

RAILWAY MOCK TEST – 18 (SOLUTION)

1. (B) As, the birth place of Bose was cuttack. Similarly, the birth place of Chandra Shekhar Azad was **Bhavra**.

2. (D) As, $\begin{matrix} \text{FHJL} & & \text{RTVX} \\ & \xrightarrow{+12} & \end{matrix}$
 Similarly $\begin{matrix} \text{DFHJ} & & \text{PRTV} \\ & \xrightarrow{+12} & \end{matrix}$

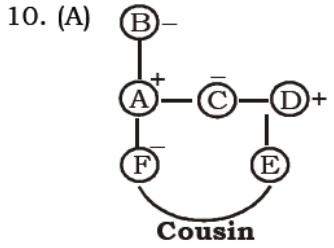
3. (D) As, $86 \Rightarrow 8 + 6 = 14^2 - 1 = 195$
 Similarly, $97 \Rightarrow 9 + 7 = 16^2 - 1 = 255$
 4. (D) Except **'Hamlet'** others are capitals.
 5. (C) Except **207**, all others are multiples of two prime numbers.

6. (B) $\begin{matrix} \text{B} & \text{F} & \text{J} & \text{M} & & \text{O} & \text{S} & \text{W} & \text{A} \\ \uparrow & \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +4 & +3 & & & +4 & +4 & +4 & \end{matrix}$
 $\begin{matrix} \text{J} & \text{N} & \text{R} & \text{U} & & \text{L} & \text{P} & \text{T} & \text{W} \\ \uparrow & \uparrow & \uparrow & \uparrow & & \uparrow & \uparrow & \uparrow & \uparrow \\ +4 & +4 & +3 & & & +4 & +4 & +3 & \end{matrix}$

7. (C) Impolite \rightarrow Imponderable \rightarrow Important \rightarrow Importune.

8. (A) $\begin{matrix} \text{NML} & & \text{IHG} & & \text{EDC} & & \text{BAZ} \\ \uparrow & & \uparrow & & \uparrow & & \uparrow \\ +5 & & +4 & & +3 & & \end{matrix}$

9. (C) $7^2 - 1 = 48$
 $8^2 + 1 = 65$
 $9^2 - 1 = 80$
 $10^2 + 1 = 101$
 $11^2 - 1 = 120$
 $12^2 + 1 = 145$



11. (A)

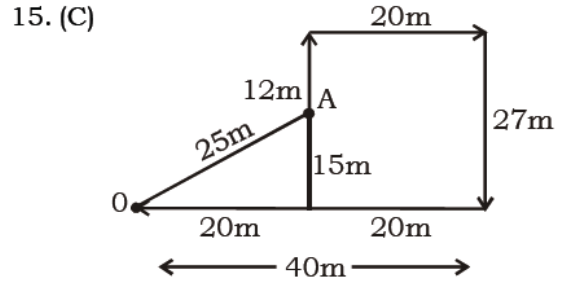
So, Required number of students
 $= 22 + 31 - 1 = 52$

12. (C) VALUE
 13. (D) As, L I A R and R A N G E
 $\begin{matrix} \downarrow & \downarrow & \downarrow & \downarrow & & \downarrow & \downarrow & \downarrow & \downarrow \\ 5 & 7 & 8 & 2 & & 2 & 8 & 6 & 4 & 1 \end{matrix}$
 Similarly, A R R A N G E
 $\begin{matrix} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 8 & 2 & 2 & 8 & 6 & 4 & 1 \end{matrix}$

14. (B) $256 \times 24 + 6 - 10$
 After changing the signs as per the given details,

$$256 \div 24 \times 6 + 10 = \frac{256}{24} \times 6 + 10$$

$$= 64 + 10 = 74$$



Required distance = $\sqrt{15^2 + 20^2}$
 $= \sqrt{225 + 400}$
 $= 25 \text{ m}$

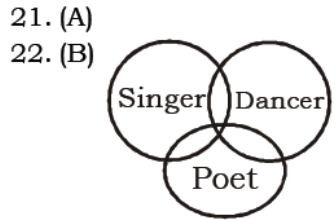
16. (A) $12^2 + 15^2 - 13^2 = 144 + 225 - 169 = 200$
 $16^2 + 18^2 - 10^2 = 256 + 324 - 100 = 480$
 $9^2 + 6^2 - 8^2 = 81 + 36 - 64 = 53$

17. (D) $21 + 9 \times 2 = 39$
 $18 + 6 \times 2 = 30$
 $15 + 4 \times 2 = 23$

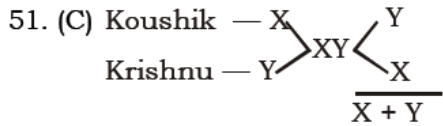


Hence, only conclusion II follows.

