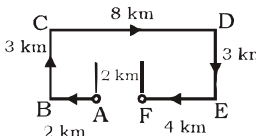


# ANSWER SET - 54

1. (1) 2. (2) 3. (3) 4. (1) 5. (4)
6. (3) 7. (1) 8. (3) 9. (4) 10. (2)
11. (1) 12. (2) 13. (3) 14. (4) 15. (2)
16. (4) 17. (4) 18. (4) 19. (2) 20. (1)
21. (4) 22. (4) 23. (3) 24. (2) 25. (3)
26. (3) 27. (4) 28. (4) 29. (1) 30. (2)
31. (1) 32. (2) 33. (2) 34. (2) 35. (2)
36. (3) 37. (2) 38. (4) 39. (3) 40. (3)
41. (4) 42. (3) 43. (3) 44. (1) 45. (4)
46. (3) 47. (2) 48. (3) 49. (4) 50. (1)
51. (1) 52. (2) 53. (3) 54. (3) 55. (2)
56. (1) 57. (3) 58. (3) 59. (3) 60. (2)
61. (3) 62. (4) 63. (3) 64. (3) 65. (2)
66. (1) 67. (2) 68. (2) 69. (3) 70. (2)
71. (3) 72. (3) 73. (3) 74. (3) 75. (4)
76. (2) 77. (2) 78. (2) 79. (3) 80. (1)
81. (4) 82. (1) 83. (3) 84. (2) 85. (4)
86. (3) 87. (4) 88. (2) 89. (1) 90. (3)
91. (4) 92. (1) 93. (1) 94. (3) 95. (1)
96. (3) 97. (4) 98. (2) 99. (1) 100. (1)

## EXPLANATION - 54

1. (1) Second is the feminine gender of the first.
2. (2) There are waves in the oceans and sand dunes in the desert.
3. (3)  $38 \Rightarrow 3 \times \frac{8}{2} = 12 \Rightarrow 12^2 = 144$   
 $54 \Rightarrow 5 \times \frac{4}{2} = 10 \Rightarrow 10^2 = 100$
4. (1) All except Vapour are different forms of Precipitation.
5. (4) Except Shout, others are sound related to animals.
6. (3) Except LAZINESS, the other words contain all vowels.
7. (1) 

$\therefore$  Required distance =  $8 - (4 + 2) = 2$  kms

8. (3) Lady will bake in an oven and oven is called grinder.
9. (4) From the given data we can find that (A, E) are the couple and has two child F and C. Also (B, D) are the couple with G as their child. As it is given that there are three children in the family, in which F is a girl, so C will definitely be a boy to satisfy one boy and one girl condition. So we can say that C is A's son.
10. (2)  $15 + \text{Suresh} + 6 + \text{Ashok} + 16 = 39$

15 students ahead of Suresh (●) 6 students between Ashok & Suresh (●) Ashok  
22 students ahead of Ashok (●) 16 students behind Ashok (●)

The rank of Suresh from the start is 23rd.

11. (1) The first, second and third

letters move three steps forward, four steps backward and two steps forward respectively. So, the required answer is NHR.

12. (2) The series consists of two groups (M, O, R, V) and (N, L, I, ?). The letters in the first group move 2, 3, 4, ... steps forward. The letters in the second group move 2, 3, 4, ... steps backward. So E is the required answer.
13. (3)  $2 \times 0.25 + 0.5 = 1$   
 $1 \times 0.5 + 1.5 = 2$   
 $2 \times 0.75 + 2.5 = 4$   
 $4 \times 1 + 3.5 = 7.5$   
 $7.5 \times 1.25 + 4.5 = 14.75$
14. (4)  $2 \begin{smallmatrix} 23 \\ 11 \end{smallmatrix} 3 \begin{smallmatrix} 23 \\ 11 \end{smallmatrix} 5 \begin{smallmatrix} 23 \\ 11 \end{smallmatrix} 4 \begin{smallmatrix} 23 \\ 11 \end{smallmatrix} 1$
15. (2)
16. (4) There is no C in DISSEMINATION.
17. (4) The sequence in the differences of the numbers is 7, 5, 3, 1, -1. Substituting 35 instead of 36 will satisfy the sequence.
18. (4)  $12^2 = 144$   
 $25^2 = 625$   
 $19^2 = 361$   
 $17^2 = 289$
19. (2)  $2^3 + 3^2 + 4^1 = 21$   
 $1^3 + 3^2 + 5 = 15$   
 $3^3 + 4^2 + 2 = 45$
20. (1)  $(3 + 2) \times 4 = 20$   
 $(5 + 2) \times 6 = 42$   
 $(1 + 2) \times 2 = 6$   
 $(7 + 2) \times 8 = 72$

21. (4)

