

## ANSWER SET - 15

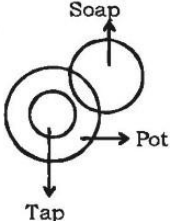
- (3) 2. (4) 3. (1) 4. (1) 5. (2)
- (2) 7. (3) 8. (1) 9. (3) 10. (1)
- (2) 12. (2) 13. (2) 14. (2) 15. (3)
- (3) 17. (4) 18. (1) 19. (2) 20. (1)
- (2) 22. (3) 23. (3) 24. (4) 25. (4)
- (3) 27. (2) 28. (3) 29. (1) 30. (1)
- (3) 32. (3) 33. (4) 34. (2) 35. (1)
- (1) 37. (4) 38. (4) 39. (3) 40. (2)
- (3) 42. (1) 43. (2) 44. (2) 45. (4)
- (3) 47. (2) 48. (2) 49. (2) 50. (4)
- (3) 52. (1) 53. (3) 54. (2) 55. (4)
- (3) 57. (3) 58. (3) 59. (1) 60. (\*)
- (3) 62. (4) 63. (3) 64. (3) 65. (2)
- (3) 67. (2) 68. (4) 69. (2) 70. (3)
- (4) 72. (4) 73. (4) 74. (2) 75. (1)
- (2) 77. (4) 78. (1) 79. (3) 80. (1)
- (4) 82. (1) 83. (2) 84. (3) 85. (2)
- (3) 87. (2) 88. (4) 89. (3) 90. (4)
- (1) 92. (1) 93. (1) 94. (3) 95. (2)
- (4) 97. (2) 98. (1) 99. (3) 100. (4)

## EXPLANATION - 15

- (3) Y mail is related to Yahoo and Gmail is related to Google.
- (4) 14th November is Children's day and 14th February is Valentine day.
- (1)  $18(1+8) = 162$ ,  $26(2+6) = 208$
- (1) Akbar was mughal emperor and Ashok was **mauryan** emperor.
- (2) '**June**' month is of 30 days.
- (2) X = 10, II = 2, C = 100, XXII = 22  
Only '2' is the prime number.
- (3) Except **Tally**, others are related to MS office suite.
- (1) Sofa, Table and Chair are **furnitures**.

- (3) 

[	]	^	^	∩
D	E	I	J	F

- (1) 

1. False 2. False

- (2) 
$$\begin{array}{r} 6\ 2\ 5\ 3 \\ +1\ 8\ 7\ 8 \\ \hline 8\ 1\ 3\ 1 \end{array}$$

- (2)  $3 + 5 + 7 + 8 = 23$   
 $2 + 3 = 5$

- (2) HCF (12, 15) = 3  
HCF (15, 20) = 5  
HCF (20, 24) = 4  
HCF (24, 26) = 2  
HCF (26, 39) = 13  
HCF (39, 12) = 3

- (2)

- (3)

- (3) 
$$\begin{array}{cccccc} 7.2 & 36 & 144 & 432 & 864 \\ & \swarrow \times 5 & \swarrow \times 4 & \swarrow \times 3 & \swarrow \times 2 \end{array}$$

- (4) 
$$\begin{array}{cccccc} 16 & 3 & 0.5 & -2.5 & -9 & -1 \\ & \swarrow \times 0.25 & \swarrow \times 0.5 & \swarrow \times 1 & \swarrow \times 2 & \swarrow \times 4 \end{array}$$

- (1)

$$\begin{array}{cccccc} 484 & 289 & 529 & 256 & 576 & 225 & 625 & 196 \\ \swarrow & \swarrow & \swarrow & \swarrow & \swarrow & \swarrow & \swarrow & \swarrow \\ 22^2 & 17^2 & 23^2 & 16^2 & 24^2 & 15^2 & 25^2 & 14^2 \\ & +1 & -1 & +1 & -1 & +1 & -1 & \end{array}$$


- (2) 1 = ONE = 3 letters  
3 = THREE = 5 letters  
6 = SIX = 3 letters  
11 = ELEVEN = 6 letters  
then, 13 = Thirteen = 8 letters.

