

32. (5) I. $2x^2 + 11x + 12 = 0$
 $\Rightarrow 2x^2 + 8x + 3x + 12 = 0$
 $\Rightarrow 2x(x + 4) + 3(x + 4) = 0$
 $\Rightarrow (2x + 3)(x + 4) = 0$
 $\Rightarrow x = -\frac{3}{2}, -4$
 II. $5y^2 + 27y + 10 = 0$
 $\Rightarrow 5y^2 + 25y + 2y + 10 = 0$
 $\Rightarrow 5y(y + 5) + 2(y + 5) = 0$
 $\Rightarrow (5y + 2)(y + 5) = 0$
 $\Rightarrow y = -\frac{2}{5}, -5$
 I. $21x = 84$
 $x = 4$

II. $\sqrt{y + 222} = 9 + 6$
 $y = 225 - 222$
 $y = 3$
 $\therefore x > y$

33. (2) I. $2x^2 - 7x - 15 = 0$
 $2x^2 - 10x + 3x - 15 = 0$
 $2x(x - 5) + 3(x - 5) = 0$
 $(x - 5)(2x + 3) = 0$
 $x = 5, -\frac{3}{2}$

II. $6y^2 + 17y + 7 = 0$
 $6y^2 + 14y + 3y + 7 = 0$
 $2y(3y + 7) + 1(3y + 7)$
 $(2y + 1)(3y + 7)$
 $y = -\frac{1}{2}, -\frac{7}{3}$

34. (5) No relationship can be established
 Let $\sqrt{x} = a$
 $63a^2 - 94a + 35 = 0$
 $63a^2 - 49a - 45a + 35 = 0$
 $7a(9a - 7) - 5(9a - 7) = 0$
 $a = \frac{7}{9}, \frac{5}{7}$
 $x = \frac{49}{81}, \frac{25}{49}$
 Let $\sqrt{y} = b$
 $32b^2 - 28b - 24b + 21 = 0$
 $4b(8b - 7) - 3(8b - 7) = 0$
 $b = \frac{7}{8}, \frac{3}{4}$
 $y = \frac{49}{64}, \frac{9}{16}$

35. (5) No relation can be established.
 Let Suraj's invested part at 6% per annum be Rs x
 \therefore Other part = $(12000 - x)$
 $x \times 6 \times 4 + \frac{(12000 - x) \times 5 \times 4}{100} = 2580$
 $\frac{100}{24x + 240000 - 20x} = 2580$
 or, $\frac{100}{24x + 240000} = 258000$
 $\therefore x = \frac{258000 - 240000}{4} = \frac{18000}{4} = \text{Rs } 4500$

36. (1) Therefore, Suraj's invested part at 6% per annum = Rs 4500

37. (2) Ratio of Aman's profit to Bharti's profit = $56 \times 12 : 48 \times 7 = 2 : 1$

Now, let Aman's share in profit be $2x$ and that of Bharti be x .

Given $x = \text{Rs } 3250$

\therefore Total Profit = $2x + x = 3250 \times 3 = \text{Rs } 9750$

let the radius of the outer circle be R m.
 And the radius of the inner circle be r m.
 Then, according to the question

$2\pi r - 2\pi r = 88$
 $2\pi R - 2\pi r = 88$
 $or, R - r = \frac{88 \times 7}{2 \times 22} = 14$
 Or, $R = 14 + r = 14 + 3.5 = 17.5$ m
 Now, area of the road = $\pi(17.5^2 - 3.5^2)$
 $= \frac{22}{7} \times 21 \times 14 = 924 \text{ m}^2$

38. (3) LCM of 20, 25 and 10 = 100 units
 A can fill $(\frac{100}{20}) = 5$ units in one hour
 And B can fill $(\frac{100}{25}) = 4$ units in one hour
 Third pipe empties $(\frac{100}{10}) = 10$ units in one hour
 In the beginning the tank filled by (A + B)
 in 8 minutes = $8 \times (5 + 4) = 72$ units
 Third pipe empties 10 units every hours
 \therefore Third pipe empties the tank in 72 minutes

