means trust, and a person with a fiduciary duty has a legal obligation to maintain that trust. For example, lawyers have a fiduciary duty to act in the best interest of their clients. Similarly, physicians have a duty to care for, and act in, the best interest of their patients. Likewise, trustees have a duty to manage the assets of a trust for its beneficiaries, and directors to manage corporate assets in the best interest of shareholders.

a) Legal protection of others' rights, interests and their trust is called fiduciary duty, where the likes of lawyers, doctors, trustees and directors are people of this category.

b) **Fiduciary duty is a duty to others to protect their interests and their trust, and examples towards this can be seen in lawyers, doctors, trustees and directors.**

c) Lawyers, doctors, trustees and directors are viable examples of fiduciary duty, which emphasize a duty to others to protect their interests and their trust.

d) Fiduciary duty is like legal altruism where the ones charged with the duty must protect the interests of others and also do justice to the trust they place in them.

66. (b). The passage defines fiduciary duty, and also gives an additional factor of trust. The examples following these arguments are not only a major part of the given passage, but also contribute to the very definition of fiduciary duty. Thus they must be included in the summary. Hence (b). [Summary/Logical/Medium]

67. People with mental health problems say that the stigma and discrimination surrounding their mental health problem can be one of the hardest parts of their day to day experience. As a result of the stigma, we might shy away from supporting a friend, family member or colleague. And the consequences can be large. People with mental health problems can lose friendships, feel isolated, withdraw from the world and not get the help they need.

a) The consequences of stigma and discrimination against mental health issues may be severe, to the extent that not only they might end up worsening the conditions, but also it is an abject betrayal to face such treatment from loved ones.

b) The stigma and discrimination that people with mental health issues face at the hands of others is the deeper problem with mental illnesses and it may severely and adversely affect the people struggling with these issues.

c) Mental health issues are worsened by the stigma and discrimination that patients face from others due to which the patients end up feeling more and more mentally unwell and may not get the required treatment as well.

d) **The biggest challenge for people with mental health issues stem not from the symptoms of the mental health problems themselves but rather the disgrace that they face which might worsen the problem altogether.**

67.   (d) best captures the essence of the given passage and in particular of the last argument that the said stigma an discrimination may end up worsening the sufferer's condition. (a) is outside the premise by stating that it is a betrayal to face such treatment form loved ones. (b) and (c) assume the potential ill-effects to be definite. Hence (d). [Summary/Logical/Medium]

Direction for questions 68 to 71: Choose the option which bears a <u>similar</u> relationship as the one appearing in capitals.

68.   DISHONOUR : CHEQUE ::
    a)   erase : typewriter
    b)   dye : fabric
    c)   empty : basket
    d)   nullify : contract
68.   Hence option (d).

69.   OBTUSE : PERSPICACITY ::
    a)   fond : infatuation
    b)   studious : learning
    c)   snobbish : inferiority
    d)   tactless : diplomacy
69.   Hence option (d).

70.   DIALECT : REGION ::
    a)   sport : team
    b)   vernacular : vocabulary
    c)   cuisine : meal
    d)   jargon : occupation
70.   Hence option (d).

71.   PUNCTILIOUS : ETIQUETTE ::
    a)   meticulous : detail
    b)   ubiquitous : presence
    c)   fastidious : attitude
    d)   supercilious : dignity
71.   Hence option (a).

Directions for questions 72 to 78: In each question below is given a group of letters followed by a combination of digits/symbols numbered (1), (2), (3) and (4). you have to find out which of the combinations correctly represents the group of letters based on the following coding system and conditions. if none of the combinations correctly represents the group of letters give (5) i.e. None of these' as your answer.

Letter	M	R	I	T	J	P	Q	E	U	D	A	F	H	W
Digit/symbol code	8	4	9	5	1	#	@	2	6	©	3	$	*	7

Conclusions

(i)   If the first letter is a consonant and the last letter is vowel, the codes are to be interchanged.
(ii)   If the first letter is a vowel and the last letter is a consonant both are to be coded as %
(ii)   If both the first and the last letters are vowels, both are to be coded as the coded for the first letter.

