

> ANSWER KEY

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

SOLUTIONS

$$31. (4) \frac{30 + 4.4}{?} = 8$$

$$\Rightarrow \frac{34.4}{?} = 8 \Rightarrow ? = \frac{34.4}{8} = 4.3$$

$$32. (2) 1 + \frac{3}{4} - 1 - \frac{5}{6} = ?^2 - 2 - \frac{1}{3}$$

$$\Rightarrow \frac{3}{4} - \frac{5}{6} + \frac{1}{3} = ?^2 - 2$$

$$\Rightarrow \frac{9 - 10 + 4}{12} = ?^2 - 2$$

$$\Rightarrow \frac{1}{4} + 2 = ?^2$$

$$\Rightarrow ?^2 = \frac{9}{4}$$

$$\Rightarrow ? = \frac{3}{2} = 1\frac{1}{2}$$

$$33. (3) (2^3)^3 + (2^4)^2 \times 2^5 = \frac{2^{7-4}}{(2^2)^2}$$

$$\Rightarrow 2^9 + 2^8 \times 2^5 \times 2^4 = 2^{7-4}$$

$$[a^m \times a^n = a^{m+n}]$$

$$\Rightarrow \frac{2^9 \times 2^5 \times 2^4}{2^8} = 2^{7-4}$$

$$\Rightarrow 2^{9+5+4-8} = 2^{7-4}$$

$$[a^m + a^n = a^{m+n}]$$

$$\Rightarrow 2^{10} = 2^{7-4} \Rightarrow ? - 4 = 10$$

$$\Rightarrow ? = 10 + 4 = 14$$

$$34. (4) ? = \frac{16}{5} \times 1575 + \frac{5}{100} \times 800$$

$$= 16 \times 315 + 40 = 126$$

$$35. (5) ? = \sqrt{6^2(5^2 \times 5 - 4)}$$

$$= \sqrt{6^2 \times 121} = \sqrt{6^2 \times 11 \times 11}$$

$$= 6 \times 11 = 66$$

$$36. (4) [1496 - 392] / 23 \times 15 = 2^? 3 + ?$$

$$\Rightarrow \frac{1104}{23} \times 15 = 213 + ?$$

$$\Rightarrow 48 \times 15 = 213 + ?$$

$$\Rightarrow 720 - 213 = ?$$

$$\Rightarrow ? = 507$$

$$37. (2) 9^2 \times \sqrt[4]{1296} - 254 = (? \times 9 + 151)$$

$$\Rightarrow 81 \times 6 - 254 = ? \times 9 + 151$$

$$\Rightarrow 486 - 254 = ? \times 9 + 151$$

$$\Rightarrow 232 - 151 = ? \times 9$$

$$? = \frac{81}{9} = 9$$

$$38. (5) \frac{5136}{(523 + 333) \text{ of } \frac{3}{4}} + 459 = ?$$

$$\Rightarrow ? = \frac{5136}{214 \times 3} + 459 = 8 + 459$$

$$\therefore ? = 467$$

$$39. (3) 64^2 - 36^2 = ? \times 25$$

$$\Rightarrow (64 + 36)(64 - 36) = ? \times 25$$

$$\Rightarrow 100 \times 28 = ? \times 25$$

$$\therefore ? = 112$$

$$40. (2) \frac{2}{3} - \frac{5}{7} \text{ of } \frac{21}{23} \text{ of } \frac{46}{51} = ? \text{ of } \frac{8}{85}$$

$$\Rightarrow \frac{2}{3} - \frac{5}{7} \times \frac{21}{23} \times \frac{46}{51} = ? \times \frac{8}{85}$$

$$\Rightarrow \frac{2}{3} - \frac{30}{51} = ? \times \frac{8}{85}$$

$$\Rightarrow ? = \frac{34 - 30}{51} \times \frac{85}{8} = \frac{5}{6}$$

$$41. (1) \left(\frac{5568}{87}\right)^{\frac{1}{3}} + (72 \times 2)^{\frac{1}{2}} = (?^{\frac{1}{2}})^2$$

