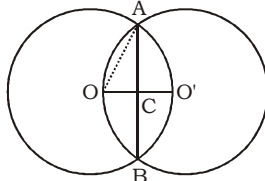


RPF MOCK TEST – 10 (SOLUTION)

51. (B)



$$OC = 3 \text{ cm}$$

$$OA = 6 \text{ cm}$$

$$\therefore AC = \sqrt{6^2 - 3^2}$$

$$\Rightarrow AC = \sqrt{36 - 9}$$

$$\Rightarrow AC = \sqrt{27} = 3\sqrt{3}$$

$$\Rightarrow AB = 6\sqrt{3} \text{ cm}$$

52. (C) Let CP of article be x

$$\text{SP at 15\% gain} = \frac{115x}{100} = \frac{23x}{20}$$

$$\text{New CP} = ₹ \frac{90x}{100}$$

$$\text{New SP} = ₹ \frac{90x}{100} \times \frac{125}{100} = ₹ \frac{9x}{8}$$

ATQ,

$$\frac{23x}{20} - \frac{9x}{8} = 4$$

$$\Rightarrow \frac{46x - 45x}{40} = 4$$

$$\Rightarrow x = 40 \times 4 = ₹ 160$$

53. (A) ATQ,

$$a_4 = a + (4 - 1) \times d$$

$$\Rightarrow 16 = a + 3d$$

$$\Rightarrow a = 16 - 3d \dots\dots(i)$$

$$\text{Also, } 80 = a + 11d \dots\dots(ii)$$

After putting the value of a from equation (i) in equation (ii),

$$\Rightarrow 16 - 3d + 11d = 80$$

$$\Rightarrow 8d = 80 - 16 = 64$$

$$\Rightarrow d = 8$$

$$\Rightarrow a = 16 - 24 = -8$$

54. (C) Let large number = x

$$\text{Smaller number} = 520 - x$$

ATQ,

$$\frac{96x}{100} = \frac{(520 - x)}{100} \times 112$$

$$\Rightarrow 96x = 520 \times 112 - 112x$$

$$\Rightarrow 112x + 96x = 520 \times 112$$

$$\Rightarrow 208x = 520 \times 112$$

$$\Rightarrow x = \frac{520 \times 112}{208} = 280$$

$$\therefore \text{Smaller number} = 520 - 280 = 240$$

55. (B) Let the CP of each shirt be ₹ 100, then
SP = ₹ 140

$$\therefore \text{New SP} = \frac{140 \times 90}{100} = ₹ 126$$

\therefore When SP is ₹ 126

$$\text{CP} = ₹ 100$$

$$\therefore \text{When SP is } \frac{13608}{72}$$

$$\text{then, CP} = \frac{100}{126} \times \frac{13608}{72} = ₹ 150$$

56. (D) Let the first investment be $3x$
Then, second investment be $5x$
combined loss %

$$= \frac{3x \times \frac{15}{100} - 5x \times \frac{10}{100}}{3x + 5x} \times 100$$

$$= \frac{45x - 50x}{8x} \times 100$$

$$= \frac{-5x}{8x \times 100} \times 100$$

$$= \frac{-5}{8} \text{ percent or } \frac{5}{8} \% \text{ loss } \text{ [-ve sign shows loss.]}$$

57. (C) ATQ,

$$x^2 + 4y^2 + z^2 - 2x - 4y - 2z + 3 = 0$$

$$\Rightarrow x^2 - 2x + 1 + 4y^2 - 4y + 1 + z^2 - 2z + 1 = 0$$

$$\Rightarrow (x - 1)^2 + (2y - 1)^2 + (z - 1)^2 = 0$$

$$\Rightarrow x - 1 = 0 \Rightarrow x = 1$$

$$2y - 1 = 0 \Rightarrow y = \frac{1}{2}$$

$$z - 1 = 0 \Rightarrow z = 1$$

$$\Rightarrow x + y + z = 1 + \frac{1}{2} + 1 = 2\frac{1}{2}$$

58. (A) ATQ,

$$x = \sqrt{2\sqrt[3]{4}\sqrt{2\sqrt[3]{4}}\dots\dots}$$

On squaring,

$$x^2 = 2\sqrt[3]{4}\sqrt{2\sqrt[3]{4}}\dots\dots$$

On cubing,

$$x^6 = 8 \times 4x$$

$$\Rightarrow x^5 = 32 = 2^5 \Rightarrow x = 2$$

59. (C) Let the merchant bought 100 metres of cloth for ₹ 100

$$\therefore \text{Total SP} = ₹ \left(\frac{50 \times 140}{100} + \frac{25 \times 60}{100} + 25 \right)$$

