PRACTICE SET

Time : 45 Min.   **Max. Marks : 80**

QUANTITATIVE APTITUDE

DIRECTIONS (Qs. 1-5): What will come in place of question mark (?) in the following questions?

1. $\left[\left(5\sqrt{7}+\sqrt{7}\right)+\left(4\sqrt{7}+8\sqrt{7}\right)\right]-(19)^2 = ?$

    (a) 143   (b) $72\sqrt{7}$

    (c) 134   (d) $70\sqrt{7}$

    (e) None of these

2. $(4444 \div 40) + (645 \div 25) + (3991 \div 26) = ?$

    (a) 280.4   (b) 290.4

    (c) 295.4   (d) 285.4

    (e) None of these

3. $\sqrt{33124} \times \sqrt{2601} - (83)^2 = (?)^2 + (37)^2$

    (a) 37   (b) 33

    (c) 34   (d) 28

    (e) None of these

4. $5\frac{17}{37} \times 4\frac{51}{52} \times 11\frac{1}{7} + 2\frac{3}{4} = ?$

    (a) 303.75   (b) 305.75

    (c) $303\frac{3}{4}$ (d) $305\frac{1}{4}$

    (e) None of these

5. $\frac{1}{\sqrt{9}-\sqrt{8}} = ?$

    (a) $\frac{1}{2}(3-2\sqrt{2})$ (b) $\frac{1}{3+2\sqrt{2}}$

    (c) $3-2\sqrt{2}$ (d) $3+2\sqrt{2}$

    (e) None of these

DIRECTIONS (Qs. 6-10) : In each of the following questions a number series is given. A number in the series is expressed by letter 'N'. You have to find out the number in the place of 'N' and use the number to find out the value in the place of the question mark in the equation following the series.

6. 68 68.5 69.5 71 N 75.5 78.5

    $N \times 121 + ? = 10000$

    (a) 1160   (b) 1200

    (c) 1150   (d) 1180

    (e) None of these

7. 19 20 24 33 49 74 N 159

    $N^2 \div 10000 = ?$

    (a) 121.0   (b) 12.1

    (c) 1.21   (d) 0.121

    (e) None of these

8. 51 43 N 30 25 21 18

    $N^2 - 2N = ?$

    (a) 1155   (b) 1224

    (c) 1295   (d) 1368

    (e) None of these

9. 2 5 14 41 122 365 N

$$N - 16\frac{2}{3}\% \text{ of } 5670 - (?)^2 = 10^2$$

  (a) 7   (b) $\sqrt{149}$

  (c) 49   (d) $\sqrt{7}$

  (e) None of these

10. 510 254 N 62 30 14 6

    $40\% N + ? = 9^2$

  (a) 31.4   (b) 29.8

  (c) 50.4   (d) 30.6

  (e) None of these

DIRECTIONS (Qs. 11-15) : In each of the following questions two equations are given. Solve these equations and give answer:

(a) if $x \geq y$, i.e., x is greater than or equal to y.

(b) if $x > y$, i.e., x is greater than y.

(c) if $x \leq y$, i.e., x is less than or equal to y.

(d) if $x < y$, i.e., x is less than y.

(e) $x = y$ or no relation can be established between x and y

11. I. $x^2 + 5x + 6 = 0$

    II. $y^2 + 7y + 12 = 0$

12. I. $x^2 + 20 = 9x$

    II. $y^2 + 42 = 13y$

13. I. $2x + 3y = 14$

    II. $4x + 2y = 16$
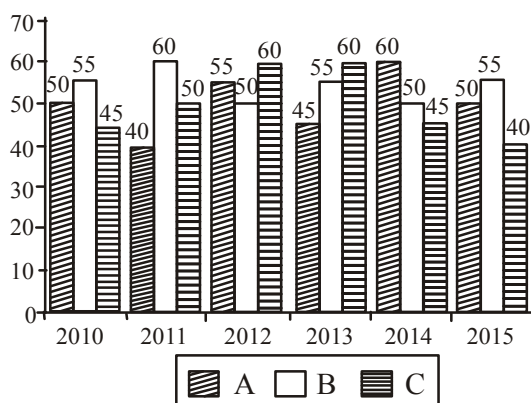
14. I. $x = \sqrt{625}$

    II. $y = \sqrt{676}$

15. I. $x^2 + 4x + 4 = 0$

    II. $y^2 - 8y + 16 = 0$

DIRECTION (Qs. 16-20) : Study the following graph carefully to answer the question given below it.

Production of paper (in lakh tonnes) by 3 different companies A, B & C over the years

16. What is the difference between the production of company C in 2010 and the production of Company A in 2015?

  (a) 50,000 tonnes   (b) 5,00,00,000 tonnes

  (c) 50,00,000 tonnes   (d) 5,00,000 tonnes

  (e) None of these

17. What is the percentage increase in production of Company A from 2011 to 2012?

  (a) 37.5   (b) 38.25

  (c) 35   (d) 36

  (e) None of these

18. For which of the following years the percentage of rise/fall in production from the previous year the **maximum** for Company B?