$$\Rightarrow (64)^{\frac{1}{3}} + (144)^{\frac{1}{2}} = (?^{\frac{1}{2}})^2$$

$$\Rightarrow (4^3)^{\frac{1}{3}} + (12^2)^{\frac{1}{2}} = (?^{\frac{1}{2}})^2$$

$$\Rightarrow 4 + 12 = (?^{\frac{1}{2}})^2$$

$$\Rightarrow (?^{\frac{1}{2}})^2 = 16 = (16^{\frac{1}{2}})^2$$

$$\Rightarrow ? = 16^{\frac{1}{2}} = 16 \times 16 = 256$$

$$42. (4) ?^2 = \sqrt{13^2 + 28 \times \frac{1}{4} - (3)^3 + 107}$$

$$= \sqrt{169 + 7 - 27 + 107} = \sqrt{256} = 16$$

$$\Rightarrow ? = \sqrt{16} = 4$$

$$43. (2) ((0.7)^2)^4 \times ((0.7)^3)^4 + ((0.7)^4)^4$$

$$= \left(\frac{70}{100}\right)^{7+3}$$

$$\Rightarrow 0.7^8 \times 0.7^{12} + (0.7)^{16} = (0.7)^{7+3}$$

$$\Rightarrow (0.7)^{8+12-16} = (0.7)^{7+3} = (0.7)^4$$

$$\left[\begin{array}{l} (a^m)^n = a^{mn}; \\ a^m \times a^n = a^{m+n} \\ a^m + a^n = a^{m-n} \end{array} \right]$$

$$\Rightarrow ? + 3 = 4 \Rightarrow ? = 4 - 3 = 1$$

$$44. (5) ? = \frac{\sqrt{576}}{4^2} \times 7.4 + 7^3 - 231$$

$$= 11.1 + 343 - 231 = 123.1$$

$$45. (4) ? = \sqrt{43 - 12\sqrt{7}} - \frac{2}{\sqrt{16 + 6\sqrt{7}}}$$

$$= \sqrt{43 - 2 \times 6 \times \sqrt{7}}$$

$$- \frac{2}{\sqrt{16 + 2 \times 3 \times \sqrt{7}}}$$

$$= \sqrt{36 + 7 - 2 \times 6\sqrt{7}}$$

$$- \frac{2}{\sqrt{9 + 7 + 2 \times 3 \times \sqrt{7}}}$$

$$= \sqrt{(6 - \sqrt{7})^2} - \frac{2}{\sqrt{(3 + \sqrt{7})^2}}$$

$$= 6 - \sqrt{7} - \frac{2}{3 + \sqrt{7}}$$

$$= 6 - \sqrt{7} - \frac{2 \times (3 - \sqrt{7})}{(3 + \sqrt{7})(3 - \sqrt{7})}$$

