

ANSWER SET - 18

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

EXPLANATION - 18

1. (3) A.R.Rahman is a Musician and Shakuntala devi is a **Mathematician**
2. (2) $324 \Rightarrow 3^2 \times 4 = 36$
 $623 \Rightarrow 6^2 \times 3 = 108$
3. (4)

R	V	S	M	S	H	I	T
-2↓	+1↓	+0↓	+2↓	-2↓	+1↓	+0↓	+2↓
P	U	S	O	Q	G	I	V
4. (1) GOD = $7 \times 15 \times 4 = 420$
DOG = $4 \times 15 \times 7 = 420$
5. (4) $1 + 8 + 3 - 2 = 10$
 $\Rightarrow 10^2 = 100$
 $6 + 5 + 3 - 1 = 13 \Rightarrow 13^2 = 169$
 $3 + 2 + 7 - 3 = 9 \Rightarrow 9^2 = 81$
 $7 + 8 + 9 - 2 = 22 \Rightarrow 22^2 = 484 \neq 529$
6. (3) Except 'F', others have same mirror image.
7. (3) Except **Samudragupta**, other belongs to Maurya dynasty.
8. (3) Except **856**, others are divisible by 9.
9. (1) Only son of Reena's father-in-law (Rahul)
 \rightarrow Reena's husband.
So, Amit is Reena's husband. Also Indu and Meera are her daughters.
Thus, Rahul is the **Grandfather** of Meera.
10. (4) From (ii) and (iii) we have

Sign on front face	×	◆	▷
Sign on opposite face	×	○	→

Here, ▷ is opposite to →.

11. (1) $\frac{6}{3} \times 18 = 36, \frac{8}{2} \times 12 = 48, \frac{12}{3} \times 2 = 8$
12. (1) $56 = 24 + 32 = 18 + 24 + 14 = 19 + 16 + 9 + 12$

$$13. (2) \frac{20 \times 18 \times 50}{100} = 180$$

$$\frac{80 \times 20 \times 40}{100} = 640$$

$$\frac{60 \times 24 \times 25}{100} = 360$$

14. (2)

$$15. (4) 2 \rightarrow 4 \rightarrow 3 \rightarrow 1 \rightarrow 5$$

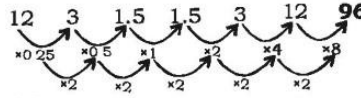
$$16. (3) 4 \times 0.5 + 4 = 6$$

$$6 \times 1 + 3 = 9$$

$$9 \times 2 + 2 = 20$$

$$20 \times 4 + 1 = 81$$

17. (2)



18. (1) A is the daughter of B means A is the sister of the son (say D) of B i.e. A/D × B.

19. (2)

20. (1) acbd/cbda/bdac/dacb

21. (1) $36 - 12 \times 2 + 18 \div 9$

$$= 36 - 12 \times 2 + 2$$

$$= 36 - 24 + 2$$

$$= 14$$

22. (3) From (i) and (iii)

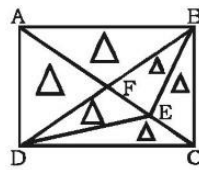
Common word is 'Neenu' which means 'Hum'.

From (ii) and (iii)

Common word is 'Ante' which means 'be'

So, **Amla** means Ghost..

23. (4) The figure may be labeled as shown.



Simplest triangles are AFB, FEB, EBC, DEC, DFE and AFD i.e. 6 in number.

Triangles composed of two components each are AEB, FBC, DFC, ADE, DBE and ABD i.e. 6 in number.

Triangles composed of three components each are ADC and ABC i.e. 2 in number.

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

6 separate triangles has been shown.

Thus, there are $6 + 6 + 2 + 1 + 6 = 21$ triangles in the figure.

24. (2) Each row contains 36 plants
There are 35 gaps between the

two corner trees i.e. $(35 \times 3 = 105)$ meters and 4 metre is left on each side.

\therefore Length of the garden = $105 + 4 \times 2 = 113$ m.