- (1)  $abcd/adbc/acdb/abcd$

- (2)  $24 \times 5 - 318 \div 6 + 3$   
 $= 24 \times 5 - 53 + 3$   
 $= 123 - 53 = 80$

- (3)

- (3)  $12 + 8 \div 4 - 6 \times 1$   
 $= 12 + 2 - 6 = 8$

- (4) 

- (4) 22, 55, 31, 65  
C O R E

- (3) Required total expenditure  
 $= \frac{12000}{(10+15)} \times 100 = ₹ 48,000$

- (1) Required percentage  
 $= \frac{(20-10)}{20} \times 100 = \frac{1}{2} \times 100 = 50\%$

- (3) Food + Entertainment = (20 + 5)%  
 $= 25\%$   
( $100\% = 360^\circ \Rightarrow 25\% = 90^\circ$ )

- (2) Average of 10 numbers = 7  
Sum =  $10 \times 7 = 70$   
New sum =  $70 + (12 \times 10)$   
 $= 190$

$$\therefore \text{Required Average} = \frac{190}{10} = 19$$

- (4)  $M_1 D_1 W_2 = M_2 D_2 W_1$   
 $M_2 = \frac{M_1 D_1 W_2}{D_2 W_1} = \frac{60 \times 200 \times 8}{150 \times 4}$

$$= 160 \text{ men}$$

$$\Rightarrow M_2 = 160$$

$$\text{Extra Men} = 160 - 60 = 100 \text{ Men}$$

- (3) A : B

$$12 : 9$$

$$12 : 16$$

$$7 \text{ units} = 7 \text{ litre}$$

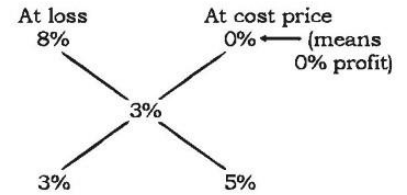
$$\Rightarrow 1 \text{ units} = 1 \text{ litre}$$

After removal =  $21 \times 1 = 21$  litres  
Before removal =  $21 + 7 = 28$  litres

- (3) 
$$\frac{1}{1 + \tan^2 \theta} + \frac{1}{1 + \cot^2 \theta}$$
  
 $= \frac{1}{\sec^2 \theta} + \frac{1}{\cos^2 \theta}$

$$= \cos^2 \theta + \sin^2 \theta = 1$$

- (1)



$\therefore$  Quantity sold at cost price

$$= \frac{5}{8} \times 60 = 37.5 \text{ kg}$$

- (3)

Gold	Silver	
80	20	$\Rightarrow \text{diff.} = 300$
95	$5 \times 4$	$\left( \begin{array}{l} 80\ 20 \\ 380\ 20 \end{array} \right)$
$80 + 20$ i.e. 100 units = 50g		$\downarrow$ to make silver equal

$$\therefore \text{lunit} = \frac{1}{2} \text{g}$$

Difference between 80 and 380  
 $= 380 - 80$   
 $= 300 \text{ units} = 150 \text{ gms.}$

- (4) Male employees = x  
Female employees = y  
 $\therefore (x + y) 21000 = x \times 12000 + y \times 28000$   
 $\Rightarrow (x + y) \times 21 = 12x + 28y$   
 $\Rightarrow 21x + 21y = 12x + 28y$   
 $\Rightarrow 9x = 7y$   
 $\Rightarrow \frac{x}{y} = \frac{7}{9} \Rightarrow x : y = 7 : 9$

$\therefore$  Required ratio = 7 : 9

- (3) Distance travelled by A =

$$2 \times \text{Distance} \times \left( \frac{\text{Speed}}{\text{Speed}_1 + \text{Speed}_2} \right)$$

$$= 2 \times 39 \times \frac{6}{13} = 36 \text{ kms}$$

- (3) Let the duration of flight be t hours.

$$S = \frac{D}{T}$$

$$S_1 - S_2 = 300 \text{ km/h}$$

$$\frac{900}{t} - \frac{900}{t + \frac{1}{2}} = 300$$

$$\begin{aligned} &\Rightarrow \frac{900}{t} - \frac{2 \times 900}{2t-1} = 300 \\ &\Rightarrow (2t+1)900 - t \times 1800 = 300t \\ &(2t+1) \\ &\Rightarrow 3(2t+1) - 6t = t(2t+1) \\ &\Rightarrow 6t+3-6t = 2t^2+t \\ &\Rightarrow 2t^2+t-3=0 \\ &\Rightarrow 2t^2+3t-2t-3=0 \\ &\Rightarrow t(2t+3)-1(2t+3)=0 \\ &\Rightarrow (2t+3)(t-1)=0 \\ &\Rightarrow t=1 \end{aligned}$$

