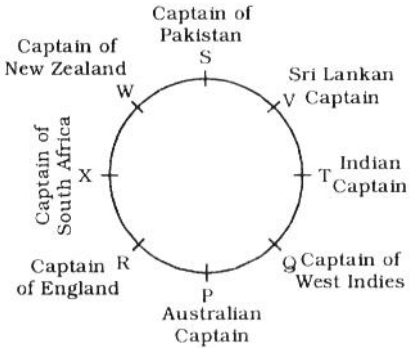
EXPLANATIONS

(1-5)



1. **There are two persons - Q and P - between T and R, the captain of England when counted in clockwise direction from T.**
2. **P is the Captain of Australian team.**
3. **(b)**

$$V \xrightarrow{+3} X \xrightarrow{+4} T \xrightarrow{+5} R \xrightarrow{+6} \boxed{W}$$
$$S \xrightarrow{+3} R \xrightarrow{+4} V \xrightarrow{+5} P \xrightarrow{+6} \boxed{X}$$

4. **(c) R is the Captain of England. W is immediate neighbour of S orX.**

Captains of Australia (P) and England (R) are immediate neighbours.

Three people sit between W and Q.

X sits second to the right of S.

5. **(d) T is the Indian Captain. Q is second to the right of R.**

(6-7) : Ajay > Poonam > Ben Kim > Shreya

Kim > Shreya > Ajay > Poonam>Ben

87% 70% 65%

6. **(e) Poonam scored the second lowest narks.**
7. **(c) Shreya may have scored 82% marks.**
8. **(d) Compete is different from the other words.**
9. **(e) Indifferent conveys different meaning from the other words.**
10. **(e)**

$$J \xrightarrow{+2} L \xrightarrow{+2} N \xrightarrow{-3} K$$
$$T \xrightarrow{+2} V \xrightarrow{+2} X \xrightarrow{-3} U$$
$$A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{-3} B$$
$$P \xrightarrow{+2} R \xrightarrow{+2} T \xrightarrow{-3} Q$$
$$G \xrightarrow{+3} J \xrightarrow{+1} K \xrightarrow{-3} H$$

11. **(b) E > C is true.**
12. **(e) $E < J \leq H > Z$**

$H \leq Y$

$E > F$

$F < E < J \leq H > Z$

$F < E < J \leq H \leq Y$

13. **(e) $H \geq I = J = K \leq L < M$**
14. **(d) $S > Q \geq R < P$**

$P > S$: Not true

15. **(a) $K \geq L = M > N$**

Now, $N < K$

(16-20) :

(i) All building are houses → Universal Affirmative (A-type),

(ii) Some oceans are seas → Particular Affirmative (I-type).

(iii) No house is an apartment → Universal Negative (E-type).

(iv) Some houses are not apartments → Particular Negative (O-type).

(16-17) :

All buildings are houses.

No house is an apartment.

A + E ⇒ E-type of Conclusion

"No building is an apartment." (A)

No house is an apartment.

All apartment are flats.

$E + A \Rightarrow O_1$-type of Conclusion

"Some flats are not houses." (B)

No building is an apartment.

All apartments are flats.

$E + A \Rightarrow O_1$-type of Conclusion

"Some flats are not buildings." (C)

16. **(b) Conclusion A is Conclusion II.**
17. **(d) None follows.**

(18-19)

Some seas are oceans.

All oceans are rivers.

I + A ⇒ I-type of Conclusion

"Some seas are rivers." (A)

All oceans are rivers.

No river is a canal.

A + E ⇒ E-type of Conclusion

"No ocean is a canal." (B)

Some seas are rivers.

No river is a canal.

$I + E \Rightarrow O_1$,-type of Conclusion

"Some canals are not seas." (C)

18. **(a) All oceans are rivers.**

Its converse " Some rivers are oceans", is true.

Thus, Conclusion I is true.

19. **(e) Conclusion B is Conclusion I. Conclusion A is Conclusion II.**
20. **(d)**

No day is night.

All nights are noon.

