RPF MOCK TEST – 5 (SOLUTION)

51. (D) Original volume = $\frac{1}{3}\pi r^2 h$

New radius = $\frac{r}{2}$ and new height = 2h

New volume = $\frac{1}{3}\times\pi\times\left(\frac{r}{2}\right)^2\times 2h$

$= \frac{\pi r^2 h}{6}$

$\therefore$ Decrease = $\frac{\frac{1}{6}\pi r^2 h}{\frac{1}{3}\pi r^2 h}\times 100 = 50\%$

52. (C) Total cost price = 180 × 10 + 200 = ₹2000
Total selling price = 180 × 12 × 0.80
= ₹1728
Loss = ₹2000 – ₹1728 = ₹272

Loss % = $\frac{272}{2000}\times 100 = 13.6\%$

53. (D) ATQ,

$x+\frac{1}{x} = \sqrt{3}$

Cubing both sides,

$x^3 + \frac{1}{x^3} + 3\left(x+\frac{1}{x}\right) = \left(\sqrt{3}\right)^3$

$\Rightarrow x^3 + \frac{1}{x^3} + 3\sqrt{3} = 3\sqrt{3}$

$\Rightarrow x^3 + \frac{1}{x^3} = 0$

Now, $x^{30} + x^{24} + x^{18} + x^{12} + x^6 + 1$
$= x^{24}(x^6 + 1) + x^{12}(x^6 + 1) + 1(x^6 + 1)$
$= (x^{24} + x^{12} + 1)(x^6 + 1)$

$= (x^{24} + x^{12} + 1).x^3\left(x^3+\frac{1}{x^3}\right) = 0$

54. (B) February 2015 = 28 days
Number of days, he was absent = 28 – 24
= 4 days
$\therefore$ Required salary = 24 × 800 – 4 × 1600
= ₹12800

55. (C) ATQ,

$\frac{1}{x} + \frac{1}{x+4} = \frac{3}{8} \Rightarrow \frac{x+4+x}{x(x+4)} = \frac{3}{8}$

$\Rightarrow \frac{2x+4}{x(x+4)} = \frac{3}{8} \Rightarrow 16x + 32 = 3x^2 + 12x$

$\Rightarrow (3x + 8)(x - 4) = 0$

$\therefore x = 4$

So, Q takes 4 hours to complete the work alone.

56. (D) Volume of the block = (10 × 15 × 1) cm³
= 150 cm³
Volume of the cone carved out

$= \frac{1}{3}\times\frac{22}{7}\times 3\times 3\times 14\ \text{cm}^3 = 132\ \text{cm}^3$

$\therefore$ Wood wasted = $(150 - 132)\times\frac{100}{150}\%$

= 12%

57. (B) ATQ,

$\frac{x-b-c}{a}+\frac{x-c-a}{b}+\frac{x-a-b}{c} = 3$

$\Rightarrow \frac{x-b-c}{a}-1+\frac{x-c-a}{b}-1+\frac{x-a-b}{c}-1$
$= 3 - 3$

$\Rightarrow \frac{x-b-c-a}{a}+\frac{x-c-a-b}{b}+\frac{x-a-b-c}{c} = 0$

$\Rightarrow (x - a - b - c)\left(\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right) = 0$

$\Rightarrow x = a + b + c\left[\because \frac{1}{a}+\frac{1}{b}+\frac{1}{c}\neq 0\right]$

58. (C) Required average

$= \frac{61+67+71+73+79+83+89+97}{8}$

$= \frac{620}{8}$
$= 77.5$

59. (B) Average speed = $\frac{7\times 4}{\frac{7}{10}+\frac{7}{20}+\frac{7}{30}+\frac{7}{60}}$

$= \frac{28}{\frac{42+21+14+7}{60}}$

$= \frac{28\times 60}{84} = 20$ km/hr

60. (C) Required ratio of average time = $\frac{\frac{5}{3}}{\frac{6}{5}}$

$= \frac{5}{3}\times\frac{5}{6} = \frac{25}{18}$
= 25 : 18

61. (B) A → 8, B → 3 → 24
$3 \times 6 = 18$
$8 \times 2 = \frac{16}{2}$
$\therefore$ Required number of days $= \frac{24-2}{3}$
$= \frac{22}{3} = 7\frac{1}{3}$ days