$$= ₹ (70 + 15 + 25) = ₹ 110$$

$$\therefore \text{Gain percent} = 10\%$$

60. (B) $(2 \text{ men} + 3 \text{ women}) \times 10$
 $= (3 \text{ men} + 2 \text{ women}) \times 8$
 $\Rightarrow 20 \text{ men} + 30 \text{ women}$
 $= 24 \text{ men} + 16 \text{ women}$
 $\Rightarrow 4 \text{ men} = 14 \text{ women}$
 $\Rightarrow 2 \text{ men} = 7 \text{ women}$
 $\therefore 2 \text{ men} + 3 \text{ women} = 10 \text{ women}$
 $\therefore 2 \text{ men} + 1 \text{ women} = 8 \text{ women}$
 $\therefore M_1 D_1 = M_2 D_2$
 $\Rightarrow 10 \times 10 = 8 \times D_2$
 $\Rightarrow D_2 = \frac{25}{2} = 12\frac{1}{2} \text{ days}$

61. (B) ATQ,

$$\frac{SI}{CI} = \frac{rt}{100 \left[\left(1 + \frac{r}{100}\right)^t - 1 \right]}$$

$$= 100 \left[\left(1 + \frac{4}{100}\right)^2 - 1 \right] = 25 \left(\frac{676}{625} - 1 \right)$$

$$= \frac{2 \times 625}{25 \times 51}$$

$$\frac{SI}{CI} = \frac{50}{51} = 50 : 51$$

62. (C) Let the first CP of the commodity be ₹ 100
 \therefore First SP = ₹ 110
 Second CP = ₹ 90
 Gain = $\frac{50}{3}\%$

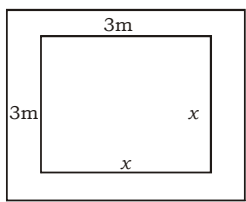
$$\therefore \text{Second SP} = \left(100 + \frac{50}{3}\right)\% \text{ of } ₹ 90$$

$$= \left(90 \times \frac{350}{300}\right) = ₹ 105$$

Difference of SP = ₹ (110 - 105) = ₹ 5
 \therefore If the difference is ₹ 5, then CP = ₹ 100
 \therefore If the difference be ₹ 2

$$\text{then, CP} = \frac{100}{5} \times 2 = ₹ 40$$

63. (B) For first 6 year
 $\frac{x \times r \times 6}{100} = ₹ 250$
 Next 6 year, principle is double i.e.
 $\frac{2x \times r \times 6}{100} = 2 \times 250 = ₹ 500$
 \Rightarrow Total interest at the end of 12 years is $250 + 500 = ₹ 750$

64. (B) 
 ATQ,
 $(x + 6)^2 - x^2 = 96$
 $\Rightarrow x^2 + 36 + 12x - x^2 = 96$
 $\Rightarrow 12x = 60 \Rightarrow x = 5$
 Area of square room = $5^2 = 25 \text{ sq. m.}$

65. (C) ATQ,

Days	Efficiency
A \rightarrow 10	6
B \rightarrow 12	60 \rightarrow 5
C \rightarrow 15	4

 Total work = 60
 A left the work before 5 days of completion i.e. work left of B is
 $5 \times 3 = 15$
 Now, total work = $60 + 30 + 15 = 105$
 work done = $\frac{105}{6 + 5 + 4} = \frac{105}{15} = 7 \text{ days}$