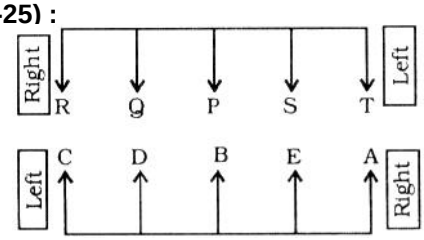
E + A ⇒ O_1,-type of Conclusion
"Some noon are not days." (A)

All nights are noon.

No noon is an evening.

A + E ⇒ E-type of Conclusion
"No night is an evering." (B)

(21-25) :



21. (c) Two persons - P and S - are seated between Q and T.

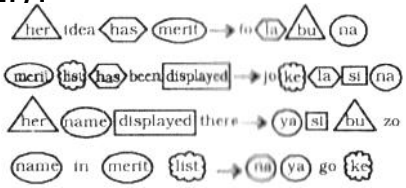
22. (b) Except S, all oithers are seated at the ends.

23. (e) P and B are sitting exactly in the middle of row

24. (e) D and E ane Immediate neighbours of B.
B sits exactly In the middle of the row. P faces B.
Either Q or S is an immediate neighbour of P' who faces B.

25. (d) R and A ane sitting opposite diagonally.

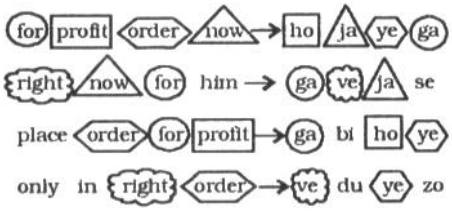
(26-27) :



26. (e) 'ke' stands for 'list'

27. (b) name ⇒ ya; has ⇒ la;
been ⇒ jo; displayed ⇒ si

(28-30)

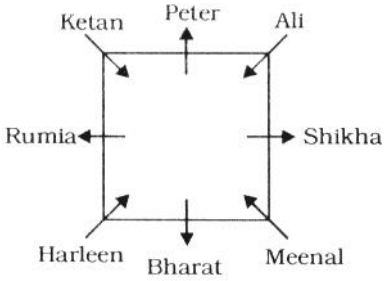


28. (c) 'bi' stands for 'place'.

29. (a) ve ⇒ right; du ⇒ only/in 'fo' may mean 'spirits'.

30. (e) The code for 'profit' is 'ho'

(31-35) :



31. (c) Except Harleen, all others sit in the middle of the sides.

32. (a) Bharat sits third to the left of Ali.

33. (d) Peter is third to the right of Meenal.

34. (d) Harleen sits second to the right of Ketan.

35. (b) Bharat and Rumia are immediate neighbours of Harleen.