$$= 6 - \sqrt{7} - \frac{2 \times (3 - \sqrt{7})}{9 - 7}$$

$$= 6 - \sqrt{7} - 3 + \sqrt{7} = 3$$

$$46. (2) \text{ Pattern of the series is}$$

$$9 + 2^1 = 11$$

$$11 + 2^2 = 11 + 4 = 15$$

$$15 + 2^3 = 15 + 8 = \boxed{23}$$

$$23 + 2^4 = 23 + 16 = 39$$

$$39 + 2^5 = 39 + 32 = 71$$

47. (5) Pattern of the series is

$$7 + 1^2 = 8$$

$$8 + 2^2 = 12$$

$$12 + 3^2 = 21$$

$$21 + 4^2 = \boxed{37}$$

$$37 + 5^2 = 62$$

48. (4) Pattern of the series is

$$5 \times 1 + 1^2 = 5 + 1 = 6$$

$$6 \times 2 + 2^2 = 12 + 4 = 16$$

$$16 \times 3 + 3^2 = 48 + 9 = 57$$

$$57 \times 4 + 4^2 = 228 + 16 = 244$$

$$244 \times 5 + 5^2 = 1220 + 25 = \boxed{1245}$$

49. (3) Pattern of the series is

$$3 \times 6 + 1 = 18 + 1 = 19$$

$$19 \times 5 + 2 = 95 + 2 = 97$$

$$97 \times 4 + 3 = 388 + 3 = 391$$

$$391 \times 3 + 4 = 1173 + 4 = \boxed{1177}$$

$$1177 \times 2 + 5 = 2354 + 5 = 2359$$

50. (1) Pattern of the series is

$$\frac{848}{2} - 2 = 424 - 2 = 422$$

$$\frac{422}{2} - 3 = 211 - 3 = 208$$

$$\frac{208}{2} - 4 = 104 - 4 = 100$$

$$\frac{100}{2} - 5 = 50 - 5 = 45$$

$$\frac{45}{2} - 6 = 22.5 - 6 = \boxed{16.5}$$

51. (4) Amount to be paid at the end of 2 yr

$$= \frac{800 \times 10 \times 2}{100} + 800 = 880$$

Amount left as principal for the second year

$$= 480 = (880 - 400)$$

Amount to be paid after 2nd year

$$= 480 + \frac{480 \times 10}{100} = ₹ 528$$

52. (3) Number of girls = 10

and number of boys = 30

Total age of girls = $10 \times 14 = 140$

Total age of boys = $30 \times 15 = 450$

Difference = $450 - 140 = 310$

53. (1) Work done by A and B in 5 days

$$= \left(\frac{1}{10} + \frac{1}{15} \right) \times 5 = \frac{5}{6}$$

Work remaining = $1 - \frac{5}{6} = \frac{1}{6}$

∴ C alone can do the work in
= $6 \times 2 = 12$ days

Ratio of their share work

$$= \frac{5}{10} : \frac{5}{15} : \frac{2}{12} = 3 : 2 : 1$$

Share of wages = ₹ 225, ₹ 150, ₹ 75.

54. (3) Cost price = ₹ 800

Selling price = ₹ 1040

∴ Profit = $1040 - 800 = ₹ 240$

Per cent profit = $\frac{240 \times 100}{800} = 30\%$

55. (3) P has filled = $\frac{15}{20} = \frac{3}{4}$

So, Q has filled = $\frac{1}{4}$

it takes = $\frac{4}{\frac{1}{30}} = 7\frac{1}{2}$ h

So, it was closed at 1:30 pm

56. (2) Ratio of capitals of A, B and C

$$= [(11000 \times 6) + (13000 \times 6)] : [(12000 \times 8) + (9000 \times 4)] : [15000 \times 4]$$

$$= (66000 + 78000) : (96000 + 36000) : 60000$$

$$= 144000 : 132000 : 60000$$

$$= 12 : 11 : 5$$

A's share

$$= \left(\frac{12}{28} \times 25200 \right) = ₹ 10800$$

57. (5) Let the total number of editorial staff in BSC be 100.

Then, $100 = 72 + 44 - x \Rightarrow x = 16$

From 100 staff members 16 like both coffee and tea.

∴ There are $\left(\frac{100 \times 4}{16} \right) = 25$

editorial staff in the office.

58. (4) Let the time taken by them to meet be t h. Relative speed of the faster person with respect to the slower person

$$= (23.5 + 21.5) \text{ km/h} = 45 \text{ km/h}$$

$$\therefore t = \frac{180}{45} = 4 \text{ h}$$

∴ Meeting time

$$= 7:00 \text{ am} + 4 \text{ h} = 11:00 \text{ am}$$

59. (3) Volume of cylinder = $\pi r^2 h$

$$= 2.25 \times 2.25 \times 10\pi = 50.625\pi$$

Volume of coin = $\pi r^2 h$

$$= 0.75 \times 0.75 \times 0.2\pi = 0.1125\pi$$

∴ Number of coins

$$= \frac{50.625\pi}{0.1125\pi} = 450$$

60. (2) Fresh grapes contain 85% water, so the quantity of pulp is 15%.