  (a) 2011   (b) 2012

  (c) 2013   (d) 2014

  (e) 2015

19. The total production of Company C in 2012 and 2013 is what percentage of the total production of Company A in 2010 and 2011?

  (a) 95   (b) 90

  (c) 110   (d) 115

  (e) None of these

20. What is the difference between the average production per year of the company with highest average production and that of the company with lowest average production in lakh tonnes?

  (a) 3.17   (b) 4.33

  (c) 4.17   (d) 3.33

  (e) None of these

DIRECTIONS (Qs. 21-25) : Study the given pie-chart and table and answer the following questions.

Percentage distribution of total TV viewers (in prime time) among different TV channels.
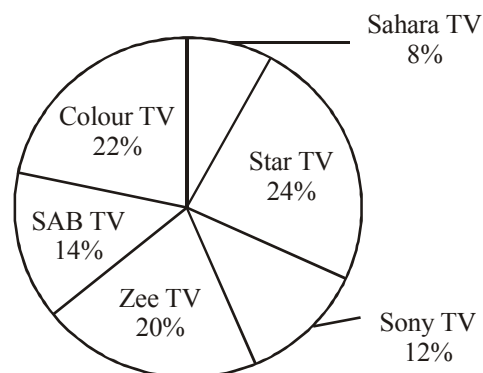
Percentage of urban TV viewers of these channels (Total number of TV viewers is 12 lakh)

Channel	% Urban Viewers
Star TV	70%
Sony TV	65%
Zee TV	68%
SAB TV	75%
Colors TV	60%
Sahara TV	72%

21. What is the total number of TV viewers from urban areas for all the channels?
(a) 721780   (b) 786486
(c) 811920   (d) 824864
(e) None of these

22. What is the average number of TV viewers from rural areas for all the channels?
(a) 62178   (b) 64680
(c) 66370   (d) 68484
(e) None of these

23. Total number of rural viewers of Sony TV is what percentage of the total number of urban viewers of the same channel?
(a) 51.68%   (b) 52278%
(c) 53.846%   (d) 54.272%
(e) None of these

24. Total number of Sahara TV viewers from urban areas is what percentage more than the total number of rural viewers of SAB TV?
(a) 61.24%   (b) 62.83%
(c) 63.58%   (d) 64.57%
(e) None of these

25. What is the ratio of the total number of rural viewers of Zee TV to the total number of urban viewers of Star TV?
(a) 7:23   (b) 8:21
(c) 9:25   (d) 11:32
(e) None of these

DIRECTIONS (Qs. 26-30): What approximate value should come in place of the question mark (?) in the following questions?

(**Note :** You are not expected to calculate the exact value)

26. $12959.998 + 18.010 = ?$
(a) 840   (b) 990
(c) 570   (d) 680
(e) 720

27. 40.005% of $439.998 + ?\%$ of $600.020 = ?$
(a) 8   (b) 17
(c) 12   (d) 20
(e) 5

28. $6894.986 + 5025.005 + 600.020 = ?$
(a) 12170   (b) 13540
(c) 12950   (d) 11560
(e) 12520

29. $31.999 \times 12.001 \times 17.5001 = ?$
(a) 6600   (b) 6720
(c) 6480   (d) 6070
(e) 6270

30. $(10.998)^3 = ?$
(a) 1440   (b) 1730
(c) 1330   (d) 1640
(e) 1000

31. Average age of 36 children of the class is 15 years. 12 more children joined whose average age is 16 years. What is the average age of all the 48 children together ?
(a) 15.25 years   (b) 15.5 years
(c) 15.3 years   (d) 15.4 years
(e) None of these

32. Profit earned by selling an article of ₹ 1,450 is same as the loss incurred by selling the article for ₹ 1,280. What is the cost price of the article?
(a) ₹1,385   (b) ₹1,405
(c) ₹1,355   (d) ₹1,365
(e) None of these

33. If the compound interest on a certain sum of money for 3 years at 10% p.a. be ₹ 993, what would be the simple interest ?
(a) ₹800   (b) ₹950
(c) ₹900   (d) ₹1000
(e) None of these

34. In a class, 20 opted for Physics, 17 for Maths, 5 for both and 10 for other subjects. The class contains how many students?
(a) 35   (b) 42
(c) 52   (d) 60
(e) None of these

35. How much water must be added to 100 cc of 80% solution of boric acid to reduce it to a 50% solution ?
(a) 20 cc   (b) 40 cc
(c) 80 cc   (d) 60 cc
(e) None of these

36. Successive discounts of 20% and 15% are equivalent to a single discount of
(a) 35%   (b) 32%
(c) 17.5%   (d) 22.5%
(e) None of these