36. (a) First S.P. $= \dfrac{46000 \times 88}{100}$

$= \text{Rs. } 40480$

$\text{Second S.P.} = \dfrac{40480 \times 112}{100}$

$= \text{Rs. } 45337.6$

$\therefore \text{Loss} = \text{Rs. } (46000 - 45337.6) = \text{Rs. } 662.4$

37. Third even number $= \dfrac{402}{6} - 1$

$= 67 - 1 = 66$

$\therefore$ Smallest even number $= 62$

$\therefore$ Smallest number of set $-B$

$= 2 \times 62 - 15 = 109$

$\therefore$ Requried sum

$= 109 + 110 + 111 + 112$

$= 442$

38. (d) Total spent amount

$= \left(\dfrac{591}{3} + \dfrac{45}{60} \times 780\right)$ paise

$= (197 + 585)$ paise

$= 782$ paise

$= \text{Rs. } 7.82$

39. Speed of train = 108 kmph

$= \dfrac{108 \times 5}{18} = 30$ m.second

If the length of platfrom be x metre, then

$\dfrac{x + 280}{12} = 30$

$x + 280 = 30 \times 12 = 360$

$x = 360 - 280 = 80$ metre

$\therefore$ Man's speed $= \frac{Distance}{Time}$

$= \frac{80}{10} = 8$ m/sec

40. Let the three angles of quadrilateral be $13x^\circ, 9x^\circ$ and $5x^\circ$ respectively.

$\therefore \quad 13x + 9x + 5x = 360 - 36$

$27x = 324$

$x = \frac{324}{27} = 12$

$\therefore$ Required difference $= 13x - 5x$

$= 8x = 8 \times 12 = 96^\circ$

41. Number of girls :

School – C

$\frac{6000 \times 26}{100} - 900 = 1560 - 900 = 660$

School –*E*

$\frac{6000 \times 29}{100} - 1200 = 1740 - 1200 = 540$

$\therefore$ Required answer $= 660 + 540 + 600 = 1800$

42. Number of girls in School - B

$= \frac{6000 \times 9}{100} - 400$

$= 540 - 400$

$= 140$

Number of students in School-E

$= \frac{6000 \times 29}{100} = 1740$

$\therefore$ Required ratio $= 900 : 140 : 1740$

$= 45 : 7 : 87$

43. Required difference

$= 1200 - \frac{6000 \times 6}{100}$

$= 1200 - 360 = 840$

44. Number of students in School *B*

$= \frac{6000 \times 9}{100} = 540$

= Number of girls in School-E

45. Number of girls in School-A

$= \frac{6000 \times 12}{100} - 500$

$= 720 - 500 = 220$

$\therefore$ Required percentage $= \frac{220}{540} \times 100 = 41$

46. Number of particupants (athletes) from Country C.

Year 2006 $\Rightarrow (6.9 + 3.3) \times 100 = 1020$

Year 2008 $\Rightarrow (6.6 + 4.2) \times 100 = 1080$

Year 2009 $\Rightarrow (7.9 + 6.3) \times 100 = 1420$

year 2010 $\Rightarrow (10.8 + 6.9) \times 100 = 1770$

47. Requried average number of female athletes

$= \frac{(4.2 + 6.2 + 4.8 + 8.4 + 5.2 + 7.2)}{6} \times 100$

$= \frac{36 \times 100}{6} = 600$

48. Percentage decrease

$= \frac{(6.9 - 4.8)}{6.9} \times 100 = 30$

49. Required percentage

$= \frac{9.2}{(11.4 + 8.4)} \times 100$

$= \frac{9.2 \times 100}{19.8} \approx 46$

50. Difference between the number of male and female participants :

Country $A \Rightarrow (6.6 - 4.2) \times 100 = 240$

Country $B \Rightarrow (8.4 - 6.2) \times 100 = 220$

Country $C \Rightarrow = (6.9 - 3.3) \times 100 = 360$

Country $D \Rightarrow (8.4 - 6.3) \times 100 = 210$

Country $E \Rightarrow (7.8 - 5.2) \times 100 = 260$

Calculations (56-60) :

British passengers

$\frac{1200 \times 18}{100} = 216$

Females $\frac{216}{4} = 54;$

Males $\Rightarrow \quad 216 - 54 = 162$

Passengers from Madagascar

$\frac{1200 \times 6}{100} = 72 =$ Males

Passengers from South Africa

$1200 \times \frac{2}{5} = 480$

Males $= 240$

Females $= 240$

Indian passengers

$1200 - 216 - 72 - 480 = 432$

Females $432 \times \frac{2}{3} = 288;$

Males $\quad 432 - 288 = 144$

51. $3420 \times \frac{30}{100} \times \frac{3}{19} = (?)^2 \times 2$

$$162 = (?)^2 \times 2$$
$$(?)^2 = \frac{162}{2} = 81$$
$$\therefore \quad ? = \sqrt{81} = 9$$

52. $\frac{1898}{73} \times 72 = (?)^2 \times 13$

$$26 \times 72 = ?^2 \times 13$$
$$?^2 = \frac{26 \times 72}{13} = 144$$
$$\therefore \quad ? = \sqrt{144} = 12$$

53. $? = \sqrt{7^2 \times 24 \times 2 - (11)^3 + 3}$

$$= \sqrt{2352 - 1331 + 3}$$
$$= \sqrt{1024} = 32$$

54. $\sqrt{3100} \times \sqrt{567} \div \sqrt{250} = ? \div 8$

$$56 \times 24 \div 16 = ? \div 8$$
$$\frac{56 \times 24}{16} = \frac{?}{8}$$
$$84 = \frac{?}{8}$$
$$? = 8 \times 84 = 672$$

