

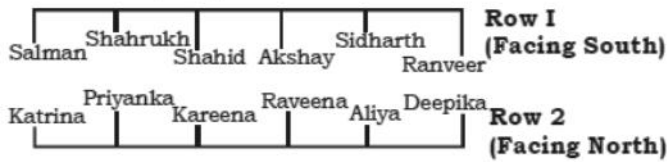
> **ANSWER KEY**

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

**HINT AND SOLUTIONS**

**REASONING**

**Solutions (1-5):**



1. (2)                      2. (1)                      3. (3)  
4. (1)                      5. (4)

**Solutions (6-10) :**

- in - pu
- order - ve
- only - na
- serial - to
- the - su
- state - li
- idea - jo
- logical - ri

- or / theory - zt / bk  
6. (5)                      7. (3)                      8. (1)  
9. (4)                      10. (2)

**11 to 15**



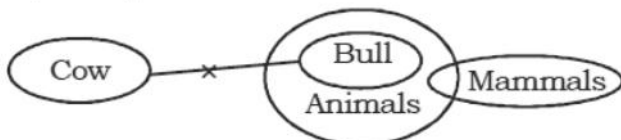
11. (d)    12. (a)    13. (b)    14. (c)    15. (e)

**16 to 20**

16. (b)    17. (a)    18. (a)    19. (e)    20. (d)

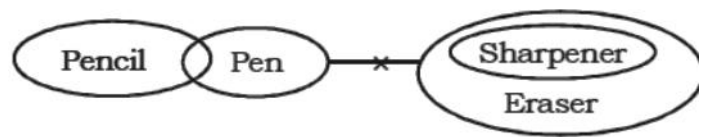
**Solutions (21-25) :**

**For (21-22) :**



21. (5)                      22. (1)

23. (2)

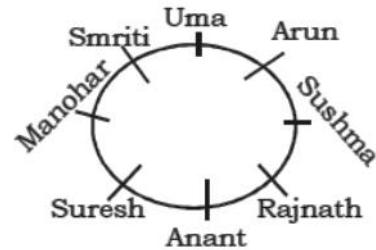


**For (24-25) :**



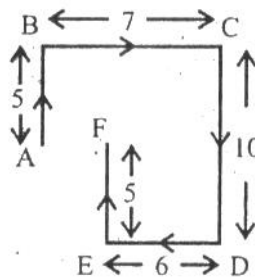
24. (4)  
25. (5)

**Solutions (26-30) :**



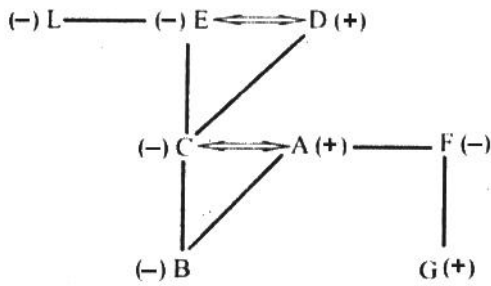
26. (3)                      27. (1)                      28. (4)  
29. (3)                      30. (5)

**31 to 32**



31. (a)    32. (e)  
33. (c) **MODERN**

34 to 35



34. (b) 35. (c)

**Maths**

$$36. (1) ? = \frac{\frac{9}{18} \cdot \frac{27}{7.5}}{\frac{27}{5}} = \frac{2}{3} = 4.5$$

37. (4) 38. (5) 39. (2)

40. (3)

$$41. (4) \begin{array}{cccccc} 15 & 18 & 16 & 19 & 17 & 20 & ? \\ \hline & +1 & & +1 & & +1 & \end{array}$$

$$42. (1) \begin{array}{cccccc} 1050 & 420 & 168 & 67.2 & 26.88 & 10.752 \\ \hline & -2.5 & & -2.5 & & -2.5 & \end{array}$$

$$43. (5) \begin{array}{cccccc} 0 & 6 & 24 & 60 & 120 & 210 & ? \\ \hline & +6 & +18 & +36 & +60 & +90 & +126 \\ \hline & +12 & +18 & +24 & +30 & +36 & \end{array}$$

$$\therefore ? = 210 + 126 = 336$$

$$44. (3) \begin{array}{cccccc} 32 & 49 & 83 & 151 & 287 & 559 & ? \\ \hline & +17 & +34 & +68 & +136 & +272 & +544 \end{array}$$

$$45. (2) \begin{array}{cccccc} 462 & 552 & 650 & 756 & 870 & 992 & ? \\ \hline & +90 & +98 & +106 & +114 & +122 & +130 \end{array}$$