72.   AMQDHI
    a)   38@©*9
    b)   98@©*9
    c)   98@©*3
    d)   38@©*3
72.   Hence option (d).

73.   UMQJPA
    a)   38@1#6
    b)   68@1#3
    c)   68@1#6
    d)   None of these
73.   Hence option (c).

74.   IREDHP
    a)   %42©*%
    b)   942©*#
    c)   #42©*9
    d)   942©*9
74.   Hence option (a).

75.   RPJWQE
    a)   2#17@4
    b)   4#17@2
    c)   2#17@2
    d)   4#17@4

76.   JDWPUH
    a)   17©#6*
    b)   1©7#6*
    c)   *1©7#6
    d)   None of these
76.   Hence option (b).

77.   FTMQEW

a) $85@27		b) 758@2$		c) $58@2$		d) **None of these**	

77. **Hence option (d).**

78. What will come in place of the question Mark (?) in the following series based on the above arrangement?
6@ LH   %F ?
a) K8   b) KJ   c) EJ   d) **EQ**
78.   Hence option (d).

Directions for questions 79 and 80:

79. All old people are grouch. No young people are grouch. Some grouch are silly.
    I.   No old people are silly.
    II.   Some young people are not silly.
    III.   Some young people are silly.
    IV.   Some old people are silly.
    a) I only   **b) Either I or IV**   c) Either II or III   d) Both II and III
79.   Hence option (b).

80. All bodies are cosmos. All souls are cosmos. All cosmos are either soul or body. All enlightened are souls.
    I.   Some enlightened are bodies.
    II.   Some enlightened are not cosmos.
    III.   All cosmos are enlightened.
    IV.   Some enlightened may be bodies.
    a) IV only   b) Either I or IV   c) Either I or II   d) None follow
80.   Hence option (a).

Section III - <mark>Proficiency in English Language</mark> – 40 qs

Direction for questions 81 to 85: Read the following passages to answer the questions.

The state government will set up Oncology clinics (cancer detection and treatment centres) in 16 districts and appoint oncologists to head them. Specialists from super-specialty hospitals in Kolkata are being sent there in a bid to boost cancer treatment in rural areas.

"Most of the 50,000 new cancer patients in the state every year are from rural areas, which is why our thrust is in this sector. We have started creating district Oncology units, headed by oncologists," Dr. Prabhakar Chatterjee, director of health services, said.

The oncology units will function as centres for the diagnosis and treatment of cancer. The units will be part of district medical colleges and hospitals. Six cancer specialists from state-run hospitals in Kolkata has been sent to head the oncology units in the districts.

Apart from this, the state government has asked the Centre for funds for two more tele-cobalt cancer therapy units, one each in the districts of Malda and Midnapore East. Currently the state has 19 such units, out of which 15 are in Kolkata.

"The tele-cobalt therapy units are mostly concentrated in the city which is why we have asked the Centre for additional funds to start new facilities in the districts. The entire programme is run under the National Cancer Control Project," Dr. Chatterjee said.

The state health department has also sent proposals to the centre to set up 'Can Scan', centres for early detection of cancer in districts like Bankura and North Bengal.

The state government also shares the initiative with a number of local NGO's who are granted the responsibility of spreading awareness regarding the disease. These NGOs will 25peciali shows in villages and run door-to-door awareness campaigns.

"Lack of awareness is also one of the major problems faced by the health department. Therefore we take the help of the local NGO's to reach people at the grassroot levels and teach them about the disease and its symptoms," Dr. Chatterjee said. Currently the treatment is centred in the city with the concentration of private as well as state run 25pecialized treatment centres. The medical colleges including Calcutta Medical College hospital, NRS Medical College hospital, RG Kar Medical College and Hospital provide treatment, with CMCH and NRS boasting of latest Brachy-therapy devices.

81. The state government is making efforts to
   a) decrease cancer treatment facility
   b) enhance cancer treatment facility
   c) increase the number of hospitals
   d) increase the number of doctors.
81. From the first paragraph it is evident that the state government is trying to enhance cancer treatment facilities in the rural areas. Hence (b).

82. An oncologist deals with
   a) cancer   b) thyroid   c) TB   d) thalassemia
82. As evidenced by the first line of the first paragraph, an oncologist is a doctor who deals with cancer. Hence (a).

83. The oncology units will be run by—
   a) Central government
   b) state government
   c) state run-hospitals
   d) National Cancer Control Project
83. By the statement of Dr. Chatterjee given in the fifth paragraph the entire programme is run under the National Cancer Control Project. Hence (d).