62. (B) Required number of diagonals
$= \frac{n(n-3)}{2} = \frac{8(8-3)}{2} = \frac{8\times5}{2} = 20$

63. (A) Let r be the radius.
ATQ,
$4\pi (r+2)^2 - 4\pi r^2 = 792$
$\Rightarrow (r+2)^3 - r^2 = \frac{792}{4\pi}$
$\Rightarrow r^2 + 4r + 4 - r^2$
$= \frac{492\times7}{4\times22} = 63$
$\Rightarrow 4r = 63 - 4 = 59$
$\Rightarrow r = 14.75$ m
$\therefore$ Required radius = 14.75 m

64. (D) Ist person → 8 → 4
IInd person → 6 → 24 → 3
I + II + Boy → 3 → 8
$\therefore$ Share of boy $= \frac{1}{8}\times5000 = ₹625$

65. (C) ATQ,
$300 \times 31 = 27 \times 300 + 120 \times D$
$\Rightarrow 4 \times 300 = 120 \times D$
$\Rightarrow D = 10$
$\therefore$ Extra number of days $= (10 - 4)$
$= 6$ days

66. (D) By componendo and dividendo.
$\frac{(x^3+3x)+(3x^2+1)}{(x^3+3x)-(3x^2+1)} = \frac{234+109}{234-109}$
$\Rightarrow \frac{(x+1)^3}{(x-1)^3} = \frac{343}{125}$
$\Rightarrow \frac{(x+1)^3}{(x-1)} = \left(\frac{7}{5}\right)^2$
$\Rightarrow \frac{x+1}{x-1} = \left(\frac{7}{5}\right) \Rightarrow 5x + 5 = 7x - 7$
$\Rightarrow x = 6$

67. (C) $1 \times 3 \times 5 \times 7 \times$ .....$\times 99 \times 2^8$.
For calculating number of zeros we have to find the combination of 2 and 5. Here number of 2's is 8. So the maximum possible number of zeros is 8.

68. (B) ATQ,
$\frac{x}{100} \times 40 + \frac{60}{100} \times 40 = \frac{70}{100} \times 8$
$\Rightarrow \frac{40x + 2400}{100} = \frac{5600}{100}$
$\Rightarrow 40x + 2400 = 5600$
$\Rightarrow 40x = 3200$
$\therefore x = \frac{3200}{40} = 80$
$\therefore$ Required percent = 80

69. (D) Let A's cost be x
$\frac{110}{100} \times \frac{120}{100} \times \frac{125}{100} \times x = 16.5$
$x = \frac{16.5\times100\times100\times100}{110\times120\times125} = ₹10$
$\therefore$ Required cost = ₹10

70. (A) First number $= \left(\sqrt{5}\right)^2 = 5$
Let the second number be = x
$\therefore x^2 + 5^2 = 169$
$\Rightarrow x^2 = 169 - 25 = 144$
$\Rightarrow x = \sqrt{144} = 12$
$\therefore$ Cube of 12 = 1728

71. (B) Let the number of guavas eaten by him on the first day be x.
ATQ,
$x + x + 9 + x + 18 + x + 27 + x + 36 = 180$
$\Rightarrow 5x + 90 = 180$
$\Rightarrow 5x = 180 - 90 = 90$
$\Rightarrow x = \frac{90}{5} = 18$
$\therefore$ Required number of guavas = 18

72. (C)

Gold	Silver
80	20
95	5 × 4

$\Rightarrow$ diff. = 300 → 80 20, 380 20
100 units = 50 kg
$\therefore$ 1 unit $= \frac{1}{2}$g
Difference between 80 and 380
= 380 – 80 = 300 units = 150 gms

73. (C) Distance travelled by A
$= 2 \times \text{distance} \times \left(\frac{\text{Speed}_1}{\text{Speed}_1+\text{Speed}_2}\right)$
$= 2 \times 39 \times \frac{6}{13} = 36$ kms