46.  $A : B : C = 2 : 5 : 3$

$$\text{Avg} = \frac{30 \times 2 + 17 \times 5 + 25 \times 3}{10} = \frac{60 + 85 + 75}{10} = 22$$

47. Speed of motorboat in still water, = 36 km/h

$$\text{Speed of upstream, } U = \frac{56 \text{ km}}{1 + \frac{3}{4}} = \frac{56 \times 4}{7} = 32 \text{ km/h}$$

According to the question,

$$x - y = U, \quad 36 - y = 32$$

$$y = 4 \text{ km/h}$$

Speed of downstream =  $x + y$ 

$$= 36 + 4 = 40 \text{ km/h}$$

Time taken to cover the distance downstream

$$= \frac{56}{40} = 1 \frac{2}{5} \text{ h}$$

$$= 1 \text{ hours } 24 \text{ minutes}$$

48. According to the question,

$$\text{Amount} = P \left( 1 + \frac{R}{2 \times 100} \right)^{2 \times t}$$

$$\Rightarrow 68921 = 64000 \left( 1 + \frac{5}{2 \times 100} \right)^{2 \times t}$$

$$\Rightarrow \frac{68921}{64000} = \left( 1 + \frac{5}{40} \right)^{2 \times t} = \left( \frac{41}{40} \right)^3 = \left( \frac{41}{40} \right)^{2 \times t}$$

$$\Rightarrow 2t = 3 \Rightarrow t = \frac{3}{2} \Rightarrow t = 1 \frac{1}{2} \text{ years}$$

49. let us assume any such number which when divided by 5 leaves remainder as 3. Let it be 8

So now

$$\frac{(8)^2 + (8)^3}{5} = \frac{64 + 512}{5}$$

$$= \frac{576}{5} = 1 \text{ remainder}$$

50. (d) According to the question

$$\text{Loss} = 10\%$$

$$\Rightarrow \text{SP} = 100 - 10 = 90\%$$

$$90\% \Rightarrow 240 = 1\% \Rightarrow \frac{240}{90}$$

$$\text{To gain } 20\% = \text{SP} (20\%)$$

$$= 100 + 20 = 120\%$$

$$120\% = \frac{240}{90} \times 120 = \text{Rs. } 320$$

$$\text{Alternate Method : } 10\% = \frac{1 \rightarrow \text{Loss}}{10 \rightarrow \text{CP}}$$

$$\text{SP} = 10 - 1 = 9$$

$$9 = 240 \text{ (Given)}$$

$$1 \text{ unit} = \frac{240}{9}$$

$$\text{To gain } 20\% = \frac{2 \rightarrow \text{Gain}}{10 \rightarrow \text{CP}}$$

$$\text{SP} = 10 + 2 = 12$$

$$\therefore 12 \text{ units} = \frac{240}{9} \times 12 = \text{Rs. } 320$$

51. (1) I.  $16x^2 + 20x + 6 = 0$

$$\text{P } 8x^2 + 10x + 3 = 0$$

$$\text{P } (4x + 3)(2x + 1) = 0$$

$$x = -\frac{3}{4} \text{ or } -\frac{1}{2}$$

II.  $10y^2 + 38y + 24 = 0$

$$\text{P } 5y^2 + 19y + 12 = 0$$

$$(y + 3)(5y + 4) = 0$$

$$y = -3 \text{ or } -\frac{4}{5}$$

Hence,  $x > y$

52. (2) I.  $18x^2 + 18x + 4 = 0$   
 P  $9x^2 + 9x + 2 = 0$   
 P  $(3x + 2)(3x + 1) = 0$   
 $x = -\frac{2}{3}$  or  $-\frac{1}{3}$

II.  $12y^2 + 29y + 14 = 0$   
 P  $(3y + 2)(4y + 7) = 0$   
 $y = -\frac{2}{3}$  or  $-\frac{7}{4}$

Hence  $x > y$

53. (4) I.  $8x^2 + 6x - 5 = 0$   
 P  $(4x + 5)(2x - 1) = 0$   
 $x = -\frac{5}{4}$  or  $\frac{1}{2}$   
 II.  $12y^2 - 22y + 8 = 0$   
 P  $6y^2 - 11y + 4 = 0$   
 P  $(2y - 1)(3y - 4) = 0$   
 $y = \frac{1}{2}$  or  $\frac{4}{3}$

Hence,  $x \neq y$

54. (3) I.  $17x^2 + 48x - 9 = 0$   
 P  $(x + 3)(17x - 3) = 0$   
 P  $x = -3$  or  $\frac{3}{17}$   
 II.  $13y^2 - 32y + 12 = 0$   
 P  $(y - 2)(13y - 6) = 0$   
 $y = 2$  or  $\frac{6}{13}$