37. Two cars start together in the same direction from the same place. The first goes with a uniform speed of 10 km/h. The second goes at a speed of 8 km/h in the first hour and increases its speed by $\dfrac{1}{2}$ km with each succeeding hour. After how many hours will the second car overtake the first one, if both go non-stop?
(a) 9 hours   (b) 5 hours
(c) 7 hours   (d) 8 hours
(e) None of these

38. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is
(a) 30   (b) 32
(c) 34   (d) 36
(e) None of these

39. The sum of digits of a two digit number is 15. If 9 be added to the number, then the digits are reversed. The number is
(a) 96.   (b) 87
(c) 78   (d) 69
(e) None of these

40. Three cubes of a metal are of edges 3 cm, 4 cm and 5 cm. These are melted together and from the melted material, another cube is formed. The edge of this cube is :
(a) 8 cm   (b) 10 cm
(c) 9 cm   (d) 6 cm
(e) None of these

REASONING ABILITY

41. If the following series is written in the reverse order, which number will be fourth to the right of the seventh number from the left ?

7, 3, 9, 7, 0, 3, 8, 4, 6, 2, 1, 0, 5, 11, 13

(a) 0   (b) 5
(c) 9   (d) 11
(e) None of these

42. In a certain code language 'ne ri so' means 'good rainy day', 'si ne po' means 'day is wonderful' and 'ri jo' means 'good boy'. Which of the following means 'rainy' in the code?

(a) ne   (b) si
(c) ri   (d) so
(e) None of the above

43. If SMOOTH is coded as 135579, ROUGH as 97531 and HARD as 9498, then SOFT will be coded as

(a) 1527   (b) 1347
(c) 4998   (d) 8949
(e) 8994

44. Saroj is mother-in-law of Vani who is sister-in-law of Deepak. Rajesh is father of Ramesh, the only brother of Deepak. How is Saroj related to Deepak?

(a) Mother-in-law   (b) Wife
(c) Aunt   (d) Mother
(e) None of these

45. A directional post is erected on a crossing. In an accident, it was turned in such a way that the arrow which was first showing east is now showing south. A passerby went in a wrong direction thinking it is west. In which direction is he actually travelling now ?

(a) North   (b) South
(c) East   (d) West
(e) None of these

DIRECTIONS (Qs. 46-50) : In each question below, there are three statements followed by two conclusions numbered I and II. You have to take the three given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the three statements disregarding commonly known facts.

Give answer (a) if only conclusion I follows.

Give answer (b) if only conclusion II follows.

Give answer (c) if either I or II follows.

Give answer (d) if neither I nor II follows.

Give answer (e) if both I and II follow.

46. Statements: All shoes are pens.
Some pens are razors.
Some razors are desks.
Conclusions :
I.   Some desks are shoes.
II.   Some razors are shoes.

47. Statements:
Some benches are windows.
Some windows are walls.
Some walls are trains.
Conclusions:
I.   "Some trains are benches."
II.   No train is bench.

48. Statements :
All brushes are chocolates.
All chocolates are mirrors.
All mirrors are tables.
Conclusions:
I.   Some tables are brushes
II.   Some mirrors are chocolates.

49. Statements :
Some pencils are knives.
All knives are papers.
Some papers are books.
Conclusions:
I.   Some books are pencils.
II.   Some papers are pencils.

50. Statements:
Some roofs are figures.
All figures are lions.
All lions are goats.
Conclusions:
I.   Some goats are roofs.
II.   All goats are figures

DIRECTIONS (Qs. 51-55) : Study the following information to answer the given questions.

P, Q, R, S, T, V, X and Y are seated in a staright line facing North, P sits fourth to the left of V. V sits either sixth from the left end of the line or fourth from the right end of the line. S sits second to right of R. R is not an immediate neighbour of V. T and Q are immediate neighbours of each other but neither T nor Q sits at extreme ends of the line. Only one person sits between T and X. X does not sit at the extreme end of the line.

51. What is the position of Q with respect to P?
(a) Fifth to the right
(b) Immediate neighbour
(c) Second to right
(d) Third to left
(e) None of the above

52. Which of the following represents persons seated at the two extreme ends of the line?
(a) P, V   (b) Y, S
(b) R, V   (d) Y, P
(e) R, Y

53. How many persons are seated between R and T ?
(a) One   (b) Two
(c) Three   (d) Four
(e) None of these

54. If P is related to Q and S is related to T in a certain way, to which of the following would V be related to following the same pattern ?
(a) Y   (b) P
(c) R   (d) S
(e) X

55. Who amongst the following sits exactly in the middle of the persons who sit second from the left and the person who sits fifth from the right?
(a) V   (b) Q
(c) T   (d) S
(e) P

DIRECTIONS (Qs. 56-60) : Each of the following questions is based on the diagram given below. Study the diagram carefully and answer the questions.
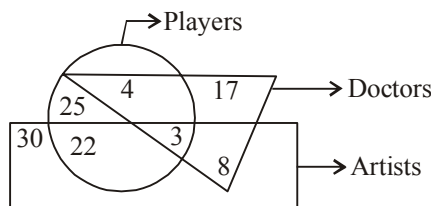
In the above diagram, rectangle represents 'artists', circle represents 'players' and triangle represents 'doctors'.