74. (B) Let number of men be x.
According to the given date, we have

$$\frac{3680}{6\times 8}\times 2 = \frac{920}{2\times x}$$

[As daily wages of man is double of that of woman]

$$\Rightarrow x = \frac{920\times 6\times 8}{3680\times 2\times 2} = 3$$

$\therefore$ Required number of men = 3

75. (A) The given expression

$$= \frac{\frac{1}{4}\times 4\times \frac{1}{4}}{\frac{1}{4}\div\left(\frac{1}{4}\times\frac{1}{4}\right)} - \frac{1}{16} = \frac{\frac{1}{4}}{\frac{1}{4}\times 16} - \frac{1}{16}$$

$$= \frac{1}{16} - \frac{1}{16} = 0$$

76. (D) We have,

$$\frac{P\left(1+\frac{r}{100}\right)^8}{P\left(1+\frac{r}{100}\right)^7} = \frac{1107}{1080}$$

$$\Rightarrow 1 + \frac{r}{100} = \frac{1107}{1080}$$

$$\Rightarrow \frac{r}{100} = \frac{1107}{1080} - 1 = \frac{27}{1080}$$

$$\Rightarrow \frac{r}{100} = \frac{1}{40}$$

$$\Rightarrow r = \frac{100}{40} = 2.5\%$$

77. (A) Difference between CI & SI for 2 years at 5% rate = (10.25% – 10) = 0.25%
Required difference = 4280 off 0.25% = 10.7

78. (C) Volume of cistern = $\pi r^2 h$
$\pi r^2 h = 352{,}000\ cm^3$

$$\Rightarrow \frac{22}{7}\times\frac{40}{2}\times\frac{40}{2}\times h = 352000$$

$$\Rightarrow h = \frac{352000\times 7\times 2\times 2}{22\times 40\times 40}$$

$\Rightarrow h = 280$ cm = 2.8 m

79. (D) Let the amount invested at the rate of 6% = x
ATQ,

$$(10000 - x)\times\frac{5}{100} - \frac{x\times 6}{100} = 49$$

$$\Rightarrow 500 - \frac{5x}{100} - \frac{6x}{100} = 49$$

$$\Rightarrow \frac{11x}{100} = 451$$

$\Rightarrow x$ = ₹4100
Hence the amount invested at 6% = ₹4100

80. (C) Let CP of article = 100 unit
$\therefore$ Total profit

$$= 100\times\frac{3}{4}\times\frac{12}{100} - 100\times\frac{1}{4}\times\frac{16}{100}$$

= 9 – 4 = 5 unit
Now,
ATQ,
5 unit $\rightarrow$ ₹55

$$\therefore 100\text{ unit} \rightarrow \frac{55}{5}\times 100 = ₹1100$$

81. (C) ATQ,

$$\text{Distance covered} = 54\times\frac{7}{2}$$

$2\pi r = 189$

$$\Rightarrow r = \frac{189\times 7}{2\times 22} = 30.06 = 30\text{ (approx) m}$$

82. (C) Total profit required = ₹(42 × 18) = ₹756
Profit on 22 sarees = ₹(460 + 144) = ₹604
Profit on 20 saress = ₹(756 – 604) = ₹152
Average profit on these sarees

$$= ₹\left(\frac{152}{24}\right) = ₹6.33$$

83. (A) Required percentage increase

$$= \left(\frac{9-4}{4}\times 100\right)\% = 125\%$$

84. (B) Number of students getting at least 60% marks in Geography
= Number of students getting 30 and above marks in Geography = 21
= Number of students getting 20 and above marks in aggregate = 63

$$\text{Required percentage} = \left(\frac{21}{63}\times 100\right)\%$$

= 33.33%

85. (B) Let the required percentage be x.
Then, 80 – 80 off x% = 66

$$\Rightarrow 80 - \frac{4x}{5} = 66$$

$$\Rightarrow \frac{4x}{5} = 14$$

$\Rightarrow x = 17.5\%$
Required percentage = 17.5%

86. (A) The location of operation Blue star was at Punjab. While the location of operation Viraat was at **Srilanka**.