66. (C) ATQ,

$$\left[\sqrt[3]{\sqrt[6]{5^9}} \right]^4 \left[\sqrt[6]{\sqrt[3]{5^9}} \right]^4$$

$$= \left[\left\{ (5^9)^{1/6} \right\}^{1/3} \right]^4 \left[\left\{ (5^9)^{1/3} \right\}^{1/6} \right]^4$$

$$= \left(5^{9 \times \frac{1}{6} \times \frac{1}{3} \times 4} \right) \left(5^{9 \times \frac{1}{3} \times \frac{1}{6} \times 4} \right) = (5^2) (5^2) = 5^4$$

67. (B) ATQ,
 $\sin \theta = -\frac{12}{13}$
 $\sec \theta = -\frac{1}{\sqrt{1 - \sin^2 \theta}} = -\frac{1}{\sqrt{1 - \left(\frac{12}{13}\right)^2}} = -\frac{1}{\sqrt{\frac{25}{169}}}$
 $\Rightarrow \sec \theta = -\frac{13}{5}$

68. (B) ATQ,

$H_1 = 100$	$H_2 = 115$
$R_1 = 100$	$R_2 = 90$
Curved surface area = $2\pi rh$	
$2\pi R_1 H_1$	$2\pi R_2 H_2$
$\Rightarrow 100 \times 100$	$\Rightarrow 115 \times 90$
$\Rightarrow 90,000$	$\Rightarrow 10350$
$\Rightarrow 200$	$\Rightarrow 207$
Increase = $207 - 200 = 7$	
% increase = $\frac{\text{increase}}{\text{original}} \times 100\%$	
$= \frac{7}{200} \times 100 = 3.5\%$	

69. (A) Let the duration of flight be t hours.

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

$$\text{And, } S_1 - S_2 = 200 \text{ km/h}$$

ATQ,

$$\frac{600}{t} - \frac{600}{t + \frac{1}{2}} = 200$$

$$\Rightarrow (2t + 1) 600 - t \times 1200 = 200t(2t + 1)$$

$$\Rightarrow 3(2t + 1) - 6t = 2t^2 + t$$

$$\Rightarrow 2t^2 + t - 3 = 0$$

$$\Rightarrow 2t^2 + 3t - 2t - 3 = 0$$

$$\Rightarrow t(2t + 3) - 1(2t + 3) = 0$$

$$\Rightarrow (2t + 3)(t - 1) = 0 \Rightarrow t = -3, 1$$

$$t = 1 \text{ hr (ignore the -ve value of } t)$$

70. (A) ATQ,

$$x + y = 2z$$

$$\Rightarrow x = 2z - y$$

$$\Rightarrow x - z = 2z - y - z = z - y$$

$$\therefore \frac{x}{x-z} + \frac{z}{y-z} = \frac{x}{x-z} - \frac{z}{z-y}$$

$$= \frac{x}{x-z} - \frac{z}{x-z} = \frac{x-z}{x-z} = 1$$

71. (D) Let the person buy 30 pencils.
(as LCM of 6 & 5 is 30)

$$\text{CP of 6 pencils} = ₹ 5$$

$$\text{CP of 30 pencils} = \frac{5}{6} \times 30 = ₹ 25$$

$$\text{SP of 6 pencils} = ₹ 6$$

$$\text{SP of 30 pencils} = \frac{6}{5} \times 30 = ₹ 36$$

$$\therefore \text{Gain} = ₹ (36 - 25) = 11$$

$$\text{Gain percent} = \frac{11}{25} \times 100 = 44\%$$

72. (C) ATQ,

$$\sqrt{\frac{\sqrt{36} - \sqrt{24} + \sqrt{24} - \sqrt{16}}{5 + \sqrt{24}}}$$

$$= \sqrt{\frac{6-4}{5+\sqrt{24}}} = \sqrt{\frac{2}{5+\sqrt{24}}} = \sqrt{\frac{2}{5+\sqrt{6 \times 4}}}$$

$$= \sqrt{\frac{2}{5+2\sqrt{6}}} = \sqrt{\frac{2}{5+2\sqrt{6}} \times \frac{5-2\sqrt{6}}{5-2\sqrt{6}}}$$