56. How many players are neither artists nor doctors?
(a) 25   (b) 22
(c) 4   (d) 29
(e) None of these

57. How many artists are players?
(a) 22   (b) 3
(c) 25   (d) 8
(e) None of these

58. How many artists are neither doctors nor players?
(a) 22   (b) 8
(c) 25   (d) 30
(e) None of these

59. How many doctors are neither players nor artists?
(a) 4   (b) 25
(c) 17   (d) 17
(e) None of these

60. How many doctors are players and artists both?
(a) 4   (b) 7
(c) 3   (d) 8
(e) None of these

DIRECTIONS (Qs. 61-65) : In these questions, relationship betwen different elements is shown in the statements.

These statements are followed by two conclusions.
Given answer
(a) if only Conclusion I follows
(b) if only Conclusion II follows
(c) if either Conclusion I or II follows
(d) if neither Conclusion I nor II follows
(e) if both Conclusion I and II follows

61. Statements $L > M, M > N, N > P$
Conclusions I. $L > P$ II. $M > P$

62. Statements $A > B, B = H, H > G$
Conclusions I. $A > G$ II. $A > H$

63. Statements $H < J, F < H, I \leq J = K$
Conclusions I. $H > I$ II. $I \geq F$

64. Statements $A > B > C \leq D = E$
Conclusions I. $B \leq E$ II. $B < P$

65. Statements $P > M > Q, Q > Z > N$
Conclusions I. $M \geq Z$ II. $N < P$

DIRECTIONS (Qs. 66-70): Study the following sequence carefully and answer the questions given below:

M E 5 P B 2 A 7 K N 9 T R U 4 6 I J D F 1Q 3 W 8 V I S Z

66. How many such numbers are there in the above sequence, each of which is both immediately preceded by and immediately followed by a consonant ?
(a) None   (b) One
(c) Two   (d) Three
(e) More than three

67. If the order of the first twenty letters/numbrs in the above sequence is reversed and the remaining letters/numbers are kept unchanged, which of the following will be the fourteenth letter/number from the right end after the rearrangement?
(a) B   (b) 6
(c) 2   (d) 1
(e) None of these

68. Which of the follwing letter/number is the eighth to the left of the nineteenth letter/number from the left end?
(a) N   (b) T
(c) 1   (d) D
(e) None of these

69. Four of the following five are alike in a certain way with regard to their position in the above sequence and so form a group. Which is the one that **does not** belong to that group?
(a) WIQ   (b) PAE
(c) NR7   (d) 4JR
(e) D16

70. How many such vowels are there in the above sequence, each of which is immediately preceded by a consonant and immediately followed by a vowel?
(a) None   (b) One
(c) Two   (d) Three
(e) More than three

DIRECTIONS (Qs. 71-75) : Study the following information to answer the given questions.

Eight friends, A, B, C, D, E, F, G and H are sitting in a circle facing the centre, not necessarily in the same order. D sits thrid to the left of A. E sits to the immediate right of A. B is third to the left of D. G is second to the right of B. C is an immediate neighbour of B. C is third to the left of H.

71. Who amongst the following is sitting exactly between F and D ?
    (a) C   (b) E
    (c) H   (d) A
    (e) None the these

72. Three of the following four are alike in a certain way based on the information given above and so from a group. Which is the one that does not belong to that group ?
    (a) DC   (b) AH
    (c) EF   (d) CB
    (e) None the these

73. Who amongst the following is sitting second to the left of H?
    (a) E   (b) B
    (c) A   (d) Data inadequate
    (e) None the these

74. Who amongst the following are immediate neighbours of G?
    (a) CA   (b) AF
    (c) DC   (d) DF
    (e) None the these

75. Who amongst the following is sitting third to the right of A?
    (a) F   (b) B
    (c) B   (d) C
    (e) None the these

DIRECTIONS (Qs. 76-80): Study the following information to answer the given questions.

In a certain code, 'always create new ideas' is written as 'ba ri sha gi', 'ideas and new thoughts' is written as 'fa gi ma ri', 'create thoughts and insights' is written as 'ma jo ba fa', and 'new and better solutions' is written as 'ki ri to fa'.

