

# ANSWER SET - 46

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

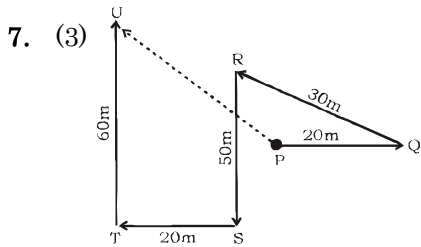
## EXPLANATION - 46

1. (4) Madrid is the capital of Spain.  
 Similarly, Buenos Aires is the capital of Argentina.

2. (4) UNDATED : ATE DUND :: CORRECT : RECTCOR  
 3. (2)  $48 : 122 :: 168 : 290$   
 $7^2 - 1 : 11^2 + 1 :: 13^2 - 1 : 17^2 + 1$

4. (1) Except option (1) all others are related to sound.  
 5. (3)  
 6. (1)

(1)  $9, 5, 3, 2$   
 $9 = 5 + 3 + 2$   
 (2)  $9, 2, 4, 3$   
 $9 = 2 + 4 + 3$   
 (3)  $8, 2, 4, 2$   
 $8 = 2 + 4 + 2$   
 (4)  $8, 3, 2, 3$   
 $8 = 3 + 2 + 3$

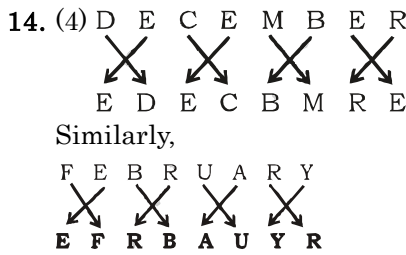


8. (2)  $0, 1, 4, 15, 64, 325, 1956$   
 $0 \times 1 + 1 = 1$   
 $1 \times 2 + 2 = 4$   
 $4 \times 3 + 3 = 15$   
 $15 \times 4 + 4 = 64$   
 $64 \times 5 + 5 = 325$   
 $325 \times 6 + 6 = 1956$

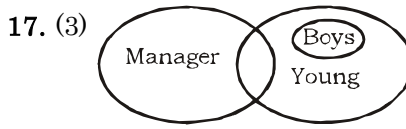
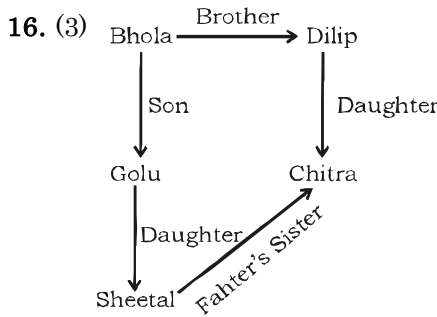
9. (2) CAT, DBT, ECT, FDT  
 10. (4) tsrstr/tsrstr/tsrstr  
 11. (4)  $17 \times 17 = 289 \Rightarrow 289 \ 5$   
 $18 \times 18 = 324 \Rightarrow 324 \ 5$   
 $19 \times 19 = 361 \Rightarrow 361 \ 5$   
 Similarly,  
 $23 \times 23 = 529 \Rightarrow 529 \ 5$

12. (4)  $14 \div 2 = 7$   
 $24 \div 4 = 6$   
 $7 \times 6 = 42$  and  
 $64 \div 2 = 32$   
 $12 \div 4 = 3$   
 $32 \times 3 = 96$   
 Similarly,  
 $32 \div 2 = 16$   
 $18 \div 4 = 4.5$   
 $16 \times 4.5 = 72$

13. (3)  $(56 - 21) \times 2 = 70$   
 $(87 - 45) \times 2 = 84$   
 Similarly,  
 $(180 - 115) \times 2 = 130$

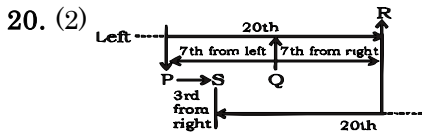
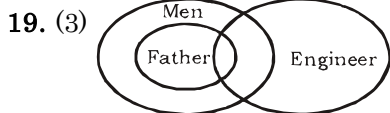


15. (1)



Conclusions: I.  $\times$   
 II.  $\times$

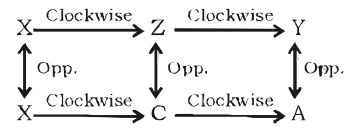
18. (4) H = 55, 67, 79, 88, 96  
 E = 02, 14, 21, 30, 43  
 E = 02, 14, 21, 30, 43  
 L = 57, 69, 76, 85, 98



Total number of boys in the row = position of Kamal from left + position of Kamal from right - 1 =  $20 + 9 - 1 = 28$  boys

21. (2)  
 22. (3)  
 23. (3)  
 24. (1)

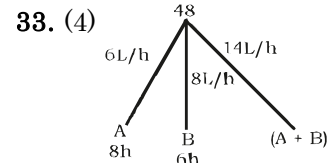
25. (1) According to dice (1) and (3)