$$= \sqrt{\frac{2(5-2\sqrt{6})}{25-24}} = \sqrt{2(5-2\sqrt{6})}$$

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

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

73. (A) LCM of 18, 36, 45 and 60 = 180

$$\text{Now, } \frac{17}{18} = \frac{17 \times 10}{18 \times 10} = \frac{170}{180}$$

$$\frac{31}{36} = \frac{31 \times 5}{36 \times 5} = \frac{155}{180}$$

$$\frac{43}{45} = \frac{43 \times 4}{45 \times 4} = \frac{172}{180}$$

$$\frac{59}{60} = \frac{59 \times 3}{60 \times 3} = \frac{177}{180}$$

Since, $155 < 170 < 172 < 177$,

$$\text{So, } \frac{155}{180} < \frac{170}{180} < \frac{172}{180} < \frac{177}{180}$$

$$\text{Hence, } \frac{31}{36} < \frac{17}{18} < \frac{43}{45} < \frac{59}{60}$$

74. (B) Let the age of Manoj = x and the age of Manoj's father = $5x$

ATQ,

$$x + 16 - \frac{3}{7}(5x + 16)$$

$$\Rightarrow 7x + 112 = 15x + 48$$

$$\Rightarrow 8x = 64$$

$$\Rightarrow x = 8$$

$$\therefore \text{Age Manoj's father} = 8 \times 5 = 40 \text{ years}$$

75. (C) ATQ,

$$\text{Interior angle} - \text{exterior angle} = 60^\circ$$

$$\frac{(n-2) \times 180}{n} - \frac{360}{n} = 60$$

$$\Rightarrow \frac{1}{n} [(n-2) \times 180 - 360] = 60$$

$$\Rightarrow \frac{1}{n} [180n - 360 - 360] = 60$$

$$\Rightarrow \frac{1}{n} [180n - 720] = 60$$

$$\Rightarrow 180n - 720 = 60n$$

$$\Rightarrow 120n = 720$$

$$\Rightarrow n = \frac{720}{120} = 6$$

76. (B) Let the highest score be x .

$$\text{Then, lowest score} = (x - 150)$$

$$\text{Then, } (50 \times 40) - [x + (x - 150)] = 38 \times 48$$

$$\Rightarrow 2x = 2000 + 150 - 1824$$

$$\Rightarrow 2x = 326$$

$$\Rightarrow x = 163$$

77. (B) Let capacity of container = x

ATQ,

$$\frac{x \times 80}{100} \left(1 - \frac{5}{x}\right) \left(1 - \frac{15}{x}\right) = \frac{x+15}{100}$$

$$\Rightarrow 16 \left(1 - \frac{5}{x}\right) \left(1 - \frac{15}{x}\right) = 11$$

$$\Rightarrow 16(x^2 - 20x + 75) = 11x^2$$

$$\begin{aligned} \Rightarrow 16x^2 - 320 + 1200 &= 11x^2 \\ \Rightarrow 5x^2 - 320 + 1200 &= 0 \\ \Rightarrow x^2 - 64x - 240 &= 0 \\ \Rightarrow (x - 60)(x - 4) &= 0 \\ \Rightarrow x &= 60 \end{aligned}$$

78. (A) ATQ,

$$5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5} = \frac{\text{Perpendicular}}{\text{Base}}$$

$$\text{Now, } \frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 3 \cos \theta} = \frac{5 \tan \theta - 3}{5 \tan \theta + 3}$$

$$\begin{aligned} &= \frac{5 \times \frac{4}{5} - 3}{5 \times \frac{4}{5} + 3} = \frac{1}{7} \end{aligned}$$

79. (D) Let the third proportional to $(x^2 - y^2)$ and $(x - y)$ be z , then

$$\begin{aligned} (x^2 - y^2) : (x - y) &:: (x - y) : z \\ \Rightarrow (x^2 - y^2) \times z &= (x - y)^2 \\ \Rightarrow z &= \frac{(x - y)^2}{(x^2 - y^2)} = \frac{(x - y)}{(x + y)} \end{aligned}$$