84. Dr. Chatterjee wants to establish cancer therapy units in the districts because
   a) it is the need of the hour.
   b) they lack in good doctors
   c) the concentration of such units are mainly in the city
   d) of improved facilities in the district
84. Again as given in the fifth paragraph Dr. Chatterjee wants to established cancer therapy units in the districts because the existing units are concentrated in the cities. Hence (c)

85. The new initiative regarding the setting up of Oncology clinics reflects the
   a) rising concern of the NGOs
   b) rising concern of the state govt.
   c) rising concern of the people
   d) rising concern of the centre
85. As the programme is being instituted by the state govt. it shows the rising concern of the state government. NGOs are only a part of it. Hence (b).

Directions for questions 86 to 88: Select the option that fills in the blanks most suitably (in the same order) :

86. Aerial photography has been an...........tool ever since the discovery that patterns of light and dark green in the first growth of grain often.........earthworks and roads buried beneath the field's.
   a) archaeological ....reflect
   b) astronomical...........reveal
   c) agricultural.............sense
   d) architectural......determine
86. Going by the first blank, "aerial photography" cannot be used for astronomy or architecture, logically speaking. Hence (b) and (d) can be eliminated. By the second blank, "patterns of light and dark green", cannot "sense" anything. Hence it is option (a).

87. The term "humanist" can be used.............as a synonym for grammarian, or it can be used, in a less........ sense, to mean what we would now call an intellectual.
   a) restrictively ....narrow
   b) actively ....Popular
   c) categorically............dramatic
   d) absolutely ....expensive
87. The two words taken as synonymous are "humanist" and "grammarian" which are actually not synonymous. Thus "actively" "categorically" and "absolutely" don't fit. "Restrictively" gives the right sense. Also "narrow" fits in the second blank. Hence (a).

88. Every novel invites us to enter a world that is initially strange: our gradual and selective orientation to its manners.....................infants'..........................to their environment.
   a) imitates ....welcome
   b) completes ....introduction

c) resembles ....adjustment　　　　　　　　d) alter..............blindness

88. As "orientation" is singular "alter" is wrong by subject-verb agreement. Hence (d) can be easily eliminated. "Welcome" from option (a) makes or sense placed in the second blank. Hence (a) can also be eliminated. "Completes" placed in the first blank also makes no logical sense. Hence the answer is option (c).

Direction for questions 89 to 92: Fill in the blanks with proper options given below:

It was a bright cold day in April, and the clocks were striking thirteen Winston Smith, his chin _____9_____ into his breast in an effort to escape the vile wind slipped quickly through the glass doors of Victory Mansions, though not quickly enough to prevent a swirl of gritty dust from entering along with him.

The hallway smelt of boiled cabbage and old rag mats. At one end of it a coloured poster, too large for indoor display, had been _____10_____ to the wall. It depicted simply an enormous face, more than a metre wide – the face of a man of about forty-five, with a heavy black moustache and ruggedly handsome features Winston made for the stairs. It was no use trying the lift. Even at the best of times it was seldom working and at present the electric current was cut off during daylight hours. It was part of the economy drives in preparation for half week. The flat was seven flights, and Winston, who was thirty-nine and had a varicose ulcer above his right ankle, went slowly, resting several times on the way. On each landing, opposite the left shaft, the posters with the enormous face gazed from the wall. It was one of those pictures which are so _____11_____ that the eyes follow you when you move. BIG BROTHER IS WATCHING YOU, the caption beneath it ran.

He moved over to the window: a smallish, frail figure, the _____12_____ of his body merely emphasized by the blue overalls which were the uniform of the party. His hair was very fair, his face naturally sanguine, his skin roughened by coarse soap and blunt razor blades and the cold of winter that had just ended.

89.　a) burned　　　　　**b) nuzzled**　　　　c) dipped　　　　　d) hidden

89.　'nuzzled' is the best word in connection with the context of burrowing the head or chin.

90.　**a) tacked**　　　　b) hung　　　　　c) stuck　　　　　d) fastened

90.　'tacked' meaning 'nailed' is the correct option.

91.　**a) contrived**　　　　b) ghastly　　　　c) spectral　　　　d) animate

91.　A picture can be 'conceived to bring about an effect'. Hence 'contrived' is best suited here.

92.　a) silhouette　　　　b) form　　　　　**c) meagerness**　　　d) line

92.　'meagerness' matches 'a smallish, frail figure'.