76. What is the code for 'ideas'?
    (a) sha   (b) ba
    (c) gi   (d) ma
    (e) Cannot be determined

77. What does 'fa' stand for?
    (a) thoughts   (b) insights
    (c) new   (d) and
    (e) solutions

78. 'fa lo ba' could be a code for which of the following?
    (a) thoughts and action   (b) create and innovate
    (c) ideas and thoughts   (d) create new solutions
    (e) always better ideas

79. What is the code for 'new'?
    (a) ki   (b) ri
    (c) to   (d) fa
    (e) ba

80. Which of the following may represent 'insights always better'?
    (a) jo ki to   (b) ki to ri
    (c) sha jo ri   (d) to sha jo
    (e) sha to ba

HINTS & EXPLANATIONS

1. (a) $\left[\left(5\sqrt{7}+\sqrt{7}\right)\times\left(4\sqrt{7}+8\sqrt{7}\right)\right]-(19)^2=?$

$\Rightarrow (6\sqrt{7}\times 12\sqrt{7})-(361)=?$

$\Rightarrow 72\times\sqrt{7}\times\sqrt{7}-361=?$

$\therefore ?=504-361=143$

2. (b) $(4444\div 40)+(645\div 25)+(3991\div 26)=?$

$\Rightarrow ?=(111.1)+(25.8)+(153.5)\Rightarrow ?=290.4$

3. (e) $\sqrt{33124}\times\sqrt{2601}-(83)^2=(?)^2(37)^2$

$\Rightarrow (?)^2=\sqrt{33124}\times\sqrt{2601}-(83)^2-(37)^2$

$\Rightarrow (?)^2=182\times 51-6889-1369$

$\Rightarrow (?)^2=9282-6889-1369$

$\Rightarrow (?)^2=1024$

$\therefore ?=\sqrt{1024}=32$

4. (b) $5\dfrac{17}{37}\times 4\dfrac{51}{52}\times 11\dfrac{1}{7}+2\dfrac{3}{4}=?$

$\Rightarrow\left(\dfrac{202}{37}\times\dfrac{259}{52}\times\dfrac{78}{7}\right)+\left(\dfrac{11}{4}\right)=?$

$\Rightarrow 303+\dfrac{11}{4}=?$

$\therefore ?=\dfrac{1223}{4}=305.75$

5. (d) $\dfrac{1}{\sqrt{9}-\sqrt{8}}=\dfrac{1}{\sqrt{9}-\sqrt{8}}\times\dfrac{\sqrt{9}+\sqrt{8}}{\sqrt{9}+\sqrt{8}}=\dfrac{3+2\sqrt{2}}{9-8}=(3+2\sqrt{2}).$

6. (e) The series is $+0.5,+1,+1.5,+2,....$

7. (c) The series is $+1^2,+2^2,+3^2,+4^2,....$

8. (b) The series is $-8,-7,-6,-5,....$

9. (a) The series is $\times 3-1$ in each term.

10. (d) The series is $\div 2-1$ in each term.

11. (a) I. $x^2+5x+6=0$

$\Rightarrow x^2+2x+3x+6=0$

$\Rightarrow x(x+2)+3(x+2)=0$

$\Rightarrow (x+3)(x+2)=0$

$\Rightarrow x=-3$ or -2

II. $y^2+7y+12=0$

$\Rightarrow y^2+4y+3y+12=0$

$\Rightarrow y(y+4)+3(y+4)=0$

$\Rightarrow (y+3)(y+4)=0$

$\Rightarrow y=-3$ or -4

On comparing the value of equ.(i) and equ.(ii)

$x\geq y$

12. (d) I. $x^2-9x+20=0$

$\Rightarrow x^2-5x-4x+20=0$

$\Rightarrow x(x-5)-4(x-5)=0$

$=(x-4)(x-5)=0$

$x=4$ or 5

II. $y^2-13y+42=0$

$\Rightarrow y^2-7y-6y+42=0$

$\Rightarrow y(y-7)-6(y-7)=0$

$\Rightarrow (y-6)(y-7)=0$

$\Rightarrow y=6$ or 7

Here, $y>x$

13. (d) $2x+3y=14$ ...(I)

$4x+2y=16$ ...(II)

By equation (I) $\times 2$ – equation II.

$4x+6y-4x-2y=28-16$

$\Rightarrow 4y=12\Rightarrow y=3$

From equation I,

$2x+3\times 3=14$

$\Rightarrow 2x=14-9=5\Rightarrow x=\dfrac{5}{2}$

Here, $y>x$

14. (e) I. $x=\sqrt{625}=\pm 25$

II. $y=\sqrt{676}=\pm 26$

No relation can be established between x and y.

15. (d) I. $x^2+4x+4=0$

$(x+2)^2=0\Rightarrow x=-2$

II. $y^2-8y+16=0$

$\Rightarrow (y-4)^2=0$

$\Rightarrow y=4$

Here, $y>x$

16. (d) Difference of production of C in 2010 and A in 2015 = 5,00,000 tonnes

17. (a) Percentage increase of A from 2011 to 2012

$\dfrac{55-40}{40}\times 100=37.5\%$

18. (b) Percentage rise/fall in production for B

2011	2012	2013	2014	2015
9%	−16.6%	10%	− 9%	10%

Here, the maximum difference is from 2011 to 2012, which is 10. And the second nearest to it is fall or rise of 5. So, undoubtedly the answer is 2012.