Hence  $x < y$

55. (5) I.  $4x + 7y = 209$  ..... (i)  
 II.  $12x - 14y = -38$  ..... (ii)  
 Now, (i)  $\times 2 +$  (ii), we have  
 $12x - 14y = -38$   
 $8x + 14y = 418$

or  $\frac{20x}{20} = 380$

$x = \frac{380}{20} = 19$

Now, putting the value of  $x = 19$  in equation (i), We have,

$4 \times 19 + 7y = 209$

or,  $7y = 209 - 76 = 133$

$y = \frac{133}{7} = 19$

56. (2) For city B =  $131857 \times \frac{7}{11} = 83909$

For city C =  $116536 \times \frac{5}{8} = 72835$  ;

diff. = 11074

57. (1) Total adult in city A =  $105623 \times \frac{5}{7} +$   
 $100249 \times \frac{11}{17} = 140312$

58. (4)

59. (5)

60. (3) minor female in city A =  $100249 \times \frac{6}{17} =$   
 $35382$ ; minor female in city B =  $115110$   
 $\times \frac{4}{15} = 30696$ , ; reqd. % =  $\frac{4686}{30696} \times 100$   
 = 15% approx.

61. (3) Sale of A =  $170000 \times \frac{29}{100} \times \frac{8}{17} = 23200$ ;

Sale of B =  $170000 \times \frac{18}{100} \times \frac{7}{18} = 11900$ ;

Sale of C =  $170000 \times \frac{14}{100} \times \frac{4}{7} = 13600$ ;

Total sale = 48700

62. (2)

63. (2) ratio =  $\frac{\frac{1}{100}(170000) \cdot \frac{16}{100} \cdot \frac{9}{16}}{\frac{1}{100}(170000) \cdot \frac{10}{100} \cdot \frac{3}{5}} = 3 : 2$

64. (3)

65. (2) Difference A =  $\frac{1}{100}(170000) \cdot \frac{29}{100} \cdot \frac{1}{17} =$   
 $= 2900$  ;

Difference B =  $\frac{1}{100}(170000) \cdot \frac{18}{100} \cdot \frac{4}{18} = 6800$  ;

Difference C =  $\frac{1}{100}(170000) \cdot \frac{14}{100} \cdot \frac{3-4}{16} = -3400$  ;

Difference D =  $\frac{1}{100}(170000) \cdot \frac{13}{100} \cdot \frac{3}{13} = 5100$  ;

Difference E =  $\frac{1}{100}(170000) \cdot \frac{16}{100} \cdot \frac{7-9}{16} = -3400$

Difference =  $\frac{1}{100}(170000) \cdot \frac{10}{100} \cdot \frac{1}{5} = 3400$

Difference =  $2900 + 6800 - 3400 + 5100 -$   
 $3400 + 3400 = 11400$

$$66. \quad A + B + C = \frac{24}{7}$$

$$= 3\frac{3}{7} \text{ days}$$

67. **Second train covers the 120 kms more distance only because of its exceed speed of**

$$\Rightarrow \text{Time, taken by trains to meet each other} \\ = \frac{90 \text{ kms}}{10 \text{ km/h}} = 9 \text{ hrs}$$

$$\text{Distance covered by first} = 9 \times 50 = 450 \text{ km}$$

$$\text{Distance covered by the second train} \\ = 9 \text{ hrs} \times 60 \text{ kmph} \\ = 540 \text{ km}$$

Total distance between A and B

$$540 + 450 = 990 \text{ km}$$

$$68. \quad \begin{array}{c} x \\ 7 \text{ yrs} \left[ \begin{array}{c} 5 \\ 6 \end{array} : \begin{array}{c} y \\ 6 \\ 7 \end{array} \right] 1 \text{ unit} \end{array}$$

$$1 \text{ unit} = \frac{7}{1} = 7 \text{ yrs}$$

$$\therefore \text{Present age of } x = 5 \times 7 = 35 \text{ yrs}$$

69. **We proceed through Zinc.**

$$\begin{array}{ccc} Z_1 & & Z_2 \\ \frac{3}{7} & & \frac{4}{9} \\ & \searrow & \nearrow \\ & \frac{7}{10} & \\ & \nearrow & \searrow \\ \frac{23}{90} & : & \frac{19}{70} \\ 161 & : & 171 \end{array}$$

$$\therefore \text{Required Ratio} = 161 : 171$$

70. **Capacity of cistern =  $27 \times \frac{4}{3} = 36\text{L}$**

$$\text{Required time} = 36 \times \frac{2}{3} = 24 \text{ minutes}$$