Direction for questions 93 to 96: Fill in the blanks with proper options given below:

We sat down and ate a decent and inexpensive _____13_____ before setting off home to the utterly inappropriate sounds of Mungo Jerry's "In the Summertime". In a trip from one Mungo to another in a few hours and three caffeine-heavy drinks, we had enjoyed ourselves immeasurably. We hadn't gone anywhere important or achieved anything besides getting a meal (and we could have done that at home). But we had done that nothing with spirit, and with a bit of character. There was no real reason to set off and only the need for some sleep (and regular medication for David) had brought us home. Still, as we hit Oxford again (having somewhat disturbingly passed signs to a place called Bibury seven or so times) the city was now _____14_____ hiding behind curtains and watching television and the snow had subsided completely. We had done something totally worthless and wonderful and unlike Mungo Park we had survived to tell the tale. From this moment then, I am _____15_____ all maps from my car. I am going to be an English Jack Kerouac in the evenings when I feel like it and still hold a steady job in one place. I'm going to be a bouncing ball of a _____16_____, if you can tolerate that poorly considered image. See you, I guess, on an industrial estate somewhere. I'll be the one trying to follow someone who looks like they know where they're going.

93.　a) ration　　　　　**b) victual**　　　　c) eft　　　　　d) swig

93.　'victual' meaning 'food' best suits here. 'ration' does not suit the context of the sentence. Hence (b).

94.　a) grumpily　　　　**b) sulkily**　　　　c) sultrily　　　　d) despondently

94. 'sulkily' shows the silence that is evident from 'hiding behind the curtains'. Hence (b).

95. a) excluding   b) intenerating   **c) vetoing**   d) smitting

95. 'vetoing' means 'to ban' and hence is correct.

96. **a) nomad**   b) itinerant   c) tax exile   d) transient

96. 'bouncing ball' hints at something that goes from place to place. 'itinerant' is used mainly for a 'wandering preacher'. Hence (a) meaning 'vagabond' is correct.

Direction for questions 97 to 101: In each of the following questions, five statements are provided. These statements form a coherent paragraph when properly arranged. Select the alternative representing the proper and logical sequencing of these statements.

97. a)   Japan, it should be said, still has the most effective government of all developed countries, but this is not, as so many 'Japan Bashers' in the US believe, because the Japanese government is unique.
     b)   The Japanese relationship between government and the economy is, for instance, not very different from the French relationship or from the German relationship.
     c)   In fact what the French called 'dirigisme' is exactly what the Japanese call 'administrative guidance' – except that the French 'dirigisme' is far more controlling than Japanese 'administration guidance' has been.
     d)   On the contrary, it is largely because Japan, of all developed countries, has the most traditional government.
         a) bcda   **b) adbc**   c) acbd   d) bdac

97. (b) is the correct answer. A is undoubtedly the introductory sentence and AD is a direct link. BC is a direct link and B must precede C. Hence (b).

98. a)   She lost most of her high profile cases, but survived and overnight, she has become a celebrity.
     b)   Shirin Ebadi, this year's winner of Nobel Peace Prize, is the sort of woman-assertive, severe and frighteningly well versed in Islamic and western law – that Iran's conservative establishment cannot stand.
     c)   A defender of Islam, she wrote learnedly about women's and children's rights under Islamic law.
     d)   A judge under the monarchy, she did not follow colleagues to an overseas refuge, but stayed on as an advocate, fighting cases of political murder, repression and domestic violence.
         a) cbad   b) badc   c) bacd   **d) bcda**

98. (d) is the correct answer. B is the introductory sentence since it introduces Shirin to us. A is followed by C since both talk about Islamic law. DA is a direct link and A must follow D. Hence (d).

99. a)   Valleys and hills so gentle that between them they constituted little more than ripples in the earth undulated on either bank, terraced vineyards stepped gingerly down to the water's edge, as if to try the temperature with a toe.
     b)   The road wound as the river did, at every bend there was a change of view.
     c)   The castles, looking more like the sets of for a production of Tannhauser than any stage designs could dare to provide, war perched high on scraps of crag that would have given the very eagles vertigo.
     d)   The fields were golden, the villages, each with it's white washed church, many of them onion-spired, slept in the sun as though determined not be awaken until Barbarossa's return.
         a) bacd   **b) bdac**   c) bdca   d) none of these

99. (a) is the correct answer. B is the best introductory sentence. D follows B and the tone of the sentence is such that it appears to be a better option than A. A follows D. Hence (a).