$\therefore$ Required answer $= 670$

55. $? = \frac{700 \times 90}{100} + \frac{1000 \times 50}{100} - 170$

$$= 630 + 500 - 170 = 960$$

56. $? = \frac{340}{20} \div \frac{30}{510} \times \frac{180}{60}$

$$= \frac{340}{20} \times \frac{510}{30} \times \frac{180}{60}$$
$$= \frac{340}{20} \times \frac{510}{30} \times \frac{180}{60}$$
$$= 867$$

$\therefore$ Required answer $= 870$

57. $7000 \div 70 \times 95 = ? \times 20$

$$? = \frac{7000 \times 95}{70 \times 20} = 475$$

58. **The pattern of the number series is :**

$$958 - 833 = 125$$
$$833 - 733 = 100$$
$$733 - 685 = 75$$
$$658 - 608 = 50$$
$$\therefore \quad ? = 608 - 25 = 583$$

59. **The pattern of the number serices is :**

$$11 \times 1 - 1 = 10$$
$$10 \times 2 - 2 = 18$$
$$18 \times 3 - 3 = 51$$
$$51 \times 4 - 4 = 200$$
$$200 \times 5 - 5 = 995$$

60. **The pattern of the number series is :**

$$25 \times 2 - 2 = 50 - 2 = 48$$
$$48 \times 2 - 2 = 96 - 2 = 94$$
$$94 \times 2 - 2 = 188 - 2 = 186$$
$$186 \times 2 - 2 = 372 - 2 = 370$$
$$370 \times 2 - 2 = 740 - 2 = 738$$

61. **The pattern of the number series is :**

$$14 + 10 = 24$$
$$24 + 19 (= 10 + 9) = 43$$
$$43 + 28 (= 19 + 9) = 71$$
$$71 + 37 (= 28 + 9) = 108$$
$$108 + 46 (= 37 + 9) = 154$$

62. $\sqrt{25x^2} - 125 = 0$

$$\sqrt{25x^2} = 125$$
$$25x^2 = 125 \times 125$$
$$x^2 = \frac{125 \times 125}{25} = 625$$
$$\therefore \quad x = \sqrt{625} = 25$$

II. $\sqrt{361}y + 95 = 0$

$$19y = -95 \Rightarrow y = -5$$

63. **I.** $\frac{5}{7} - \frac{5}{21} = \frac{\sqrt{x}}{42}$

$$\frac{15 - 5}{21} = \frac{\sqrt{x}}{42}$$
$$\sqrt{x} = \frac{10}{21} \times 42 = 20$$
$$\therefore \quad x = 20 \times 20 = 400$$

II. $\frac{\sqrt{y}}{4} + \frac{\sqrt{y}}{16} = \frac{250}{\sqrt{y}}$

$$\frac{4\sqrt{y} + \sqrt{y}}{16} = \frac{250}{\sqrt{y}}$$
$$5\sqrt{y} \times \sqrt{y} = 250 \times 16$$
$$5y = 250 \times 16$$
$$y = \frac{250 \times 16}{5} = 800$$

64. **I.** $(625)^{\frac{1}{4}} x + \sqrt{1225} = 155$

$$(5^4)^{\frac{1}{4}} x + 35 = 155$$
$$5x = 155 - 35$$

$$5x = 120$$
$$x = \frac{120}{5} = 24$$

II. $\sqrt{196}y + 13 = 279$

$$14y = 279 - 13 = 266$$
$$y = \frac{266}{14} = 19$$

65. **I. $5x^2 - 18x + 9 = 0$**

$$5x^2 - 15x - 3x + 9 = 0$$
$$5x(x-3) - 3(x-3) = 0$$
$$(5x-3)(x-3) = 0$$
$$x = \frac{3}{5} \text{ or, } 3$$

II. $3y^2 + 5y - 2 = 0$

$$3y^2 + 6y - y - 2 = 0$$
$$3y(y+2) - 1(y+2) = 0$$
$$(3y-1)(y+2) = 0$$
$$y = \frac{1}{3} \text{ or, } -2$$

66. **Speed of car**

$$= \frac{\text{Distance covered}}{\text{Time taken}}$$
$$= \frac{720}{9} = 80 \text{ kmph}$$

$\therefore$ Speed of bus $= \frac{3}{4} \times 80$

$\therefore$ $= 60$ kmph

$\therefore$ Speed of train $= \frac{27}{15} \times 60$

$= 108$ kmph

$\therefore$ distacne covered by train in 7 hrs

$= 7 \times 108 = 756$ km.