25. (3) $1 \times 3 \times 1 = 3 \Rightarrow 3^3 - 3^2 = 27 - 9 = 18$

$$1 \times 2 \times 3 = 6 \Rightarrow 6^3 - 6^2 = 216 - 36 = 180$$

$$2 \times 3 \times 2 = 12 \Rightarrow 12^3 - 12^2 = 1728 - 144 = 1584$$

$$1 \times 2 \times 6 = 12 \Rightarrow 12^3 - 12^2 = 1728 - 144 = 1584$$

52. (1) Let r be the radius

$$4\pi(r+2)^2 - 4\pi r^2 = 792$$

$$\Rightarrow (r+2)^2 - r^2 = \frac{792}{4\pi}$$

$$\Rightarrow r^2 + 4r + 4 - r^2$$

$$= \frac{792 \times 7}{4 \times 22} = 63$$

$$\Rightarrow 4r = 63 - 4 = 59$$

$$\Rightarrow r = 14.75$$
 m

\therefore Required radius = **14.75 m**

54. (4)

1st person $\rightarrow 6$	}	4
Ind person $\rightarrow 8$		24 - 3
I + II + Boy $\rightarrow 3$		8

$$\therefore \text{Share of Boy} = \frac{1}{8} \times 5000$$

$$= ₹ 625$$

55. (2) Let the sum be P.

$$\therefore 1015 = P \left[\left(1 + \frac{3}{100} \right)^2 - 1 \right]$$

$$\left[\because \text{C.I.} = P \left[\left(1 + \frac{r}{100} \right)^n - 1 \right] \right]$$

$$\Rightarrow 1015 = P \left[\left(\frac{103}{100} \right)^2 - 1 \right]$$

$$\Rightarrow 1015 = P \left(\frac{10609 - 10000}{10000} \right)$$

$$\Rightarrow P = ₹ \frac{1015 \times 10000}{609}$$

$$= ₹ \frac{10150000}{609}$$

$$\therefore \text{S.I.} = \frac{10150000 \times 2 \times 3}{609 \times 100}$$

$$= ₹ 1000$$

57. (1) Let x be the maximum marks then, pass marks = 24% of x + 12 = 30% of x + 6 \Rightarrow 6% of x = 6 \Rightarrow x = 100

Maximum marks x = 100

Pass marks = $\frac{30}{100} \times 100 + 6 = 36$.

58. (4) Here, $12 - 2 = 10, 16 - 6 = 10, 24 - 14 = 10$

Now, LCM of 12, 16 and 24 = 48
 \therefore The lowest 4-digit number exactly divisible by 48 = 1008

\therefore Required number = $1008 - 10 + 48 = 1046$

60. (3) Let the required number of extra days = $D - 4$.

ATQ,

$$300 \times 31 = 27 \times 300 + 120 \times D$$

$$4 \times 300 = 120 \times D$$

$$\Rightarrow D = 10 \text{ days}$$

\therefore Extra number of days = $(10 - 4) = 6$ days

61. (3) Downstream speed (u)

$$= \frac{D}{T} = \frac{8}{40} \times 60 = 12 \text{ km/h}$$

Upstream speed (v)

$$= \frac{D}{T} = \frac{3}{30} \times 60 = 6 \text{ km/h}$$

Speed of boat in still water

$$= \frac{1}{2}(u + v)$$

$$= \frac{1}{2}(12 + 6) = 9 \text{ km/h}$$

Speed of stream

$$= \frac{1}{2}(u - v) = \frac{1}{2}(12 - 6) = 3 \text{ km/h}$$

64. (2) $x = 3 + 2\sqrt{2}$

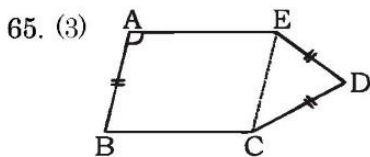
$$\therefore \frac{1}{x} = 3 \times 2\sqrt{2}$$

$$\therefore \left(\sqrt{x} - \frac{1}{\sqrt{x}} \right)^2 = x + \frac{1}{x} - 2$$

$$= \left(\sqrt{x} - \frac{1}{\sqrt{x}} \right)^2 = 3 + 2\sqrt{2} + 3 - 2\sqrt{2} - 2 = 4$$

$$\Rightarrow \sqrt{x} - \frac{1}{\sqrt{x}} = 2$$

$$\Rightarrow 3 \left(\sqrt{x} - \frac{1}{\sqrt{x}} \right) = 3 \times 2 = 6$$



$\angle BCE = 94^\circ$, $AB = CD = ED$ (given)

$\therefore CD = ED = CE$ [$\because AB = CE$]

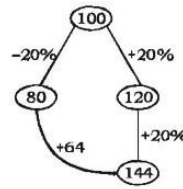
$\triangle ECD$ is an equilateral triangle.

