## RPF MOCK TEST - 1 (SOLUTION)

51. (C) Let the divisor $=\mathrm{D}(>17$ because remainder is 17)
Let the number is $x+17$
(where $x$ is multiple of D )
And, 17 is remainder.
Now, twice of the number $=2 x+34$
D $\longdiv { 2 x + 3 4 }$ $\frac{-\mathrm{D}}{15}$
So, $34-D=15$
$\Rightarrow D=34-15=19$
52. (B) Total runs till $15^{\text {th }}$ over:
$=15 \times 6.8$
$=102$ runs
Remaining runs $=178-102=76$
Then, required run rate $=\frac{76}{5}$
$=15.2$ run/over
53. (A) Actual divisor of $72=2,3,4,6,8,9$, $12,18,24,36$
The number of actual divisor $=10$
(Excluded 1 and 72)
54. (A) They did the work together for 9 days and then left.

The remaining work - A can do in $-\frac{1}{2}$ days | Remaining |
| :---: |
| work 3(LCM) |
| B units/days |

A $+B+C$ (together) $=13$ unit/day
So, remaining work can be completed
by A, B and C together $=\frac{3}{13}$ days
$\therefore$ Total work will completed in $=9+\frac{3}{13}$

$$
=9 \frac{3}{13} \text { days }
$$

55. (D)

| $\mathrm{A}+\mathrm{B}-18$ |
| :--- |
| $\mathrm{~B}+\mathrm{C}-24 \xrightarrow{4} \xrightarrow{4} \xrightarrow{4} 72$ |

$2 \mathrm{~A}+2 \mathrm{~B}+2 \mathrm{C}=8$ units/day
$\mathrm{A}+\mathrm{B}+\mathrm{C}=4$ units/days
Then, the work done by $\mathrm{A}+\mathrm{B}+\mathrm{C}$ in 4 days $=4 \times 4=16$ units
The part of work done by them $=\frac{16}{72}$

$$
=\frac{2}{9}
$$

56. (B) ATQ,
$\mathrm{R}=\frac{100 \times 2}{5}$
$R=40 \%$
Required time $=\frac{100 \times 4}{40}=10$ years
57. (C) For 2 years $\frac{\mathrm{P}}{1}: \frac{\mathrm{A}}{2.25}$

For 2 years
(do its square root) $\sqrt[2]{1}: \sqrt[2]{2.25}$
P : A

For 1 years $1: 1.5$
then rate $=\frac{.5}{1} \times 100=50 \%$
58. (A) First 111 whole numbers 0, 1, 2, 4, .....108, 109, 110

Total sum $=\frac{110 \times 111}{2}=6105$
$\Rightarrow 5$ (last + digit)
Required last digit $=5$
59. (D) Let A B


Then, required $\%=\frac{5}{6} \times 100=83 \frac{1}{3}$
60. (A) $600 \times \frac{5}{9} \times \frac{54}{100} \times \frac{45}{100}$ $=81$
61. (C) Let CP of article $=1$

CP of n articles $=\mathrm{n}$
SP of n articles $=20$
ATQ,
$\frac{x-20}{\mathrm{n}} \times 100=20$
$\Rightarrow 4 \mathrm{n}=100$
$\Rightarrow n=25$
62. (D) The profit percentage on $1^{\text {st }}=10 \%$