67. **Let Raman's present age = x yrs**

$\therefore$ His daughter's present age $= \frac{x}{3}$ yrs

His mother's present age $= \frac{13x}{9}$ yrs

$\therefore$ $x + \frac{x}{3} + \frac{13x}{9} = 125$

$$\frac{9x + 3x + 13x}{9} = 125$$
$$25x = 125 \times 9$$
$$x = \frac{125 \times 9}{25} = 45$$

$\therefore$ Required difference

$$= \frac{13x}{9} - \frac{x}{3}$$
$$= \frac{13x - 3x}{9} = \frac{10x}{9}$$
$$= \frac{10}{9} \times 45 = 50 \text{ yrs}$$

68. **Required value**

$$= (27)^2 \times 5 \times \frac{4}{9} \times \frac{24}{100}$$
$$= 388.8$$

69. **Circumference of circle = $\pi \times$ diameter**

$$= \frac{22}{7} \times 56 = 176 \text{ cm}$$

$\therefore$ Perimeter of square

$= 272 - 176 = 96$ cm

$\therefore$ Side of square $= \frac{96}{4}$

$= 24$ cm

$\therefore$ Area of square $= 24 \times 24 = 576$ sq. cm.

Area of circle $= \pi r^2$

$$= \frac{22}{7} \times 28 \times 28$$
$= 2464$ sq. cm.

$\therefore$ Required sum $= (576 + 2464)$ sq. cm.

$= 3040$ sq. cm

70. **The smallest angle of triangle is half of the largest angle.**

$\therefore$ Ratio of three angles = 4 : 3 : 2

$\therefore$ $4x + 3x + 2x = 180$

$\therefore$ $9x = 180 \Rightarrow x = 20$

$\therefore$ Required difference

$= 4x - 2x = 2x = 2 \times 20 = 40^\circ$

J ANSWER KEY

1. (c)	**2.** (a)	**3.** (b)	**4.** (c)	**5.** (d)	**6.** (e)	**7.** (c)	**8.** (d)	**9.** (e)	**10.** (b)
11. (b)	**12.** (e)	**13.** (e)	**14.** (d)	**15.** (a)	**16.** (b)	**17.** (d)	**18.** (a)	**19.** (e)	**20.** (d)
21. (c)	**22.** (b)	**23.** (e)	**24.** (e)	**25.** (d)	**26.** (e)	**27.** (b)	**28.** (c)	**29.** (a)	**30.** (e)
31. (c)	**32.** (a)	**33.** (d)	**34.** (d)	**35.** (b)	**36.** (a)	**37.** (b)	**38.** (d)	**39.** (b)	**40.** (d)
41. (e)	**42.** (c)	**43.** (e)	**44.** (b)	**45.** (e)	**46.** (e)	**47.** (c)	**48.** (b)	**49.** (b)	**50.** (e)

51. (c)	**52.** (c)	**53.** (e)	**54.** (b)	**55.** (d)	**56.** (d)	**57.** (a)	**58.** (b)	**59.** (d)	**60.** (a)
61. (b)	**62.** (a)	**63.** (c)	**64.** (a)	**65.** (a)	**66.** (b)	**67.** (c)	**68.** (a)	**69.** (c)	**70.** (c)
71. (a)	**72. (b)**	**73. (e)**	**74. (e)**	**75. (c)**	**76. (d)**	**77. (a)**	**78. (d)**	**79. (b)**	**80. (d)**
81. (c)	82. (e)	83. (a)	84. (c)	85. (c)	86. (a)	87. (d)	88. (c)	89. (e)	90. (a)
91. (d)	92. (e)	93. (c)	94. (b)	95. (b)	96. (d)	97. (a)	98. (c)	99. (c)	100. (b)