100. a)   The London Stock Exchange requires all listed companies, registered in the United Kingdom, as a continuous obligation of listing, to state whether they are complying with the code and to give reasons for any areas of non-compliance.
     b)   The areas of greatest concern to auditors are the requirements that the directors report on internal control and going concern.

c) This has led to a requirement on the London Stock Exchange for companies to report that they have followed a Code Book of best practice, which was suggested by the Cadbury committee.

d) Recently, there has been worldwide concern by shareholders that corporations should be governed in their best interests.

   a) dbca   b) acdb   c) adbc   **d) dcab**

100.   (d) is the correct answer. D is the introductory sentence and C follows D. CA is a direct link. Hence (d).

101. a) The first five-year plan had also stated that the central objective of planning in India is to raise the standard of living of the people and to open opportunities for a richer and more varied life.

b) On being sworn as the first Prime Minister of India in 1947 Nehru had called for "the ending of poverty and ignorance and disease and inequality of opportunity".

c) Eradication of poverty has always been the primary agenda of the Indian polity.

d) Successive five year plans went on to emphasize poverty eradication and the attainment of economic equality and said justice was a key objective.

   a) cabd   **b) cbad**   c) cbda   d) bcad

101. (2) is the correct answer. C serves as a perfect introductory sentence. B continues with the same agenda and thus CB is a direct link. A continues with how it was to be implemented and D tells us what happened after that. Hence (2).

Directions for questions 102 to 107: In each of the following sentences certain parts have been underlined. Choose the part that contains an error.

102. Following eight months of therapy   Amanda now eats well, sleeps well and **didn't think of dying**. No error.
          A   B   C   D

102. By rule of tense, "didn't" is incorrect placed in the same phrase as "eats" and "sleeps", as it is in the past tense. The correct usage will be "doesn't" think of dying. Hence (C)

103. **Each of us have**   a different susceptibility   to cardiovascular diseases. No error.
          A   B   C   D

103. "Each" is a distractive pronoun, and thus as a subject is singular. It should be followed by singular verb "has". Hence (a).

104. I watched long rows   **of wheat stalks**   that seemed to undulate in the wind. No error.
        A   B   C   D

104. "Long rows" already denotes the plural. "Wheat stalks" is redundant. It should be wheat stalk. Hence (b).

105. Graham fumbled in his shirt pocket   for his cell phone   but was too rattled to dial correctly. **No error**.
          A   B   C   D

105. There are no error in the sentence.

106. When he saw what was happening , he jumped out of his car and **starts shouting at the attacker**. No error.
        A   B   C   D

106. "Starts" is in the simple present tense. But the sentence requires it to be in the past tense. The correct form will be started. Hence (c).

107. My friend and I decided at the last minute   to see a movie and drove at break-neck speed **at the local theatre**.
          A   B   C

   No error.
    D

107. "At" is used for location. "Drove" will require the word "to". Hence (c)

Directions for questions 108 to 112: Read the passages and choose the correct option to answer the questions given.

Every person who has ever lived has experienced nightmares. They may be caused by certain drugs, medications, illness, or stress. Nightmares occur after about three hours of sleep. About five to ten adults have them once a month. One way to stop them is to try to reduce stress. If someone gets nightmares all the time and they are really serious and unsettling in everyday life, they should consider therapy.

A night terror is a very scary dream, which is more serious than a nightmare. The night terror will usually cause awakening, or at least partial awakening. Unlike nightmares, which occur after three hours of sleep, night terrors

happen in about the first hour or two. In a night terror many things may happen. For example, the dreamer might start screaming, making other people nearby think he is in trouble. If someone is sleepwalking, chances are that he is having a night terror. Whenever a child, or even an adult, urinates in their sleep it is usually because they have had one of these dreams. If anyone has a recurrent night terror it means that the dreamer has been struggling with this one problem, of which he may or may not be aware, for a period of time, maybe days, weeks, months, or even years!

Dreams have been studied for many, many years. When scientists studied them they found that everyone, even animals, dreams. To study dreams and sleep scientists determine if the body is active or inactive. They also measure brainwaves to identify what stage of sleep the person is in and if he is dreaming.

Dreams have been recorded all through time. A series of mental pictures is the simplest definition of what a dream is. Scientists have found that most dreams are in colour, though some people may not be aware of it since colour is such a normal part of life. The people who notice are people who notice things more in daily life.

People have many different ways of interpreting dreams. Dreams usually do not mean exactly what is shown. A dream about abandonment can be interpreted to mean that there will be a break up in a relationship, or it can be called a strengthening dream to make the dreamer want to avoid this abandonment. If a person dreams about a banana it means that either the dreamer or someone close to the dreamer may become ill, but not seriously ill. If the dreamer has a baby in the dream, it means that his or her hidden talent or talents are waiting to be born. A dream about adultery symbolizes egotism and that the dreamer is more focused on himself and not the needs of others. If anyone dreams about an alligator or crocodile it is a warning of disaster. If someone wants to remember their dreams he should try writing them down. Dreams can be very important. Artists, writers, and scientist get many of their ideas from dreams.