Words	No. of letters (A)	(A) <sup>3</sup>	Reverse of (A) <sup>2</sup>
Behind	6	36	63
Every	5	25	52
Successful	10	100	001
Man	3	09	90
There	5	25	52
is	2	04	40
a	1	01	10
Woman	5	25	52

$\therefore$  Behind every successful man there is a woman = 63520019052401052

Words	No. of letters (A)	(A) <sup>2</sup>	Reverse of (A) <sup>2</sup>
Empty	5	25	52
Vessels	7	49	94
Makes	5	25	52
Much	4	16	61
Noise	5	25	52

$\therefore$  Empty vessels makes much noise = 5294526152

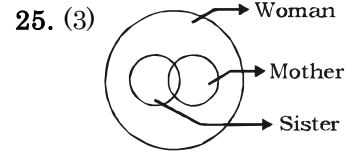
22. (4)

$$12 \times 7 = 84 \Rightarrow 804 \text{ Reverse } 408$$

$$9 \times 8 = 72 \Rightarrow 702 \text{ Reverse } 207$$

$$13 \times 7 = 91 \Rightarrow 901 \text{ Reverse } 109$$

23. (3)
24. (2)  $1, 1 \times 2, 1 \times 3 \Rightarrow 1 \ 2 \ 3$   
 $2, 2 \times 2, 2 \times 3 \Rightarrow 2 \ 4 \ 6$   
 $3, 3 \times 2, 3 \times 3 \Rightarrow 3 \ 6 \ 9$   
So, 9 box is the required answer.



Some sister may be mother and vice-versa. Also, some mothers may not be sisters and vice-versa. But all sisters and mothers belong to woman group.

51. (1)  $x = \sqrt{y + 373437 \times 37439}$

$$x = \sqrt{y + (37438 - 1)(37438 + 1)}$$

$$x = \sqrt{y + 37438^2 - 1^2}$$

For  $y = 1$ , the value of  $x$  is possible to find.

$$\text{As, } x = \sqrt{1^2 + 37438^2 - 1^2}$$

$$= \sqrt{37438^2} = 37438$$

52. (2)  $2^x \times 2^y = 8$

$$\Rightarrow 2^{x+y} = 8$$

$$\Rightarrow x + y = 3$$

$$9^x \times 3^y = 81$$

$$\Rightarrow 3^{2x+y} = 81$$

$$\Rightarrow 2x + y = 4$$

So  $(x, y) = (1, 2)$

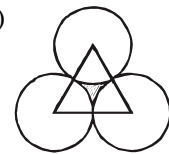
$$\text{So, } x^2 + y^2 - 2xy + 1 = 1^2 + 2^2 - 2 \times 1 \times 2 + 1 = 6 - 4 = 2$$

53. (3)

3 more than multiple of 5	53	58	63	68	73	78	83	88
2 more than multiple of 6	56	62	68	74	80	86		

$\Rightarrow$  Required no. of questions = 68

54. (3)



Draw an equilateral triangle after connecting the centers

$$\text{Area} = \frac{\sqrt{3}}{4} a^2 \text{ where } a \text{ is side of}$$

$$\text{triangle} = \frac{\sqrt{3}}{4} \times 4^2$$

$$[a = 2r = 4]$$

$$= 4\sqrt{3} \text{ cm}^2$$

As, the 3 sectors of a triangle will form a semi-circle and its area

$$= \frac{1}{2} \times \pi r^2 = \frac{1}{2} \pi \times 2^2 = 2\pi$$

$\therefore$  Required area of shaded region

$$= (4\sqrt{3} - 2\pi) \text{ cm}^2$$

55. (2)  $(x, y) = \{(1, 18) (6, 15) (11, 12) (16, 3) (21, 6) (26, 3)\}$

$\therefore$  The number of possible value of  $x = 6$

56. (1) ₹ 100 invested in CI becomes 200 in 5 yr

Amount gets doubled again in 5 yr

It means new amount = ₹ 400 in another 5 yr

So, we can say that in another 5 yr 200 interest will be earned.

57. (3) By sine rule of  $\Delta$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = K$$

$$\therefore a = K \sin A, b = K \sin B, c = K \sin C$$

$$\Rightarrow \frac{\cos A}{K \sin A} = \frac{\cos B}{K \sin B} = \frac{\cos C}{K \sin C}$$

$$\Rightarrow \cot A = \cot B = \cot C$$

$$\therefore A = B = C$$

So, It is equilateral  $\Delta$

58. (3) 20% of the men are above the age of 50 years. 20% of these men play football.

It means, 20% of 20% of 4% of the total men are football players above the age of 50 years.

20% of the men are football players.

Therefore, 16% of the men are football players below the age of 50 years.