Now, he wants to make $25 \%$ profit on both over all.
So, if CP is same
$\frac{\lfloor 10 \%}{1}+\frac{\lfloor x \%}{1}=\frac{\lfloor 25 \%}{1}$
$1 \times 10 \%+1 \times x \%=2 \times 25 \%$
$\Rightarrow 10 \%+x \%=50 \%$
$\Rightarrow x \%=40 \%$
63. (A) $x^{2}+\frac{1}{x^{2}}=1$
then, $x+\frac{1}{x}=\sqrt{1+2}=\sqrt{3}$
So, $x^{6}=-1$
Now, given exp. $x^{72}+x^{66}+x^{54}+x^{24}+x^{6}+1$
$\Rightarrow\left(x^{6}\right)^{12}+\left(x^{6}\right)^{11}+\left(x^{6}\right)^{9}+\left(x^{6}\right)^{4}+x^{6}+1$
$\Rightarrow 1-1-1+1-1+1$
$\Rightarrow 0$
64. (B) $a^{2}+b^{2}+c^{2}=2(a+b-c)-3$
$\Rightarrow \mathrm{a}^{2}+\mathrm{b}^{2}+\mathrm{c}^{2}=2 \mathrm{a}+2 \mathrm{~b}-2 \mathrm{c}-3$
$\Rightarrow a^{2}+1-2 a+b^{2}+1-2 b+c^{2}+1+2 c-0$
$\Rightarrow(\mathrm{a}-1)^{2}+(\mathrm{b}-1)^{2}+(\mathrm{c}+1)^{2}=0$
So, $a-1=0 \Rightarrow a=1$
$b-1=0 \Rightarrow b=1$
$c+1=0 \Rightarrow c=-1$
Now, exp. $2 \mathrm{a}^{2}+3 \mathrm{~b}+2 \mathrm{c}^{2}$

$$
\begin{aligned}
& =2(1)^{2}+3(1)+2(-1)^{2} \\
& =2+3+2=7
\end{aligned}
$$

65. (B)


Area of cuboid is
$=2(10 \times 8+8 \times 2+2 \times 10)$
$=2 \times 116=232 \mathrm{~cm}^{2}$
subtract the are of hole face from it.
(hole face ABCD \& EFGH)
Area of $\square \mathrm{ABCD}+\square \mathrm{EFGH}=2 \times 2+2 \times 2$

$$
=8 \mathrm{~cm}^{2}
$$

Now, add the area of remaining four faces of cube $=4 \times 2 \times 2=16 \mathrm{~cm}^{2} \ldots$..(ii)
So, total surface area of cuboid
$=232-8+16$
$=240 \mathrm{~cm}^{2}$
66. (B) Length of car $=4 \mathrm{~m}$ length of truck $=20 \mathrm{~m}$ Speed of truck $=36 \mathrm{kmph}$
$=\frac{36 \times 5}{18}=10 \mathrm{~m} / \mathrm{s}$
Total distance which will be travelled during overtake $(\mathrm{d})=4+20=24 \mathrm{~m}$ time $(\mathrm{t})=10 \mathrm{sec}$
So, relative speed (same direction)
$\Rightarrow \mathrm{S}_{\mathrm{c}}-\mathrm{S}_{\mathrm{t}}=\frac{24}{10}$
$\Rightarrow \mathrm{S}_{\mathrm{c}}-10=2.4 \mathrm{~m} / \mathrm{s}$
(Car) $\mathrm{S}_{\mathrm{c}}=2.4+10=12.4 \mathrm{~m} / \mathrm{sec}$
67. (C) Expense on food $=\frac{54^{\circ}}{360} \times 100=15 \%$
68. (A) Accommodation + other $=80^{\circ}+90^{\circ}$
$=170^{\circ}$
Education $=100^{\circ}$
Exceed $\%=\frac{170^{\circ}-100^{\circ}}{100^{\circ}} \times 100=70 \%$
69. (C) Food : Others
$54^{\circ}: 90^{\circ}$
3 : 5
70. (A) ATQ,

$$
\begin{aligned}
& x-343=\frac{x \times 5 \times 6}{100} \\
& \Rightarrow 10 x-3430=3 x \\
& \Rightarrow 7 x=3430 \\
& \Rightarrow x=490
\end{aligned}
$$

71. (A) A
$x \mathrm{hr} \quad x-5 \mathrm{hr} \quad x-9 \mathrm{hr}$ ATQ,
$\frac{1}{x}+\frac{1}{x-5}=\frac{1}{x-9}$
$\Rightarrow(2 x-5)(x-9)=x^{2}-5 x$
$\Rightarrow x^{2}-18 x+45=0$
$\Rightarrow(x-15)(x-5)=0$
$\Rightarrow x=15$
72. (C) Let salary of $B=100$
and salary of $A=137.5$
Required percentage $=\frac{37.5}{137.5} \times 100$

$$
=27 \frac{3}{11} \%
$$

73. (C) $x=\sqrt{x y+\sqrt{x y+\sqrt{x y}}} \ldots \ldots \infty$
$x^{2}=(\sqrt{x y+x})^{2}$
$\Rightarrow x^{2}=x y+x$
$\Rightarrow x^{2}-x \mathrm{y}-x=0$
$\Rightarrow x^{2}-x(y+1)=0$
$\Rightarrow x(x-(y+1))=0$
$\Rightarrow x-\mathrm{y}-1=0 \quad \because x \neq 0$
$\Rightarrow y-x=-1$
74. (D)