19. (e) Percentage production $=\dfrac{120}{90}\times 100=133.3\%$

20. (c) Average production of A = 50
Average production of B = 54.17
Average production of C = 50
Difference of production = 54.17 – 50 = 4.17

21. (c)

22. (b) Total no. of rural viewers = 388080

$$\therefore \text{Avg} = \frac{388080}{6} = 64680$$

23. (c) Rural viewers$_{\text{sony}}$ = $1200000 \times \dfrac{12}{100} \times \dfrac{35}{100} = 50400$

Urban viewer$_{\text{sony}}$ = $1200000 \times \dfrac{12}{100} \times \dfrac{65}{100} = 93600$

$$\text{Reqd\%} = \frac{50400}{93600} \times 100 = 53.846\%$$

24. (d) Urban$_{\text{sahara}}$

$$= 1200000 \times \frac{8}{100} \times \frac{72}{100} = 69120$$

$$\text{Rural}_{\text{SAB}} = 1200000 \times \frac{14}{100} \times \frac{25}{100} = 42000$$

$$\therefore \text{Reqd\%} = \frac{69120 - 4200}{42000} \times 100 = 64.57\%$$

25. (b) $\text{Ratio} = \dfrac{1200000 \times \dfrac{20}{100} \times \dfrac{32}{100}}{1200000 \times \dfrac{24}{100} \times \dfrac{70}{100}} = \dfrac{20 \times 32}{24 \times 70} = \dfrac{8}{21}$

26. (e) $12959.998 \div 18.010 = ?$
$\approx 12960 \div 18 = ?$
$? = 720$

27. (a) 40.005% of $439.998 + ?\%$ of $655.011 = 228.5$

$$\approx \frac{40}{100} \times 440 + \frac{x}{100} \times 655 = 229$$

$$\approx 176 + \frac{655x}{100} = 229 \approx \frac{655x}{100} = 229 - 176$$

$$x = \frac{50 \times 100}{655} \approx 8$$

28. (e) $6894.986 + 5025.005 + 600.020 = ?$
$\approx 6895 + 5025 + 600 = ?$
$\approx 12520 = ?$

29. (b) $31.999 \times 12.001 \times 17.5001 = ?$
$\approx 32 \times 12 \times 17.5 = ?$
$\approx 6720 = ?$

30. (c) $(10.998)^3 = ?$
$\approx (11)^3 = ?$
$\approx 1330 = ?$

31. (a) Required average age

$$= \left(\frac{15 \times 36 + 12 \times 16}{36 + 12} \right) \text{years} = \left(\frac{540 + 192}{48} \right) \text{years}$$

$$= 15.25 \text{ years.}$$

32. (d) Let the CP of the article be ₹ x.
According to the question,
$1450 - x = x - 1280$
$\Rightarrow 2x = 1450 + 1280 = 2730$

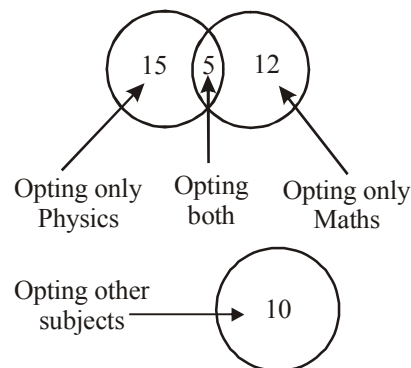$$\Rightarrow x = \frac{2730}{2} = ₹1365$$

33. (c) Let Principal = ₹ P

$$P\left(1 + \frac{10}{100}\right)^3 - P = 993 \Rightarrow \left(\frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} - 1\right)P = 993$$

$$\Rightarrow \left(\frac{1331 - 1000}{1000}\right)P = 993 \text{ or,}$$

$$P = \frac{993 \times 1000}{331} = 3000$$

$$\therefore \text{Simple interest} = ₹\left(\frac{3000 \times 3 \times 10}{100}\right) = ₹900$$

34. (b)

Total no. of students = $15 + 5 + 12 + 10 = 42$

35. (d) Concentration of boric acid = 80% = 80 cc
Quantity of water = 20 cc
Let x cc of water be added to get the concentration of 50%.

$$\Rightarrow \frac{80}{100 + x} = \frac{50}{100} \text{ or } \frac{80}{100 + x} = \frac{1}{2} \text{ or } x = 60 \text{ cc}$$

36. (b) Successive discounts of 20% and 15% on ₹ 100 yields to
$100 \times 0.8 \times 0.85 = ₹68$

$\therefore$ Single discount = $(100 - 68) = 32\%$

37. (a) Let the second car overtakes the first car after t hours.
Distance covered by the first car = Distance covered by the second car.