Therefore, the % of men who are football players and below the age of 50

$$= \frac{16}{20} \times 100 = 80\%$$

59. (3) Required percentage

$$= \left(1 - \frac{115}{125} \times 100\right)$$

$$= \left(1 - \frac{23}{25} \times 100\right)$$

$$= \frac{2}{25} \times 100 = 8\%$$

60. (2) SP = 30 profit = 20% then CP of mixture

$$= \frac{30}{1.2} = 25$$

By Alligation rule,

$$\frac{QA}{QC} = \frac{30 - 25}{25 - 20} = \frac{5}{5} = 1$$

Also,

$$\frac{QB}{QC} = \frac{30 - 25}{25 - 24} = \frac{5}{1}$$

$$\Rightarrow QA : QB : QC = 1 : 5 : (1 + 1) = 1 : 5 : 2$$

$\therefore$  Required weight of the rice = 5 kg

61. (3) In a 1000 metre race A gives B, a start of 100 m or 15 seconds.

$\therefore$  B takes 15 seconds to run 100 m.

$\therefore$  B will take 150 seconds to run the stretch of 1000 metres.

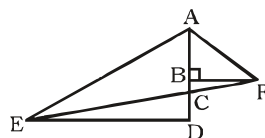
As, 1000 m = 10 times 100 m

$\therefore$  The time taken will also be 10 times 15 seconds = 150 seconds.

As, A gives B a start of 15 seconds, which means A obviously takes 15 seconds less than B to complete the race.

Hence, A will take 135 seconds to run the 1000 m.

62. (4)



Given  $CD = BF = 10$  unit

$$\angle CED = \angle BAF = 30^\circ$$

In  $\Delta CDE$ ,

$$\tan 30^\circ = \frac{CD}{ED}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{CD}{ED}$$

$$\Rightarrow ED = \sqrt{3} CD = 10\sqrt{3}$$

In  $\Delta ABF$

$$\tan 30^\circ = \frac{BF}{AB}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{BF}{AF}$$

$$\Rightarrow AB = \sqrt{3} BF = 10\sqrt{3}$$

Also,  $\angle BFC = \angle CED = 30^\circ$

So, In  $\Delta BFC$

$$\tan 30^\circ = \frac{BC}{BF}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{BC}{BF} \Rightarrow BC = \frac{10}{\sqrt{3}}$$

$$AD = AB + BC + CD$$

$$= 10\sqrt{3} + \frac{10}{\sqrt{3}} + 10$$

$$= 10 \left( \sqrt{3} + \frac{1}{\sqrt{3}} + 1 \right)$$

$$= 10 \left( \frac{3 + 1 + \sqrt{3}}{\sqrt{3}} \right)$$

$$\therefore \text{Area of } \Delta AFD = \frac{1}{2} \times AD \times ED$$

$$= \frac{1}{2} \times \left( 10 \frac{4 + \sqrt{3}}{\sqrt{3}} \right) \times 10\sqrt{3}$$

$$= 50(4 + \sqrt{3})$$

63. (3) Writing ratio = 100 : 50 = 2 : 1

As equal quantities are taken, in a given time, first boy will be writing the line number

$$= \frac{2}{3} \times 535 = 356 \frac{2}{3} \text{ or the 357th}$$

line

Hence, both of them shall meet on 357th line.

64. (3)  $(x + 2)^2 = 9$

$$\Rightarrow x + 2 = \pm 3$$

$$\therefore x = 1 \text{ or } -5$$

$$\text{and } (y + 3)^2 = 25$$

$$\Rightarrow y + 3 = \pm 5$$

$$\therefore y = 2 \text{ or } -8$$

Therefore, maximum value of

$$\frac{x}{y} = \frac{-5}{-8} = \frac{5}{8}$$

65. (2) The meeting started with P people. Q left the room during the first hour.

So,  $(P - Q)$  people have been in the room during first hour since the meeting started.

Another R joined the group in the next hour.

So, the number of people in the room currently =  $P - Q + R$ .

Required expression

$$= \frac{P - Q + R}{P - Q} \times 100$$

66. (1) Ram completes 60% of the task in 15 days.

He completes 4% of the task in a day.

Rahim is 50% as efficient as Ram is.

Therefore, Rahim will complete 2% of the task in a day.

Russel is 50% as efficient as Rahim.

∴ Russel will complete 1% of the task in a day.

Together, Ram, Rahim and Russel will complete  $(4 + 2 + 1) = 7\%$  of the work in a day.

They have another 40% of the task to be completed.

Therefore, they will take  $\frac{40}{7}$

more days to complete the task.

67. (2) The value of the square of the hypotenuse

$$= h^2 = a^2 + b^2.$$

Here 23 cannot be expressed as the sum two numbers.

Rest  $(13 = 2^2 + 3^2)$ ,  $(37 = 1^2 + 6^2)$  and  $(41 = 4^2 + 5^2)$  can be written as the sum of the squares of positive integer.

∴ Choice 2 is the answer.

68. (2) Let the maximum marks in each of the three subjects be 100.