$\therefore \angle ECD = 60^\circ$

$$\angle BCD = 94^\circ + 60^\circ = 154^\circ$$

66. (4) Let the cost price of an article = ₹ 100

ATQ,



Original Profit = 20%

$$\text{New Profit} = \frac{64}{80} \times 100 = 80\%$$

\therefore Change in profit percent

$$= \frac{(80 - 20)}{20} \times 100 = 300\%$$

67. (3) $\tan^2 \alpha = 1 + 2 \tan^2 \beta$

$$\Rightarrow \sec^2 \alpha - 1 = 1 + 2(\sec^2 \beta - 1)$$

$$\Rightarrow \sec^2 \alpha - 1 = 2 \sec^2 \beta - 1$$

$$\Rightarrow \frac{1}{\cos^2 \alpha} = \frac{1}{2 \cos^2 \beta}$$

$$\Rightarrow \sqrt{2} \cos \alpha = \cos \beta$$

$$\therefore \sqrt{2} \cos \alpha - \cos \beta = 0$$

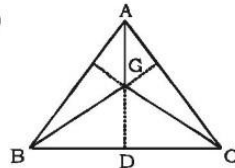
68. (2) $x = 7$

$$\begin{aligned} \therefore x^5 - 8x^4 + 8x^3 - 8x^2 + 8x - 2 \\ = x^5 - (7+1)x^4 + (7+1)x^3 - (7+1)x^2 + (7+1)x - 2 \\ = x^5 - 7x^4 - x^4 + 7x^3 + x^3 - 7x^2 - x^2 + 7x + x - 2 \end{aligned}$$

When $x = 7$,

$$= 7^5 - 7^5 - 7^4 + 7^4 + 7^3 - 7^3 - 7^2 + 7^2 + 7 - 2 = 5$$

69. (3)



$$\begin{aligned} \text{Area of } \triangle ABC &= 6 \times \text{ar}(\triangle BGD) \\ &= 6 \times 9 = 54 \text{ cm}^2 \end{aligned}$$

70. (4) By componendo and dividendo,

$$\frac{(x^3 + 3x) + (3x^2 + 1)}{(x^3 + 3x) - (3x^2 + 1)} = \frac{234 + 109}{234 - 109}$$

$$\Rightarrow \frac{(x+1)^3}{(x-1)^3} = \frac{343}{125}$$

$$\Rightarrow \left(\frac{x+1}{x-1} \right)^3 = \left(\frac{7}{5} \right)^3$$

$$\Rightarrow \frac{x+1}{x-1} = \left(\frac{7}{5} \right) \Rightarrow 5x + 5 = 7x - 7$$

$$\Rightarrow = 6$$

71. (2) Let the original volume of cylinder be 100

\Rightarrow Volume after change

$$= 100 \times \frac{150}{100} \times \frac{150}{100} \times \frac{4}{100} = 90$$

Hence, percent decrease = $100 - 90 = 10\%$

72. (3) $1 \times 3 \times 5 \times 7 \times \dots \times 99 \times 28$.

For calculating number of zeros we have to find the combination of 2 and 5. Here no. of 2's is 8. So the max possible number of zeros is 8.

73. (4) Percentage of students failed in 2016

$$= \frac{35}{200} \times 100 = 17.5\%$$

74. (1) Total passed students,

$$= 140 + 150 + 165 = 455$$

Total students

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

\therefore Required percentage

$$= \frac{455}{565} \times 100 = \frac{9100}{113} = 80 \frac{60}{113}\%$$

75. (2) Required percentage

$$= \frac{20}{170} \times 100 = \frac{200}{17} = 11 \frac{13}{17}\%$$