39. (1) Let price = 10 per item
 Sales = 10 item
 Income = $10 \times 10 = 100$
 New Price = $10 \times \frac{105}{100} = 10.5$
 New Sales = $10 \times \frac{84}{100} = 8.4$
 New income = $10.5 \times 8.4 = 88.2$
 % decrease = $100 - 88.2 = 11.8\%$

Required difference
 $= \frac{18 \times (23 - 15)}{5} = \frac{18 \times 8}{5} = \frac{144}{5} = 28.8$

Required ratio $\Rightarrow (15 + 12)\% :$

$\frac{150}{100} (18 + 32)\% \Rightarrow 27 \times 2 : 3 \times 50 \Rightarrow 9 : 25$

Sum of articles sold by both A and C in 17
 $= 18 \times 60 \times \frac{4}{3} + 12 \times 60 \times \frac{7}{6}$
 $= 18 \times 20 \times 4 + 2 \times 60 \times 7$
 $= 1440 + 840 \Rightarrow 2280$

Required difference
 $= \frac{1}{2} \times \frac{6000}{100} [(12 + 23) - (18 + 15)]$
 $= 30[35 - 33] = 60$

Total articles sold now = $\frac{4}{3} \times 6000 = 8000$

Required difference = $\frac{8000}{100} [(15 + 32) - (18 + 23)]$
 $= \frac{8000}{100} (47 - 41) = 80 \times 6 = 480$

Required percentage = $\frac{370}{560} \times 100 \approx 66\%$

$260 \times \frac{75}{100} + 280 \times \frac{120}{100} =$
 $195 + 336 = 531 \text{ hundreds}$
 $= 53100$

Female in museum A = 9600
 Female in museum B = 13600

Total female visitors = 23200
 $280 + 170 + 340 + 370 + 300 = 1460$ hundred
 $= 146000$

Required ratio = $\frac{450}{540} = 5 : 6$

Series is +14, +28, +56, +112, +224
 So, ? = $71 + 56$

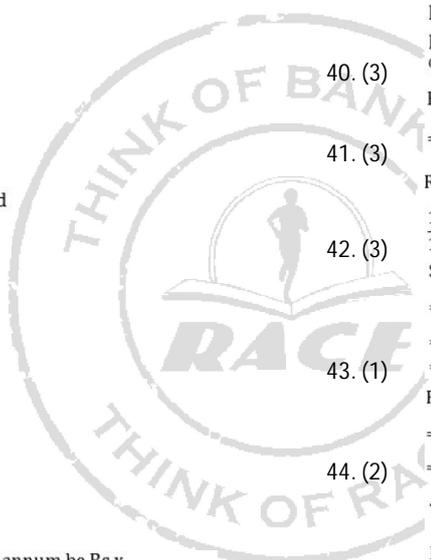
= 127

Series is $+2^2 + 1, +3^2 - 1, +4^2 + 1, +5^2 - 1, +6^2 + 1$

So, ? = $57 + 6^2 + 1$
 $= 57 + 37$

= 94

53. (1) Series is $\times 0.5, \times 1, \times 2, \times 4, \times 8$



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So, ? = $60 \times 8 = 480$
 Series is $\times 1+1, \times 2+2, \times 3+3, \times 4+4, \times 5+5$
 So, ? = $88 \times 5 + 5$

54. (3)

Series is
 $\div 2, \div 4, \div 8, \div 16, \div 32$

55. (2)

So, ? = $512 \div 4 = 128$
 Let average expenditure = x
 so $\frac{7 \times 20 + 21 + x}{8} = x \Rightarrow x = 23$

56. (4)

Total expenditure = $7 \times 20 + 23 + 21 = 184$
 They will complete x unit of work in = $\frac{20 \times 25}{45} = \frac{100}{9}$ days
 Total value of x unit = $\frac{20}{9} \times 5 = 36 \times 5 = 180$ units

57. (2)

A will complete $\frac{180}{20} \times 8$ unit in 8 days = 72 units
 Two day work of A = $\frac{2}{10} = \frac{1}{5}$
 Remaining work = $\frac{4}{5}$