$\therefore$  Required duration = **1hr**

66. (3)  $3 \sin^2 \theta - \sin^4 \theta = 1$

$$\begin{aligned} &\Rightarrow \sin^4 \theta - 3 \sin^2 \theta = -1 \\ &\Rightarrow \sin^4 \theta - 3 \sin^2 \theta + 2 = 1 \\ &\Rightarrow \sin^4 \theta - 2 \sin^2 \theta + 1 + 1 - \sin^2 \theta = 1 \\ &\Rightarrow (1 - \sin^2 \theta + (1 - \sin^2 \theta))^2 = 1 \\ &\Rightarrow \cos^2 \theta + (\cos^2 \theta)^2 = 1 \\ &\Rightarrow \cos^2 \theta + \cos^4 \theta = 1 \\ &\Rightarrow \cos^4 \theta = 1 - \cos^2 \theta = \sin^2 \theta \\ &\Rightarrow \tan^2 \theta = \cos^2 \theta \end{aligned}$$

$$\therefore \tan^2 \theta + \tan^4 \theta = \cos^2 \theta + \cos^4 \theta = 1$$

67. (2) Let no. of men be x.  
According to the given data, we have

$$\frac{3680}{6 \times 8} \times 2 = \frac{920}{2 \times x}$$

[As daily wages of man is double of that of woman]

$$\Rightarrow x = \frac{920 \times 6 \times 8}{3680 \times 2 \times 2} = 3 \text{ men}$$

$\therefore$  Required number of men = **3 men**

69. (2)  $\angle PSQ = 180^\circ - (120^\circ + 25^\circ) = 35^\circ$

$$\angle QSR = 80^\circ - 35^\circ = 45^\circ$$

In triangle QSR,

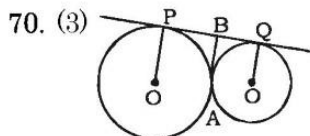
$$\angle QSR + \angle SRQ + \angle SQR = 180^\circ$$

$$45^\circ + 45^\circ + \angle SQR = 180^\circ$$

$$\angle SQR = 180^\circ - 90^\circ = 90^\circ$$

Also,  $\angle SQR = \angle QRT = 90^\circ$

[ $\therefore SQ \parallel RT$ ]



$$PQ^2 = (R+r)^2 - (R-r)^2 = 4Rr$$

71. (4) We have,

$$\frac{P \left(1 + \frac{r}{100}\right)^8}{p \left(1 + \frac{r}{100}\right)^7} = \frac{1107}{1080}$$

$$\Rightarrow 1 + \frac{r}{100} = \frac{1107}{1080}$$

$$\Rightarrow \frac{r}{100} = \frac{1107}{1080} - 1 = \frac{27}{1080}$$

$$\Rightarrow \frac{r}{100} = \frac{1}{40} \Rightarrow r = \frac{100}{40} = 2.5\%$$

$\therefore$  Required rate = **2.5%**

72. (4) 960

$$\downarrow_{20\% = 192}$$

$$768_{(960-192)}$$

$$\downarrow_{x\%}$$

$$384_{(768-768 \times 50\%)}$$

$\therefore$  Second discount = **50%**

73. (4)  $\tan \theta = \frac{5}{13}$

$$\therefore \frac{2 \sin \theta \cdot \cos \theta}{\cos^2 \theta - \sin^2 \theta} = \frac{2 \tan \theta}{1 - \tan^2 \theta}$$

(divide numerator and denominator by  $\cos^2 \theta$ )

$$\begin{aligned} &= \frac{2 \times \frac{5}{13}}{1 - \frac{25}{169}} = 2 \times \frac{5}{13} \times \frac{169}{144} = \frac{65}{72} \end{aligned}$$

75. (1) In  $\triangle ABC$ ,  $\triangle ACD$ ,  $\triangle BCD$  and  $\triangle ABD$

$$AB + BC > AC$$

$$CD + DA > AC$$

$$BC + CD > BD$$

$$DA + AB > BD$$

Adding above inequalities, we have

$$2(AB + BC + CD + DA) > 2(AC + BD)$$

$$\Rightarrow AB + BC + CD + DA > (AC + BD)$$