$\mathrm{AC}^{2}=\mathrm{AB}^{2}+\mathrm{BC}^{2} \quad$ [pythogras theorem]

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$\mathrm{AC}^{2}=48^{2}+64^{2}$
$\Rightarrow A C=\sqrt{2304+4096}=80 \mathrm{~m}$
$\mathrm{M}=$ mid point of AC (also $\mathrm{DM} \perp \mathrm{AC}$ )
So, $\mathrm{DM}=\sqrt{50^{2}-40^{2}}=30 \mathrm{~m}$
Total area $=$ Area $\triangle \mathrm{ABC}+2 \times$ Area $(\triangle \mathrm{ADM})$
$=\frac{1}{2} \times 48 \times 64+2 \times\left(\frac{1}{2} \times 40 \times 30\right)$
$=24 \times 64+20 \times 30=2736 \mathrm{~m}^{2}$
75. (B) Volume of sphere $=$ Volume of wire
$\frac{4}{3} \pi \times 3^{3}=\pi r^{2} .3600$
$\Rightarrow \frac{4}{3} \pi \times 3 \times 3 \times 3=\pi r^{2} .3600$
$\Rightarrow 1=100 \mathrm{r}^{2}$
$\Rightarrow \mathrm{r}^{2}=\frac{1}{100} \Rightarrow \mathrm{r}=\frac{1}{10}=0.1 \mathrm{~cm}$
$\therefore \mathrm{r}=0.1 \mathrm{~cm}$
76. (B) $\left(x^{6}-1\right),\left(x^{36}-1\right)$
$\left.\left(x^{36}-1\right)=\left(x^{6}\right)^{6}-1\right)=\left(x^{6}-1\right)$
As, $\left(x^{n}-1\right)$ has always $(x-1)$ as, one term.
Common factor of $\left[\left(x^{6}-1\right)\right.$ and $\left.\left(x^{36}-1\right)\right]$
$=\left(x^{6}-1\right)$
$\therefore \mathrm{HCF}=\left(x^{6}-1\right)$
77. (A) Let average age $=x$

Sum of age $=10 x$
New average $=x-3$
Sum of age $=10(x-3)$
ATQ,
$10 x-10(x-3)=$ old teacher age - new teacher age
$\Rightarrow 30=$ old teacher age -25
$\Rightarrow$ Old teacher (retire) $=30+25=55$ years
78. (B) Assume volume $=42$ unit

Pipe + leakage $\rightarrow 7{ }_{6}^{\text {Pipe }} \rightarrow 6$
Now, efficiency of leakage $=7-6=1$ unit Required time $=\frac{21}{1}=21 \mathrm{hr}$.
79. (A) $\frac{2}{3}=0.67$
$\frac{5}{6}=0.83$
$\frac{11}{15}=0.73$
$\frac{7}{8}=0.87$
Largest fraction $=\frac{7}{8}$
80. (A) $(2002,1820)$