58. (1)

One day work of B and C = $\frac{20 + 15}{15 \times 20} = \frac{35}{15 \times 20} = \frac{7}{60}$
 $\frac{4}{7}$ of work will be finished in $\frac{60}{7} \times \frac{4}{5}$ day
 = $\frac{48}{7}$ days

59. (1)

Required Probability = $\frac{5}{23} + \frac{8}{23} = \frac{13}{23}$

60. (2)

$6x \times 5x = 4320$
 $30x^2 = 4320$
 $x = 12$
 Length of diagonal
 $= \sqrt{(6 \times 12)^2 + (5 \times 12)^2} = 12\sqrt{61}$
 $\approx x^2 - 900 = 30 \times 3 - 29$
 $\approx x^2 = 990 - 29$
 $\approx x = 31$

61. (5)

$\approx \frac{55}{100} \times 400 + \frac{50}{100} \times 600 - 500 = \sqrt{x}$
 $\approx 55 \times 4 + 50 \times 6 - 500 = \sqrt{x}$
 $\approx \sqrt{x} = 20 \Rightarrow x = 400$

62. (3)

$\approx 32 + 8 + 31 + x = \frac{25}{100} \times 700$
 $\approx 71 + x = 25 \times 7$

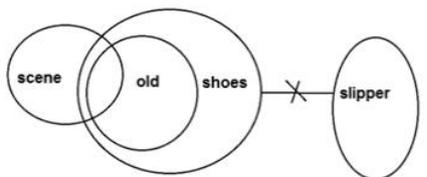
63. (1)

$\approx x = 104$
 $\approx \frac{350}{50} + (10)^2 \times 20 = x^3 - \frac{19}{100} \times 1000$
 $\approx 7 + 2000 = x^3 - 190$
 $\approx x^3 = 2007 + 190$

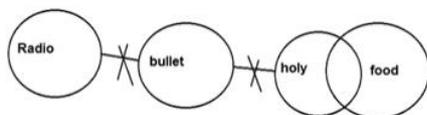
64. (4)

$\approx x = 13$
 $\approx 729 + 256 + \sqrt{x} = \frac{20}{100} \times 5000$
 $\approx \sqrt{x} = 15$

65. (5)

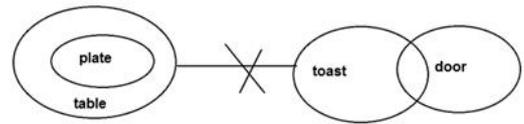


66. (5)

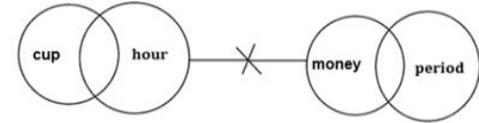


67. (3)

68. (4)

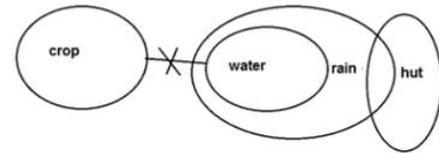


69. (3)



70. (1)

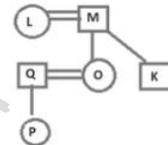
71-73. (3)



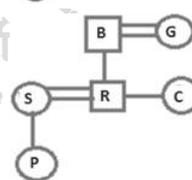
71. (1)

72. (5)

73. (2)



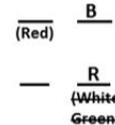
74. (5)



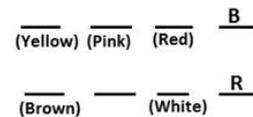
75. (1)

76-80. (3)

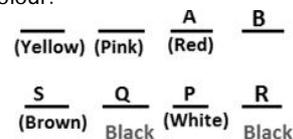
Step-1:- The person who likes Red faces the one who sits on the immediate left of R. R neither likes White nor Green colour. B sits on the immediate left of the person who likes Red colour.