From 64 kg of fresh grapes, we get 15% of 64 kg of pulp.

Dry grapes contain 20% water and 80% pulp.

Let the quantity of dry grapes that can be obtained be n kg.

Now, 80% of n kg = 15% of 64 kg

$$80n = 15(64) \Rightarrow n = 12$$

61. (2) Total number of users of brand B = $600 + 500 + 650 + 700 + 550 = 3000$

62. (3) Number of users of brand A in city T = 700

Number of users of brand B in city Q = 500

∴ Required percentage

$$= \frac{700}{500} \times 100 = 140\%$$

63. (3) Total number of users of brand A = $500 + 550 + 600 + 550 + 700 = 2900$

∴ Required average = $\frac{2900}{5} = 580$

64. (4) Number of users of brand B and A together in city

$$R = 600 + 650 = 1250$$

Number of users of brand B and A together in city P

$$= 500 + 600 = 1100$$

∴ Required difference

$$= 1250 - 1100 = 150$$

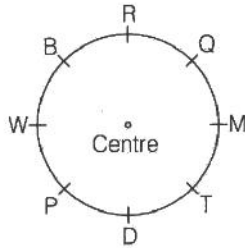
65. (1) Number of users of brand A in city P = 500

Number of users of brand B in city S = 700

Required ratio = $\frac{500}{700} = \frac{5}{7} = 5 : 7$

66. (1) Required Element = 21st - 6th = 15th Element from the right end = 8
67. (3) Only 2 vowels are immediately preceded by a symbol and immediately followed by a constant. i.e. @EJ, %AV.
68. (2) Only one symbol \$ is immediately followed by a number but not immediately preceded by a number. i.e. Q\$6
69. (3) Only 2 consonants are immediately preceded by a number and immediately followed by a symbol. i.e. 1H%, 2Q\$.
70. (2) Except 'δ75', all other groups follow same pattern in the given arrangement.

Sol. (Q. Nos. 71-75) *Sitting arrangements of 8 persons are given below.*



71. (3) From the above arrangement, P is third to the left of M.
72. (5) From the above arrangement, Q and B are the immediate neighbours of R.
73. (2) From the above arrangement, M is fourth to the right of W.
74. (4) From the above arrangement, R is second to the right of M.
75. (4) From the above arrangement, R is sitting to the immediate right of Q.

Sol. (Q. Nos. 76-80)

- $P@Q \Rightarrow P \geq Q$
 $P\$Q \Rightarrow P \leq Q$
 $P\%Q \Rightarrow P < Q$
 $P\#Q \Rightarrow P > Q$
 $P\odot Q \Rightarrow P = Q$

76. (1) **Statements**, $H@M \Rightarrow H \geq M$,
 $M\$D \Rightarrow M \leq D$, $D\%N \Rightarrow D < N$
 $\therefore H \geq M \leq D < N$

Conclusions

- I. $N\#M \Rightarrow N > M$ (True)
 II. $N\odot H \Rightarrow N = H$ (False)

So, only Conclusion I is true from the given statements.

77. (5) **Statements**,
 $R\#T \Rightarrow R > T$,
 $T@J \Rightarrow T \geq J$, $J\odot B \Rightarrow J = B$
 $\therefore R > T \geq J = B$

Conclusions

- I. $B\$T \Rightarrow B \leq T$ (True)
 II. $J\%R \Rightarrow J < R$ (True)

So, both Conclusions I and II are true from the given statements.

78. (4) **Statements**, $M\$K \Rightarrow M \leq K$,
 $K\#W \Rightarrow K > W$, $R@W \Rightarrow R \geq W$
 $\therefore M \leq K > W \leq R$

Conclusions

- I. $M\%W \Rightarrow M < W$ (False)
 II. $R\#K \Rightarrow R > K$ (False)

So, neither Conclusion I nor II is true from the given statements.