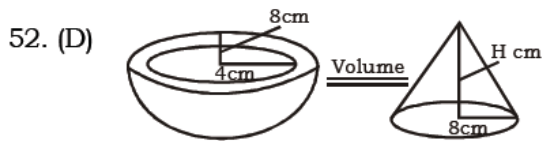
19. (D) 22 triangles
 20. (C) efg~~h~~/e~~f~~gh/e~~f~~gh



23. (B)
 24. (C)
 25. (D) I N S E R T
11 66 23 87 10 78



Time taken by them = $\frac{XY}{X+Y}$ days



ATQ,

$$\frac{2}{3} \pi (8^3 - 4^3) = \frac{1}{3} \pi \times 8 \times 8 \times H$$

$$\Rightarrow H = 14 \text{ cm}$$

53. (C) ATQ, 2% = 15

$$100\% = \frac{15}{2} \times 100 = ₹ 750$$

\therefore Marked price = ₹ 750

54. (D) Distance = $(45 - 40) \times \frac{45}{60}$

$$= 5 \times \frac{45}{60} = 3.75 \text{ km}$$

55. (A) $x + 5 + \frac{1}{x+1} = 6$

Subtract '4' both sides,

$$x + 5 + \frac{1}{x+1} - 4 = 6 - 4$$

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

Taking cube on both sides,

$$(x+1)^3 + \frac{1}{(x+1)^3} + 3 \times 2 = 8$$

$$\Rightarrow (x+1)^3 + \frac{1}{(x+1)^3} = 8 - 6 = 2$$

56. (C) $a^2 + 1 = 9a$

$$\Rightarrow a + \frac{1}{a} = 9$$

Square both sides,

$$a^2 + \frac{1}{a^2} = 9^2 - 2 = 81 - 2 = 79$$

57. (B) $n = 4x + 3$

$$\Rightarrow 2n = 8x + 6$$

$$\Rightarrow 2n = 8x + 4 + 2$$

$$\therefore \text{Remainder} = 2$$

58. (A) Let the average contribution = ₹ x
 ATQ,

$$\frac{800 + x + 50}{9} = x$$

$$\Rightarrow 9x = 850 + x$$

$$\Rightarrow x = 106.25$$

\therefore Average contribution = ₹ 106.25

59. (B) $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = \frac{71}{abc}$

$$\Rightarrow \frac{ab + bc + ca}{abc} = \frac{71}{abc}$$

$$\Rightarrow ab + bc + ca = 71 \quad \dots(i)$$

$$a + b + c = 15$$

Squaring both sides,

$$a^2 + b^2 + c^2 + 2(ab + bc + ca) = 225$$

Putting the value of $ab + bc + ca = 71$

$$\Rightarrow a^2 + b^2 + c^2 + 2 \times 71 = 225$$

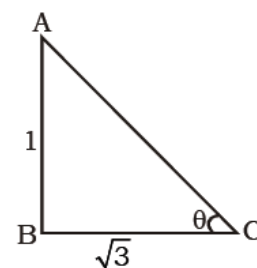
$$\Rightarrow a^2 + b^2 + c^2 = 83 \dots(ii)$$

$$\Rightarrow a^3 + b^3 + c^3 - 3abc = (a + b + c) [a^2 + b^2 + c^2 - (ab + bc + ca)]$$

$$\text{Putting the value from equ. (i) and (ii),}$$

$$a^3 + b^3 + c^3 - 3abc = 15 (83 - 71) = 180$$

60. (C)



$$\tan \theta = \frac{1}{\sqrt{3}}$$

$$\Rightarrow \tan \theta = \tan 30^\circ$$

$$\Rightarrow \theta = 30^\circ$$

61. (B) Net rate for S.I = $5 \times 2 = 10\%$
 Net rate for C.I. = $5 + 5 + \frac{5 \times 5}{100} = 10.25\%$

A.T.Q,
 $10\% = 50$

$$\Rightarrow 10.25\% = \frac{50}{10} \times 10.25 = 51.25$$

\therefore Compound Interest = ₹51.25

62. (D) $\sin\theta = \frac{\sqrt{3}}{r}$

$$\Rightarrow \sin^2\theta = \frac{3}{r^2} \quad \dots(i) \quad \cos\theta = \frac{1}{r}$$

$$\Rightarrow \cos^2\theta = \frac{1}{r^2} \quad \dots(ii)$$

From equation (i) and (ii),

$$\sin^2\theta + \cos^2\theta = \frac{3}{r^2} + \frac{1}{r^2}$$

$$\Rightarrow 1 = \frac{4}{r^2} \quad \Rightarrow r^2 = 4 \quad \Rightarrow r = 2$$