$$\Rightarrow 10\,t = 8 + \left(8 + \frac{1}{2}\right) + \left(8 + \frac{2}{2}\right) + \dots + \left(8 + \frac{t-1}{2}\right)$$

$$\text{or } 10t = 8t + \frac{1}{2}[1 + 2 + \dots + (t - 1)]$$

$$\text{or } 10t = 8t + \frac{1}{2}\frac{t(t-1)}{2} \text{ or } 2t = \frac{1}{4}(t^2 - t)$$

$$\Rightarrow t = 9 \text{ hrs. } [t \neq 0]$$

38. (b) $m_1 \times d_1 \times t_1 \times w_2 = m_2 \times d_2 \times t_2 \times w_1$
$24 \times 10 \times 8 \times 1 = m_2 \times 6 \times 10 \times 1$

$$\Rightarrow m_2 = \frac{24 \times 10 \times 8}{6 \times 10} = 32 \text{ men}$$

39. (c) Let the two digit number be $10x + y$
We have $x + y = 15$ …(i)
and $(10x + y) + 9 = (10y + x)$ or $9x - 9y = -9$
or $x - y = -1$ …(ii)
From (i) and (ii) $x = 7$ and $y = 8$
The number is $10 \times 7 + 8 = 78$

40. (d) Let edge of the new cube = x cm.
Volume of the newly formed figure (cube)
= Sum of volume of smaller cubes.
i.e. $(x)^3 = (3)^3 + (4)^3 + (5)^3 = 27 + 64 + 125 = 216 \Rightarrow x = 6$ cm

41. (a) The given series when written in the reverse order becomes.
13, 11, 5, 0, 1, 2, 6, 4, 8, 3, 0, 7, 9, 3, 7
The 7th number from the left is 6. The 4th number to the right of 6 is 0.

42. (d)

So, the code for rainy is 'so'.

43. (a) As,

S M O O T H R O U G H
↓ ↓ ↓ ↓ ↓ ↓ , ↓ ↓ ↓ ↓ ↓
1 3 5 5 7 9 9 7 5 3 1

and

H A R D
↓ ↓ ↓ ↓
9 4 9 8

It clearly shown that only first option conatins 1527.
So,

S O F T
↓ ↓ ↓ ↓
1 5 2 7

Thus, the correct code for soft will be 1527.

44. (d)

So, it is clear from the above family tree that saroj is Mother to Deepak.

45. (b)

When the arrow turns, East becomes South, North becomes East, West becomes North and South becomes West.
So, the traveller must be actually travelling in the South thinking it is West.

46. (d) All shoes are pens. (A-type)

Some pens are razors. (I-type)
$A + I \Rightarrow$ No Conclusion

47. (c) All the three Premises are Particular Affirmative (I-type).
No Conclusion follows from Particular Premises.
Conclusion I and II from Complementary Pair.
Therefore, either I or II follows

48. (e) All brushes are chocolates. (A-type)

All chocolates are mirrors. (A-type)
$A + A \Rightarrow$ A-type Conclusion
"All brushes are mirrors"
All biushes are mirrors. (A-type)

All mirrors are tables. (A-type)
"All brushes are tables"
Conclusion I is converse of this Conclusion.
Conclusion II is converse of the second Premise.

49. (b) Some pencils are knives. (I-type)

All knives are papers. (A-type
$I + A \Rightarrow$ I-type Conclusion
"Some pencils are papers"
Conclusion II is converse of this Conclusion.

50. (a) Some roofs are figure. (I-type)

All figures are lions. (A-type)
$I + A \Rightarrow$ I-type Conclusion
"Some roofs are lions."
Some roofs are lion. (I-type)

All lions are goats. (A-type)
$I + A \Rightarrow$ I-(A-type) Conclusion
"Some roofs are goats"
Conclusion I is converse of this Conclusion..

(Q. No. 51-55): On the basis of given information, the final sitting arrangment of eight persons in a straight line facing North is as following

51. (c) Q is second to the right of P.
52. (e) R and Y are sitting at the two extreme ends of the line.