26. (4)  $20\% \text{ of } 80 + 80 = 96$

28. (3)  $\frac{5}{7} < \frac{9}{11} < \frac{7}{8}$

31. (1) Common difference =  $35 - 18 = 45 - 28 = 55 - 38 = 17$   
 LCM of (35, 45, 66) =  $7 \times 5 \times 9 \times 11$   
 Required number =  $3465 - 17 = 3448$



After 2 hours (A + B) filled 28 litres  
 $\therefore 48 - 28 = 20$  litres remaining filled by only

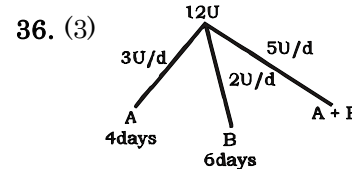
B in =  $\frac{20}{8} = 2\frac{1}{2}$  hours

34. (4) Let the number of Males =  $100x$   
 and the number of Females =  $100y$   
 $\therefore 100(x + y) = 15,000$   
 $x + y = 150$  .....(1)  
 A.T.Q.

$108x + 110y = 16,300 - 15,000$   
 $108x + 110y = 1,300$  .....(2)  
 From (1) and (2)  
 $y = 50$   
 $\therefore$  Number of Females =  $50 \times 100 = 5000$

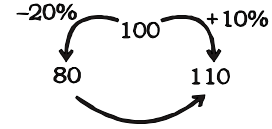
35. (1) Let the CP = ₹ 100  
 Marked price =  $100 \times \frac{117}{100} \times \frac{10}{9} = ₹ 130$

$\therefore 30\%$



$A + B = \frac{12}{5} = 2\frac{2}{5}$  days

38. (2) Let the C.P. of pen = ₹ 100



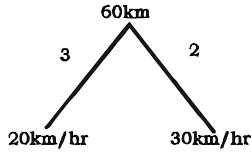
$$30 \rightarrow ₹12$$

$$1 \rightarrow ₹ \frac{12}{30}$$

$$100 \rightarrow ₹ \frac{12}{30} \times 100$$

$$\text{C.P.} \rightarrow ₹40$$

39. (3)



Average speed

$$= \frac{60 + 60 \left( \frac{\text{Total distance}}{\text{Total time}} \right)}$$

$$= \frac{120}{5} = 24 \text{ km/hr}$$

40. (3)  $a \cot \theta + b \operatorname{cosec} \theta = x^2$

Squaring both sides —

$$a^2 \cot^2 \theta + b^2 \operatorname{cosec}^2 \theta + 2ab \cot \theta$$

$$\operatorname{cosec} \theta = x^4 \dots (i)$$

$$b \cot \theta + a \operatorname{cosec} \theta = y^2$$

Squaring both sides—

$$b^2 \cot^2 \theta + a^2 \operatorname{cosec}^2 \theta + 2ab \cot \theta$$

$$\operatorname{cosec} \theta = y^4 \dots (ii)$$

Subtracting equation (i) from (ii)

$$b^2 \cot^2 \theta + a^2 \operatorname{cosec}^2 \theta - a^2 \cot^2 \theta +$$

$$b^2 \operatorname{cosec}^2 \theta = y^4 - x^4$$

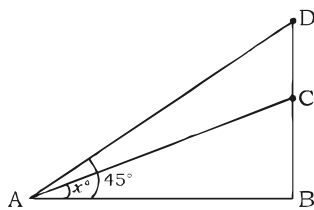
$$a^2 (\operatorname{cosec}^2 \theta - \cot^2 \theta) - b^2 (\operatorname{cosec}^2 \theta$$

$$- \cot^2 \theta) = y^4 - x^4$$

As we know  $(\operatorname{cosec}^2 \theta - \cot^2 \theta = 1)$

$$\text{So, } a^2 - b^2 = y^4 - x^4$$

41. (2)



In  $\triangle ABC$  —

$$\frac{AB}{BC} = \cot x$$

$$AB = h \cot x \dots (i)$$

In  $\triangle ABD$

$$\frac{BD}{AB} = \tan 45^\circ$$

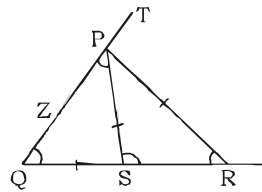
$$BC + CD = 1 \times AB$$

$$h + CD = h \cot x$$

$$CD = (h \cot x - h) \text{ m}$$

$$\text{Height of the Chimney} = (h \cot x - h) \text{ m}$$

42. (3)



$$PS = QS = PR$$

In  $\triangle PQS$  —

$$PS = QS$$

$$\text{Let, } \angle PQS = \theta$$

$$\text{So, } \angle PQS = \angle SPQ = \theta$$

$$\text{So, } \angle PSR = \angle PQS + \angle SPQ$$

[ $\therefore$  External angle]

$$\angle PSR = \theta + \theta = 2\theta$$

In  $\triangle PSR$  —

$$PS = PR$$

$$\text{Let, } \angle PSR = \angle SRP = 2\theta$$

$$\angle RPS = 180^\circ - \angle PSR - \angle SRP$$

$$= 180^\circ - 4\theta$$

$$\angle QPS + \angle SPR + \angle RPT = 180^\circ$$

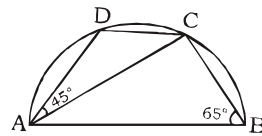
$$\theta + 180^\circ - 4\theta + 78^\circ = 180^\circ$$

$$3\theta = 78^\circ$$

$$\theta = 26^\circ$$

$$\angle PRS = 2\theta = 2 \times 26^\circ = 52^\circ$$

43. (3)