80. (C) ATQ,

Volume of the new cube = sum of volumes of all five cubes

$$\begin{aligned} \therefore a^3 &= a_1^3 + a_2^3 + a_3^3 + a_4^3 + a_5^3 \\ \text{or, } a &= \sqrt[3]{a_1^3 + a_2^3 + a_3^3 + a_4^3 + a_5^3} \\ &= \sqrt[3]{9^3 + 6^3 + 3^3 + 3^3 + 1^3} \text{ cm} \\ &= \sqrt[3]{729 + 216 + 27 + 27 + 1} \text{ cm} = \sqrt[3]{1000} \text{ cm} \\ &= 10 \text{ cm} \end{aligned}$$

81. (D) Required average number of students

$$\begin{aligned} &= \frac{460 + 420 + 350 + 400 + 350}{5} \\ &= 396 \end{aligned}$$

82. (A) Required percentage = $\frac{360 + 250}{320 + 300} \times 100$
= 98.39%

83. (C) Required percentage

$$\begin{aligned} &= \frac{500 \times 100}{250 + 300 + 320 + 500 + 350} \\ &= 29.06\% \end{aligned}$$

84. (A) Required ratio = $350 + 400 : 400 + 350$
= 1 : 1

85. (C) Required average

$$\begin{aligned} &= \frac{300 + 350 + 350 + 220 + 320}{5} \\ &= 308 \end{aligned}$$

86. (C) Total number of IITs in India is 23 and the total number of NITs in India is **31**.

87. (A)

88. (A) As, $36 - 81 \Rightarrow 36 + 3^2 + 6^2 = 81$
Similarly, $54 - 95 \Rightarrow 54 + 5^2 + 4^2 = 95$

89. (A) As, $\frac{1+8+7+8}{4} = 4$

$$\text{Similarly, } \frac{9+7+2}{3} = 6$$

90. (B) Sushma Sawraj is the minister of external affairs and Parkash Javadekar is the minister of **Human resource development**.

91. (D) Except **Hydrabad**, all others are the world heritage cities.

92. (D) Number of heritage sites in **Bihar** is 2. While in all others, the total number of heritage site is 3.

93. (C) $12 - 42 \Rightarrow 2 \times 2, 1 \times 2 \Rightarrow 42$
 $24 - 84 \Rightarrow 4 \times 2, 2 \times 2 \Rightarrow 84$
 $23 - 68 \Rightarrow 3 \times 2, 2 \times 2 \Rightarrow 64 \neq 68$
 $31 - 26 \Rightarrow 1 \times 2, 3 \times 2 \Rightarrow 26$

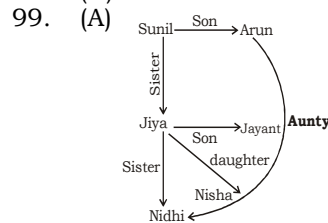
94. (B) Except **CFIN**, in all other is added next letter to get the next one letter.

95. (B) Except **961**, all others are made of odd digits only.

96. (C) As, $9 + 12 - 10 = 11$
and, $12 + 16 - 17 = 11$
Similarly,
 $6 + 11 - 6 = 11$

97. (A) As, $\sqrt{9} + \sqrt{16} - \sqrt{4} = \sqrt{25}$
and, $\sqrt{9} + \sqrt{4} - \sqrt{1} = \sqrt{16}$
Similarly,
 $\sqrt{49} + \sqrt{36} - \sqrt{25} = \sqrt{64}$

98. (B)



100. (D) Let the present age of Vipin = x years
 \therefore Present age of Vipin's father = $3x$
ATQ,
 $3(3x - 6) = 72$
 $\Rightarrow 9x = 90$
 $\Rightarrow x = 10$
 \therefore Present age of Vipin = **10 years**

101. (B)

102. (A)

103. (D)

104. (D) $8, 14, 28, 32, 64, 66$
 $+6 \quad \times 2 \quad +4 \quad \times 2 \quad +2$

105. (A) $26, 34, 41, 46, 56$
 $+2+6 \quad +3+4 \quad +4+1 \quad +4+6$

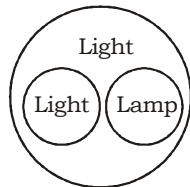
106. (A) $(4)^2, (4 + 4)^2, (8 + 4)^2, (12 + 8)^2, (20 + 8)^2$
= **784**