53. (c) Three persons P, S and Q are seated between R and T.
54. (a) In the given pairs, second person is seated second to the right of first person.
So, V be related to Y as Y is sitting second to the right of V.
55. (d) Second from the left is P and fifth from the right is Q. S is sitting between P and Q.
56. (a) There are 25 players who are neither artists nor doctors because this is the only region of the circle which is not common with either rectangle or triangle.
57. (c) Required number $= 22 + 3 = 25$
58. (d) There are 30 artists who are neither doctors nor players because this is the only region of the rectangle which is not common with either circle or triangle.
59. (d) There are 17 doctors who are neither players nor artists because this is the only region of the triangle which is not common with either circle or rectangle.
60. (c) The region 3 is common to triangle, circle and rectangle and hence, represents doctors who are players as well as artists.
61. (e) Given that, $\qquad L > M \qquad$ ...(i)
$\qquad\qquad\qquad M > N \qquad$ ...(ii)
$\qquad\qquad\qquad N > P \qquad$ ...(iii)
On combining all the three statements, we get
$\qquad\qquad L > M > N > P$
Conclusions I. $L > P$ ...(true)
$\qquad\qquad$ II. $M > P$ ...(true)
So, it is clear that both Conclusions I and II follow from that given statements.
62. (e) Given that, $\qquad A > B \qquad$ ...(i)
$\qquad\qquad\qquad B = H \qquad$ ...(ii)
$\qquad\qquad\qquad H > G \qquad$ ...(iii)
On combining the statements (i), (ii) and (iii), we get
$\qquad\qquad A > B = H > G$
Conclusions I. $A > G$ ...(true)
$\qquad\qquad$ II. $A > H$ ...(true)
So, it is clear that both Conclusions I and II follow from the given statements.
63. (d) Given that, $\qquad H < J \qquad$ ...(i)
$\qquad\qquad\qquad F < H \qquad$ ...(ii)
$\qquad\qquad\qquad I \le J = K \qquad$ ...(iii)
On combining that statements (i), (ii) and (iii), we get
$\qquad\qquad F < H < J = K \ge I$
Conclusions I. $H > I$ ...(false)
$\qquad\qquad$ II. $I \ge F$ ...(false)
So, it is clear that both Conclusions I and II follow from the given statements.
64. (d) Given that, $A < B < C \le D = E$
Here, statements are already combined.
Conclusions I. $B \le E$ ...(false)
$\qquad\qquad$ II. $B < E$ ...(ture)
So, it is clear that only Conclusions II follow from the given statements.
65. (e) Given that, $\qquad P > M > Q \qquad$ ...(i)
$\qquad\qquad\qquad Q > Z > N \qquad$ ...(ii)
On combining that statements (i), and (ii) we get
$\qquad\qquad P > M > Q > Z > N$
Conclusions I. $M \ge Z$ ...(false)
$\qquad\qquad$ II. $N < P$ ...(true)

So, it is clear that only Conclusions II follow from the given statements.
66. (e) Four members in the sequence.
M E 5 P B 2 A 7 K **N 9** T R U 4 6 I J D **F 1** Q **3 W 8** V I S Z
67. (a) F D J I 6 4 U R T 9 N K 7 A 2 [B] P 5 E M 1 Q 3 W 8 V I S Z

[B] 14th from right end.
68. (e) Eighth to the left of the nineteenth letter/number from the left $\Rightarrow (19 - 8 =)$ 11th letter/number from left. Hence, required element is 9.
69. (e) Except D16, second element in each group is third to the right of first element while third element of each group is second to the left of first element of the respective group.
70. (a) There are no such vowels.

(Q. Nos. 71-75) Arrangement according to the question is as follows
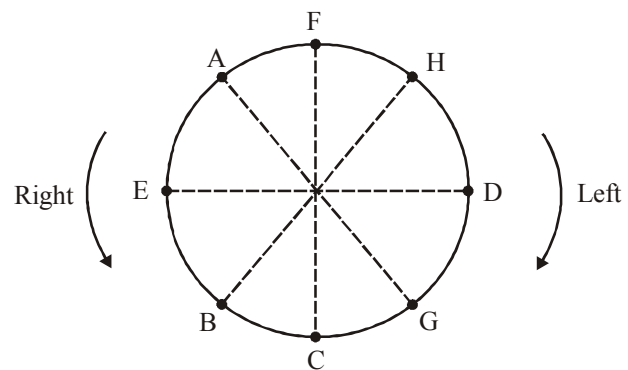
71. (c) Clearly, H is sitting exactly between F and D.

72. (d) DGC   AFH   EAF   C None B
$\qquad$ ↑$\qquad$ ↑$\qquad$ ↑$\qquad\qquad$ ↑

Skipped Skipped Skipped No Member
$\qquad\qquad\qquad\qquad\qquad$ is skipped in between

So, CB does not belong to the group.
73. (e) Clearly, G is sitting second to the left of H.
74. (c) Clearly, D and C are immediate neighbours of G.
75. (d) Clearly, C is sitting third to the right of A.
(76-80) : 'always create new ideas' → 'ba ri sha gi' ...(1)
$\qquad$ 'ideas and new thoughts' → 'fa gi ma ri' ...(2)
$\qquad$ 'create thoughts and insights' → 'ma jo ba fa' ...(3)
$\qquad$ 'new and better solutions' → 'ki ri to fa' ...(4)
$\qquad$ Using (1) and (4),
$\qquad\qquad$ new → ri
$\qquad$ Using (1), (2) and (4),
$\qquad\qquad$ ideas → gi
$\qquad\qquad$ and → fa
$\qquad\qquad$ thoughts → ma
$\qquad$ Using (1) and (3),
$\qquad\qquad$ create → ba
$\qquad\qquad$ always → sha
$\qquad\qquad$ insights → jo
$\qquad\qquad$ better solutions → ki to
76. (c) 77. (d) 78. (b) 79. (b) 80. (d)