Factorizing $(2 \times 7 \times 11 \times 13,2 \times 2 \times 5 \times$ $7 \times 13$ )
Taking common $=2 \times 7 \times 13(2 \times 11,2$
$\times 2 \times 5$ )

| 182 | $(22$, | $20)$ |
| :--- | :--- | :--- |
| $\downarrow$ | $\downarrow$ | $\downarrow$ |

students pen each pencil each = 182
81. (A) LCM of 800,625 and $1150=25$
$\therefore$ Required length $=25 \mathrm{~cm}$
82. (A) Let length of train $=x \mathrm{~m}$ ATQ,
$\frac{x}{10}=\frac{x+200}{20}$
$\Rightarrow 2 x=x+200$
$\Rightarrow x=200$
83. (C) $\frac{221+35}{88-24}$
$=\frac{256}{64}=4$
84. (D) $99 \frac{1}{7}+99 \frac{2}{7}+99 \frac{3}{7}+99 \frac{4}{7}+99 \frac{5}{7}+99 \frac{6}{7}$
$=99 \times 6+\left(\frac{1}{7}+\frac{2}{7}+\frac{3}{7}+\frac{4}{7}+\frac{5}{7}+\frac{6}{7}\right)$
$=99 \times 6+3=99 \times 6+3=597$
85. (A) Let CP of 1 apple $=₹ 1$

ATQ,
CP of 30 apples $=\mathrm{SP}$ of 40 apples
Required loss $=\frac{10}{40} \times 100=25 \%$
86. (C) Newton is the SI unit of force while lumen is SI unit at light.
87. (D) Headquarter of North railway zone at New Delhi while headquarter of southwest railway of Hubballi.
88. (B)

89. (D) $6+9+4 \Rightarrow(19)^{2}=361$
$5+4+3 \Rightarrow(12)^{2}=144$
90. (A) As, $9^{2}+8^{2}+9+8=162$

Similarly, $8^{2}+7^{2}+8+7=\mathbf{1 2 8}$
91. (C) Except 'plage', all others are diseases caused by virus while player is caused by bacteria.
92. (D) $7343 \Rightarrow(7)^{3}=343$
$9729 \Rightarrow(9)^{3}=729$
$6216 \Rightarrow(6)^{3}=216$
$8522 \Rightarrow(8)^{3}=\mathbf{5 1 2} \neq 522$
93. (B) Except 'pink' all others are VIBGYOR.
94. (C)

95. (D) $21-9=12$ (L)
$14-8=6(\mathrm{~F})$
$9-2=7$ (G)
$23-4=\mathbf{1 9}(\mathbf{S}) \neq(\mathbf{R})$
96. (A) $\frac{9+11+7}{3}=9$
$\frac{12+10+14}{3}=12$
$\frac{16+15+11}{3}=\mathbf{1 4}$
97. (B) $7 \times 2+8=22$
$6 \times 2+7=19$
$9 \times 2+5=\mathbf{2 3}$
98. (C)
99. (A) 56 Q 8 P 4 R 3 S 5

After changing the sings,
$=56 \div 8-4+3 \times 5$
$=7-4+15=\mathbf{1 8}$
100. (C)
101. (C)
102. (B) From figure,
$\mathrm{N} \leftrightarrow \mathrm{O}$
$\mathrm{A} \leftrightarrow \mathrm{D}$
$\mathrm{B} \leftrightarrow \mathrm{E}$
 can be formed by folding the figure.
103. (C)
104. (B)

105. (C

106. (A) $18 \times 3=54$
$18 \times 6=108$
$6 \times 4=24$
107. (D)

108. (C)

109. (C) abbccd/abbccd
110. (D)

I. $\times$
II. $\times$

So, neither conclusion (i) nor (ii) follows.
111. (B) $(2)^{2} \times \sqrt{9}=12$
$(3)^{2} \times \sqrt{16}=36$
$(4)^{2} \times \sqrt{25}=\mathbf{8 0}$
112. (C) $(3+2) \times(2+4)=30$
$(4+2) \times(2+6)=48$
$(3+6) \times(4+8)=\mathbf{1 0 8}$
113. (C)

114. (D)
115. (D)
116. (A) Let salary $=₹ x$

Then, tips $=\frac{4}{3} x$
Total income $=x+\frac{4}{3} x$

$$
=\frac{7 x}{3}
$$

$\therefore$ Required fraction $=\frac{4}{3} x \times \frac{3}{7 x}=\frac{\mathbf{4}}{\mathbf{7}}$
117. (C)
118. (B)
119. (B)
120. (B)


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

## For all general competitive exams



## CHAPTERS

* Foreign Words
*Phrasal Verbs *Superfluous *Expression *Sentence Improvement

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

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