107. (B) $54 \div 6 + 3 > 6 + 3$
 $\Rightarrow 12 > 9$

KD
Campus
KD Campus Pvt. Ltd

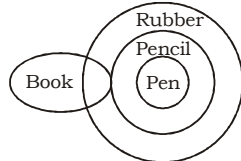
2007, OUTRAM LINES, 1ST FLOOR, OPPOSITE MUKHERJEE NAGAR POLICE STATION, DELHI-110009

108. (A)



109. (A) abc/bca/cab/abc/bca

110. (A)



Hence, only conclusion (I) follows.

111. (C) As, $8 \times 7 - 8 - 7 = 41$
and, $9 \times 8 - 9 - 8 = 55$

Similarly,

$$7 \times 6 - 7 - 6 = 29$$

112. (C) As, $8 \times 7 - 7 \times 2 = 42$
and, $7 \times 6 - 6 \times 2 = 30$

Similarly,

$$9 \times 8 - 8 \times 2 = 56$$

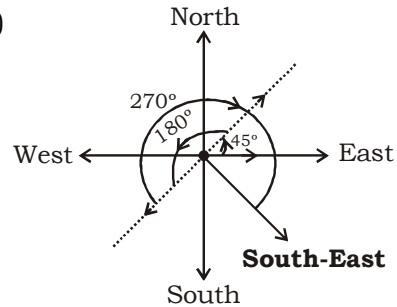
113. (B) Required time = $18 : 30 - 11 : 25$
= $7 : 05$

Hence, water image of $11 : 25$ is $7 : 05$.

114. (C)

115. (C)

116. (B)



Hence, his face is in **South-East** Direction.

117. (D) Let number of students who belong to both club = x

ATQ,

$$(25 - x) + (21 - x) = 34$$

$$\Rightarrow 46 - 2x = 34$$

$$\Rightarrow x = 6$$

118. (C)

119. (B)

120. (B) Total number of triangles = **16**

Answer key

1. (A)	16. (D)	31. (A)	46. (A)	61. (B)	76. (B)	91. (D)	106. (A)
2. (C)	17. (C)	32. (C)	47. (D)	62. (C)	77. (B)	92. (D)	107. (B)
3. (D)	18. (D)	33. (B)	48. (B)	63. (B)	78. (A)	93. (C)	108. (A)
4. (A)	19. (D)	34. (A)	49. (D)	64. (B)	79. (D)	94. (B)	109. (A)
5. (B)	20. (A)	35. (D)	50. (B)	65. (C)	80. (C)	95. (B)	110. (A)
6. (C)	21. (C)	36. (D)	51. (B)	66. (C)	81. (D)	96. (C)	111. (C)
7. (C)	22. (B)	37. (B)	52. (C)	67. (B)	82. (A)	97. (A)	112. (C)
8. (B)	23. (B)	38. (B)	53. (A)	68. (B)	83. (C)	98. (B)	113. (B)
9. (A)	24. (A)	39. (B)	54. (C)	69. (A)	84. (A)	99. (A)	114. (C)
10. (D)	25. (A)	40. (A)	55. (B)	70. (A)	85. (C)	100. (D)	115. (C)
11. (D)	26. (B)	41. (B)	56. (D)	71. (D)	86. (C)	101. (B)	116. (B)
12. (A)	27. (A)	42. (D)	57. (C)	72. (C)	87. (A)	102. (A)	117. (D)
13. (C)	28. (C)	43. (D)	58. (A)	73. (A)	88. (A)	103. (D)	118. (C)
14. (A)	29. (C)	44. (B)	59. (C)	74. (B)	89. (A)	104. (D)	119. (B)
15. (C)	30. (B)	45. (D)	60. (B)	75. (C)	90. (B)	105. (A)	120. (B)

Note:- If your opinion differs regarding any answer, please message the mock test and question number to 8860330003

Note:- Whatsapp with Mock Test No. and Question No. at 7053606571 for any of the doubts, also share your suggestions and experience of Sunday Mock

Note:- If you face any problem regarding result or marks scored, please contact 9313111777