In  $\triangle ABC$  —

$$\angle B = 65^\circ$$

$$\angle C = 90^\circ$$

[ $\therefore$  angle made on diameter]

$$\angle A + \angle B + \angle C = 180^\circ$$

$$\angle A = 180^\circ - 65^\circ - 90^\circ = 25^\circ$$

In  $\square ABCD$  —

$$\angle BAD = \angle BAC + \angle CAD$$

$$= 25^\circ + 45^\circ = 70^\circ$$

$$\angle BCD + \angle BAD = 180^\circ$$

44. (1) Speed of the boat = 10 km/hr

Let the rate of flow of river =  $x$  km/hr

Relative speed during upstream =  $(10 - x)$  km/hr

Relative speed during downstream =  $(10 + x)$  km/hr

Time taken by the boat to travel 91 kms

upstream and downstream = 20 hours

$$\text{So, } \frac{91}{10+x} + \frac{91}{10-x} = 20$$

$$\frac{91(10-x+10+x)}{10^2 - x^2} = 20$$

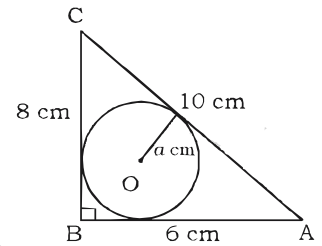
$$100 - x^2 = 91$$

$$x^2 = 100 - 91 = 9$$

$$x = 3$$

So, the rate of the flow of river = 3 km/hr

45. (2)



Area of  $\triangle ABC$

$$= \frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2$$

Area of  $\triangle OAC$

$$\frac{1}{2} \times a \times 10 = 5a \text{ cm}^2$$

Similarly area of  $\triangle OBC$  and  $\triangle OAB$  will be  $4a \text{ cm}^2$  and  $3a \text{ cm}^2$  respectively.

Area of  $\triangle ABC = \text{Area of } (\triangle OAC + \triangle OBC + \triangle OAB)$

$$24 = 5a + 4a + 3a$$

$$12a = 24$$

$$a = 2 \text{ cm}$$

Radius of the incircle = 2 cm

$$2(a + b + c) = 12 \text{ cm}$$

46. (2) In case of equal arcs —

$$\left( \frac{\text{Radius of the first circle}}{\text{Radius of the second circle}} \right) = \left( \frac{\text{Angle subtended on centre by the arc in second circle}}{\text{Angle subtended on centre by the arc in first circle}} \right)$$

$$\frac{r_1}{r_2} = \frac{75^\circ}{45^\circ} \Rightarrow r_1 : r_2 = 5 : 3$$

47. (3) Sides of the isosceles triangle = 10 cm

Angle between equal sides =  $45^\circ$

$$\text{Area of the triangle} = \frac{1}{2} a^2 \sin \theta$$

$$= \frac{1}{2} \times (10)^2 \times \sin 45^\circ$$

$$= \frac{1}{2} \times 100 \times \frac{1}{\sqrt{2}}$$

$$= 25\sqrt{2} \text{ cm}^2$$

48. (4) People preferring vegetables and sprouts =  $(30 + 13)\% = 43\%$

Total people = 30000

Total number of people preferring vegetables and sprouts

$$= 30000 \times \frac{42}{100} = 12900$$

49. (3) Total number of people

preferring meat

$$= 30000 \times \frac{6}{100} = 1800$$

Total number of people  
preferring fish

$$= 30000 \times \frac{5}{100} = 1500$$

Required difference = 1800 –  
1500 = 300

50. (4) People preferring fruits over

$$\text{vegetables} = \frac{11}{30} \times 100 = 37\%$$

95. (1) Change 'started realising'  
into 'started realise'. Infinitive  
form of verbs is preferred with  
'understand' realise and know'.

96. (4) Change 'would have' into  
'had'. To talk about past  
situations that did not happen,  
we use a past perfect tense in the  
ifclause, and 'would have + past  
participle' in the other part of the  
sentence.

97. (4) Delete 'will'. The present  
perfect is used instead of the  
future perfect, to express the  
idea of completion.

98. (1) 'But for your timely help'  
should replace the underlined  
part, as it is the only option  
which makes a grammatically  
correct sentence. The 'But for  
.....' phrase is used to introduce  
the only factor that causes a  
particular thing not to happen  
or not to be completely true.

99. (2) 'helped them not only with'  
should replace the underlined  
part. 'Not only' must be used just  
before the words or expressions  
it modifies.

100.(1) 'had seemingly presented'  
should replace the underlined  
part. The sentence is of past  
tense, so an option having  
grammatically correct usage of  
past tense should be used.