87. (D) B H W N H P G Z
+6, +8, +10, +12
Similarly,
G C F L **M K P X**
+6, +8, +10, +12

88. (B) As, 8 ÷ 2 – 1 = 3
Similarly, 10 ÷ 2 – 1 = 4

89. (D) As, 2, 4, 2, 4, 16, 4
×2, ×4, ×2
Similarly, 1, 1, 1, 1, 1, 1
×1, ×1, ×1

90. (B) As, 14 → 49 : (14×3)+(14÷2)
Similarly, 26 → **91** : (26×3)+(26÷2)

91. (D) Except **Meghdoot**, all others are the operations done by Navy while Meghdoot is done by Airforce.

92. (A) 120 = 5 × 4 × 3 × 2 × 1
24 = 4 × 3 × 2 × 1
720 = 6 × 5 × 4 × 3 × 2 × 1
840 is not the value of factorial of any natural number.

93. (C) 30 – 1 = 29 (Prime number)
38 – 1 = 37 (Prime number)
26 – 1 = 25 (not prime number)
44 – 1 = 43 (prime number)

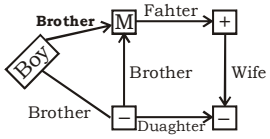
94. (D) Except **Indira Gandhi**, all others had got Bharat Ratna posthumously.

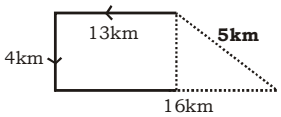
95. (D) B F J, K O S, G K O, **Z B F**
+4, +4, +4, +4, +4, +4, +3, +4

96. (A) As, $14^2 - 9^2 = 115$
and, $13^2 - 7^2 = 120$
Similarly, $18^2 - 9^2$ = **243**

97. (A) As, (12 × 8 × 5) ÷ 40 = 12
and, (9 × 9 × 4) ÷ 27 = 12
Similarly, (14 × 3 × 6) ÷ **21**

98. (D)

99. (D)


100. (B)


Required distance = $\sqrt{3^2 + 4^2}$ = **5 km**

101. (A) From figures 1 & 3,
$4 \leftrightarrow 1$
$\therefore$ **1** is opposite to 4.

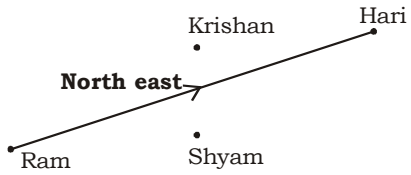
102. (A)

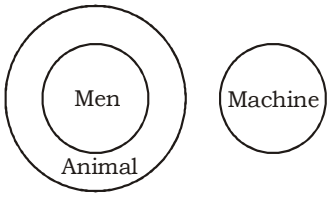
103. (D)

104. (A) 3, 10, 32, 111, **460,** 2315
×1+7, ×2+12, ×3+15, ×4+16, ×5+15
+5, +3, +1, –1
–2, –2, –2

105. (B) 3, 1.5, 1.5, 2.25, 4.5, **11.25**
$\times \frac{1}{2}$, ×1, ×1.5, ×2, ×2.5

106. (C) 3607, 1800, 897, 446, 221, **109**
–7÷2, –6÷2, –5÷2, –4÷2, –3÷2

107. (C)


108. (A)


109. (C) **ba**babb/ba**b**a**bb**

110. (D)

111. (B) As, 24 × (2 +4) = 144
and, 27 × (2 + 7) = 243
Similarly,
36 × (3+6) = **324**

112. (A) As, $(2 \times 1 \times 3)^2 = 36$
And, (3 × 2 × 4) = 576
Similarly, (2 × 8 × 8) = **16384**

113. (C)

114. (B)

115. (A)

116. (D)

117. (B)

118. (B) 24 A 6 D 4 C 28 B 16
After changing the signs according to question,
24 + 6 ÷ 4 × 28 – 16
= 24 + 42 – 16 = **50**

119. (C) Total number of triangles = **24**

120. (D) C R E E P
↓ ↓ ↓ ↓ ↓
42, 98, 41, 00, 34

Answer key

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

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