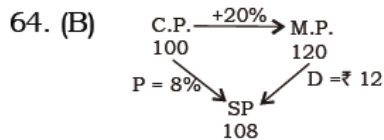
$$\therefore \sin\theta = \frac{\sqrt{3}}{2}$$

$$\Rightarrow \sin\theta = \sin 60^\circ \quad \theta = 60^\circ$$

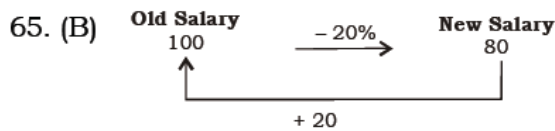
63. (B) $\frac{B}{A+C} = \frac{5}{13}$

A.T.Q.,
 18 units = ₹1620
 5 units = ₹450

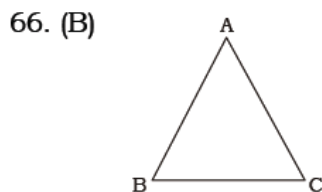
\therefore share of B = ₹450



$$\text{Discount percentage} = \frac{12}{120} \times 100 = 10\%$$



$$\therefore \text{Required Percentage} = \frac{20}{80} \times 100 = 25\%$$



$$\angle A + \angle B = 75^\circ \quad \dots(i)$$

$$\angle B + \angle C = 140^\circ \quad \dots(ii)$$

Adding (i) and (ii),

$$\angle A + 2\angle B + \angle C = 215^\circ$$

$$\angle A + \angle B + \angle C = 180^\circ \quad (\text{Sum of angles of a } \Delta \text{ is } 180^\circ)$$

$$\angle B = 215^\circ - 180^\circ = 35^\circ$$

67. (B) $(1 + \tan^2\theta)(1 - \sin^2\theta)$

$$= \sec^2\theta \times \cos^2\theta = 1$$

68. (B) $4x^2 - 12x + k$ is perfect square

$$(2x)^2 - 2 \times 2x \times \sqrt{k} + (\sqrt{k})^2 - 4x\sqrt{k} = -12x$$

$$\Rightarrow k = 9$$

69. (C) $p^3 - q^3 = (p - q)[(p - q)^2 + xpq]$

$$p^3 - q^3 = (p - q)[p^2 + q^2 + (x - 2)pq]$$

.....(i)

But, $p^3 - q^3 = (p - q)(p^2 + q^2 + pq)$

.....(ii)

By comparing (i) & (ii)

$$x - 2 = 1 \quad \Rightarrow x = 3$$

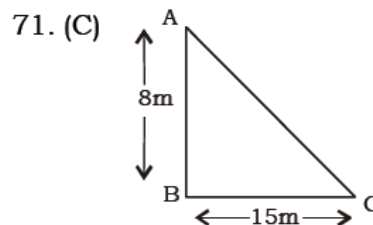
70. (C) $a + \frac{1}{a} = \sqrt{3}$

$$a^3 + \frac{1}{a^3} = 0$$

Now, $a^{18} + a^{12} + a^6 + 1$

$$\Rightarrow a^{15} \left[a^3 + \frac{1}{a^3} \right] + a^3 \left[a^3 + \frac{1}{a^3} \right]$$

$$\text{Put } a^3 + \frac{1}{a^3} = 0 = a^{15}(0) + a^3(0) = 0 + 0 = 0$$



$$AC = \sqrt{AB^2 + BC^2}$$

$$= \sqrt{8^2 + 15^2}$$

$$= \sqrt{64 + 225} = 17\text{m}$$

$$\text{Height of tree} = AB + AC = 8 + 17 = 25\text{m}$$

72. (A) Required ratio =

$$\frac{3.3 + 2.5 + 1.6 + 1.6 + 1.6 + 1.1}{3.3 + 2.5 + 1.6 + 1.6 + 1.6 + 1.1 + 22.6 + 12.5 + 12.1 + 10.6}$$

$$= \frac{11.7}{69.5} = \frac{1}{6}$$

73. (D) UAE

74. (B) Required Ratio = $35.2 : 68.8 = 35 : 69$

75. (B) Required Answer

$$= \frac{10.6}{1.2} = 9$$

RAILWAY MOCK TEST – 18 (ANSWER)

1. (B)	26. (C)	51. (C)
2. (D)	27. (C)	52. (D)
3. (D)	28. (C)	53. (C)
4. (D)	29. (C)	54. (D)
5. (C)	30. (D)	55. (A)
6. (B)	31. (C)	56. (C)
7. (C)	32. (D)	57. (B)
8. (A)	33. (C)	58. (A)
9. (C)	34. (D)	59. (B)
10. (A)	35. (D)	60. (C)
11. (A)	36. (D)	61. (B)
12. (C)	37. (C)	62. (D)
13. (D)	38. (C)	63. (B)
14. (B)	39. (A)	64. (B)
15. (C)	40. (C)	65. (B)
16. (A)	41. (D)	66. (B)
17. (D)	42. (D)	67. (B)
18. (B)	43. (C)	68. (B)
19. (D)	44. (B)	69. (C)
20. (C)	45. (D)	70. (C)
21. (A)	46. (D)	71. (C)
22. (B)	47. (D)	72. (A)
23. (B)	48. (D)	73. (D)
24. (C)	49. (B)	74. (B)
25. (D)	50. (D)	75. (B)