Step-2:- There is only one person sitting between the persons who like White colour and Brown colour but that person is not R. The person who likes White colour and Green colour are not sitting at the extreme ends. The persons who likes yellow and Pink colour are immediate neighbors. The person who likes Pink colour faces the person who sits on the left of the person who likes White colour



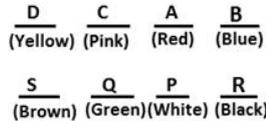
Step-3:- S faces the one who is sitting on the immediate right of the person who likes Pink colour. A does not likes Pink or Yellow colour. P does not face the person who likes Pink colour. An immediate neighbour of A faces the person likes Black colour.



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Step-4:- The person who likes White colour and Green colour are not sitting at the extreme ends. C and Q are not sitting at any of the ends.



- 76. (3)
- 77. (4)
- 78. (1)
- 79. (4)
- 80. (1)

I. $H = K \geq J \geq L = F \geq G$ (False)
 II. $H = K \geq J \geq L = F \geq G$ (False)

81. (3)

I. $U < T > S > R$ (False)
 II. $T > S > R > P$ (True)

82. (2)

I. $Z < W \leq V \leq U$ (False)
 II. $W \leq V \leq U < T$ (True)

83. (2)

I. $P > O > M > L > K$ (True)
 II. $N > M < O$ (False)

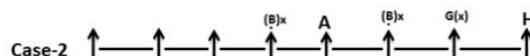
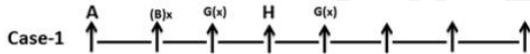
84. (1)

I. $B < A > D \leq E$ (False)
 II. $C > A > D \leq E$ (False)

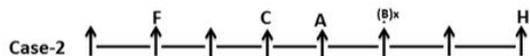
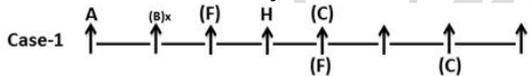
85. (4)

86-90.

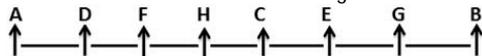
Step-1:- Either A or H sits at the extreme end of the row. A is sitting third to the left of H. No two successive members are sitting together according to alphabetical order. There must be 2 possible cases:-



Step-2:- C sits second to the right of F who is not neighbor of A. Neither F nor C sits at any extreme end of the row.



Step-3:- B sits second to the right of E. From this statement case 2 has been eliminated. Because only one possible place is left for E and B then C and B cannot sit together so that we conclude the arrangement.



- 86. (1)
- 87. (4)
- 88. (2)
- 89. (2)
- 90. (1)

Step1. As per data given in the question, D plays for BLACK EAGLES and likes Violet. H likes White and G likes Indigo. E does not like Blue and plays for the same team with H. A and C both play for DALLAS BLUES. The one who plays for DALLAS BLUES does not like Orange. C does not like Red. B likes Green.

Player	Team	Colour
A	DALLAS BLUES	(xOrg)
B		Green
C	DALLAS BLUES	(xRed xOrg)
D	BLACK EAGLES	Violet
E	Same as H	(xBlue)
F		
G		Indigo
H	Same as E	White

Step2. As it is also given in the question that the only other person in the same team with D likes blue, it means E and H will play for Red Giants. F likes Blue and plays for Black Eagles as there is no other possible position for blue. From the question, B do not play for RED GIANTS. No one from DALLAS BLUES likes White.

We get our final solution as,

Player	Team	Colour
A	DALLAS BLUES	Red
B	DALLAS BLUES	Green
C	DALLAS BLUES	Yellow
D	BLACK EAGLES	Violet
E	RED GIANTS	Orange
F	BLACK EAGLES	Blue
G	RED GIANTS	Indigo
H	RED GIANTS	White

- 91. (2)
- 92. (1)
- 93. (3)
- 94. (4)
- 95. (5)

Words	Codes
Yoga	gmo
Culture	til
of	ga
Indian	su
Respect	zo
Holy	kil
Hard /on	ye/na
Spiritual	da
Energy	ra
Conclude	nic

- 96-100.
- 96. (5)
- 97. (4)
- 98. (2)
- 99. (5)
- 100. (2)