79. (2) **Statements**, $Z\odot T \Rightarrow Z = T$
 $T\%D \Rightarrow T < D$, $D\#K \Rightarrow D > K$
 $\therefore Z = T < D > K$

Conclusions

- I. $K\%Z \Rightarrow K < Z$ (False)
 II. $D\#Z \Rightarrow D > Z$ (True)

So, only Conclusion II is true from the given statements.

80. (5) **Statements**, $A\%F \Rightarrow A < F$,
 $F\odot R \Rightarrow F = R$, $R\$B \Rightarrow R \leq B$
 $\therefore A < F = R \leq B$

Conclusions

- I. $A\%B \Rightarrow A < B$ (True)
 II. $B@F \Rightarrow B \geq F$ (True)

So, both Conclusions I and II are true from the given statements.

Sol. (Q. Nos. 81-85) *The final arrangement is as follow*

Floor number	Person
9	I
8	H
7	E
6	F/D
5	B
4	A
3	C
2	D/F
1	G
0	J

81. (2) G lives on 1st floor.
 82. (5) 5 persons live between the floors on which I and C live.
 83. (5) Except H, all others live on an odd numbered floor.

84. (3) There are three persons between F and D.
 85. (4) B live on fifth floor.
 86. (3) $MET \Rightarrow MDT$, $ARK \Rightarrow AQK$,
 $MOB \Rightarrow MNB$, $SKI \Rightarrow SJI$,
 $URN \Rightarrow UQN$
 Hence, only two words $MET \Rightarrow MDT$ and $MOB \Rightarrow MNB$ will have no vowel

87. (4) $MET \Rightarrow EMT$, $ARK \Rightarrow AKR$,
 $MOB \Rightarrow BMO$, $SKI \Rightarrow IKS$, $URN \Rightarrow NRU$
 These words ($MET \Rightarrow EMT$, $ARK \Rightarrow AKR$, $SKI \Rightarrow IKS$) will begin with a vowel.
88. (4) ARK , MET , MOB , SKI , URN
 \therefore Second word from the right end is SKI .
89. (5) $MET \Rightarrow LFS$, $ARK \Rightarrow BQJ$
 $MOB \Rightarrow LPA$, $SKI \Rightarrow RJJ$, $URN \Rightarrow VQM$
 \therefore Four words ($MET \Rightarrow LFS$, $ARK \Rightarrow BQJ$, $SKI \Rightarrow RJJ$, $URN \Rightarrow VQM$) will have no vowels.

90. (1) 4th word from the left end = SKI , third letter = I
 4th word from the right end = ARK third letter = K
 \therefore Only one letter J is between I and K

91. (1) B (C) D (EF) G (HIJ) K (LMNO) P
 $2, 3, 2 + 3 = 5$,
 $3 + 5 = 8$,
 $5 + 8 = 13$

R (Q) P (ON) M (L) K (JI) H
 B2R, D3P, G5M, K8K, P13H
 $\therefore ? = K8K$

92. (1) Arranging in decreasing order according to scores. $B > C/D > A$
 Clearly, B scored the maximum marks.

93. (2)
- | | | | | | | | |
|----|----|----|----|----|----|----|----|
| T | O | L | E | R | A | N | T |
| -↓ | +↓ | -↓ | +↓ | -↓ | +↓ | -↓ | -↓ |
| S | P | K | F | Q | B | M | S |
| B | F | K | M | P | Q | S | S |
- 4th from right

94. (2)
- $lit is$ dark outside $\rightarrow ha nc ti ju$
 $is lit$ still raining $\rightarrow pa ha da nc$
 go and play outside $\rightarrow su ju ye la$

\therefore dark $\rightarrow ti$

95. (4) The original number : 42519673
 In ascending order : 1 2 3 4 5 6 7 9