Dreams are more than just pictures in the mind, and scientists still do not know everything about them. Something more may be discovered about sleep cycles or nightmares. Interpretation might also have much more to it than what people think. Now when people wake up from strange dreams they might start thinking more about how funny or scary a dream may have been.

108. Nightmares occur
   a) due to certain drugs, medications or stress
   b) after about two hours of sleep
   c) thrice a month in five to ten adults
   d) to some person with particular deficiency of minerals.

108.   From the first line it is clear that nightmares occur due to drugs, medication or stress. Hence (a).

109. A night terror
   a) is less scary than a nightmare
   c) causes only partial awakening.
   b) occurs after three hours of sleep
   d) takes place within the first two hours of sleep

109.   A night-terror takes places within the first two hours of sleep as given in the second paragraph. Hence (d).

110. In case of recurring nightmare a dreamer
   a) might scream and awake others
   b) sleepwalks and cause anxiety for others
   c) is probably struggling with a problem being unaware
   d) may probably be enjoying the process and sensation.

110.   As evidenced by the line of the second paragraph, recurring nightmares are due to a person straggling with some problem, of which they may not be aware of. Hence (c).

111. In order to study dreams the scientists
   a) have studied the nightmares
   c) measure brainwaves due to partial awakening
   b) have to suffer from partial awakening
   d) measure brainwaves to identify the stage of sleep.

111.   By the last of the third paragraph we can say that in order to study dreams, scientists measure brainwaves in order to identify the stage of sleep. Hence (d).

112. A dream can be simply defined as
   a) brainwaves
   c) normal part of life in color
   b) active stage of sleep
   d) series of mental pictures

112. From the fourth paragraph it can be seen that according to the passage, in its simplest definition, a dream is a series of mental pictures. Hence (d).

Directions for questions 113 to 120: In each of the following questions, a sentence is given with a phrase underlined in it. From the options given, choose the one that can best replace the underlined phrase.

113. As if the hostile takeover weren't enough, <u>to add insult to injury</u> they scrapped ninety percent of our products and replaced them with their own.
    a) To injure someone
    b) To cause someone repeated financial loss
    c) **To worsen an already bad situation**
    d) To severely insult someone
113. Hence option (c).

114. But in France - the grape's homeland - Pinot Gris is made into a wine that's altogether <u>a different kettle of fish</u>.
    a) Gourmet food, wines and fine dining
    b) **Something different from before**
    c) Someone who does unpredictable things
    d) An unwelcome deviation
114. Hence option (b).

115. As posters go up in hotel lobbies and banners are hung in the international airport terminals, crowds are a *foregone conclusion*.
    a) Cause something to happen
    b) Predict a future event
    c) Sacrifice something important
    d) **An inevitable conclusion**
115. Hence option (c).

116. The servants at the palace are at the <u>beck and call</u> of the king and the entire royal family.
    a) Entirely subservient
    b) At the mercy of
    c) Living in harmony
    d) Being employed by
116. Hence option (a).

117. Ever since the blizzard last year, Dad has had a <u>bee in his bonnet</u> about moving to a warmer climate.
    a) Multi-tasking mind
    b) **Preoccupied or obsessed with an idea**
    c) Have firm faith about
    d) Frustration
117. Hence option (b).

118. If you've ever been a job-seeker, you're probably familiar with the <u>catch 22</u> of trying to get a job so you have experience, and not finding people who will give you one if you don't have experience.
    a) Ironical consequences of a logically standard situation
    b) Unpredictable outcomes of an action
    c) To worsen an already bad situation
    d) Paradox in which the to escape attempt makes escape impossible
119. **Hence option (d).**

120. At the last minute, Schumacher <u>came up trumps</u> and overtook all other racers in what became his most spectacular victory lap yet.
    a) **To succeed even when success is not likely**
    b) To change the implication of certain actions
    c) To cause a defeat for the others
    d) Change the opinion of others
120. Hence option (a).

121. My day was a bit of a <u>curate's egg</u>; I got that report finished on time, but the car broke down as soon as I left the office.
    a) Edible
    b) **Partially good and bad**
    c) Ending in disaster
    d) Fleeting happiness
121.   Hence option (b).