∴ Aggregate score of the candidate =  $60\%$  of  $3 \times 100 = 60\%$  of 300 marks = 180 marks.

Let the marks scored in the three subjects be  $4x$ ,  $5x$  and  $6x$ .

$$\text{Then, } 4x + 5x + 6x = 180$$

$$15x = 180 \text{ or } x = 12.$$

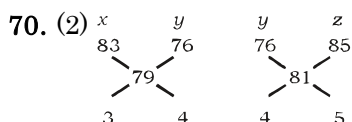
∴ Marks scored by the candidate in the three subjects are  $4 \times 12$ ,  $5 \times 12$  and  $6 \times 12 = 48, 60$  and  $72$ .

Hence, the candidate has scored more than or equal to  $60\%$  in two subjects.

69. (3) For a right angled triangle, The length of in-radius

$$= \frac{(\text{Product of perpendicular sides})}{(\text{Perimeter of triangle})}$$

$$= \frac{(72 \times 21)}{(72 + 21 + 75)} = \frac{1512}{168} = 9 \text{ cm}$$



$$\Rightarrow x : y : z = 3 : 4 : 5$$

Average score for all the three classes  $x$ ,  $y$  and  $z =$

$$\frac{3 \times 83 + 4 \times 76 + 5 \times 85}{3 + 4 + 5}$$

$$= \frac{249 + 304 + 425}{12} = \frac{978}{12} = 81.5$$

71. (3) Let the time taken by them

from the moment they started be  $x$  hrs and  $y$  hrs respectively.

So, Yana would take  $(x + 4)$  hrs as Gupta would take  $(x + 9)$  hrs

By time Yana and Gupta meet, Yana would have traveled  $48x$  kms in 9 hr.

$$\therefore \text{Gupta's speed} = \frac{48x}{9}$$

Yana's speed : Gupta's speed

$$= 1 : \frac{x + 4}{x + 9}$$

$$\Rightarrow 48 : \frac{48x}{9} :: 1 : \frac{x + 4}{x + 9}$$

$$\Rightarrow \frac{x}{9} = \frac{x + 4}{x + 9}$$

$$\Rightarrow x^2 + 9x = 9x + 36$$

$$\therefore x = 6 \text{ hrs}$$

∴ Speed of Gupta

$$= \frac{48x}{9} = \frac{48 \times 6}{9} = 32 \text{ km/hr}$$

$$= 20 \text{ mile/hr}$$

72. (3)  $11^2$  is a factor of the given number.

In the given expression,  $a \times 4^3 \times 6^2 \times 13^{11}$  none of the other factors, viz., 4, 6 or 13 is either a power or multiple of 11.

Hence, if  $a \times 4^3 \times 6^2 \times 13^{11}$  is divisible by  $11^2$ ,

'a' should necessarily include  $11^2$ .

The question states that  $3^3$  is a factor of the given number.  $6^2$  is a part of the number.

$6^2$  can be expressed as  $3^2 \times 2^2$ .

i.e.,  $a \times 4^3 \times 6^2 \times 13^{11}$  has  $3^2$  in it.

It needs a  $3^3$  in it for the number to be divisible by  $3^3$ .

Therefore, a will have to provide one more 3 to  $a \times 4^3 \times 6^2 \times 13^{11}$ .

∴ 'a' should be at least  $11^2 \times 3 = 363$ , if the given number has to have  $11^2$  and  $3^3$  as its factors

73. (3) Let  $a = 5$ ,  $b = 4$  &  $c = 3$

∴ It is a right angle triangle and  $(3, 4, 5)$  is a Pythagorean triplet.

$$s = \frac{(a + b + c)}{2} = \frac{12}{2} = 6$$

Substitute these values and check which condition satisfies.

Let us take choice(3)

$$\text{L.H.S } (s - a)(s - b) = (6 - 5)(6 - 4) = 2.$$

$$\text{R.H.S } s(s - c) = 6(6 - 3) = 18.$$

$$\text{L.H.S} < \text{R.H.S}$$

It satisfies the given condition hence Choice(3) is the right answer.

74. (3) Total passed students,  $= 140 + 150 + 165 = 455$

Total students

$$= 170 + 195 + 200 = 565$$

∴ Required percentage

$$= \frac{455}{565} \times 100$$

$$= \frac{9100}{113} = 80 \frac{60}{113} \%$$

75. (4) Required percentage

$$= \frac{20}{170} \times 100$$

$$= \frac{200}{17} = 11 \frac{13}{17} \%$$

76. (2) Replace 'of' by 'in'. 'Take pride in' is the correct usage in the sentence which means 'to be proud of something'.

77. (2) Replace 'desert' by 'dessert'. The word 'desert' means 'a land having a very warm climate' and 'dessert' means 'a sweet dish usually served at the end of a meal'.