

Matheamtics Quiz for RRB NTPC – Advanced Level (Solutions)

S1. Ans.(b)

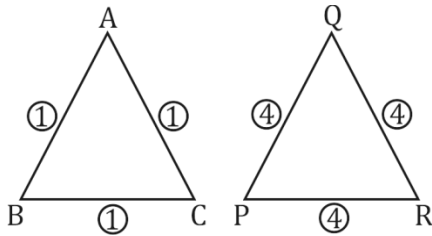
Sol.

$$\frac{12 \times 8 \times 10}{100} = \frac{18 \times D \times 7}{70}$$

$$D = \frac{16}{3} \text{ days} = 5\frac{1}{3} \text{ days}$$

S2. Ans.(a)

Sol.

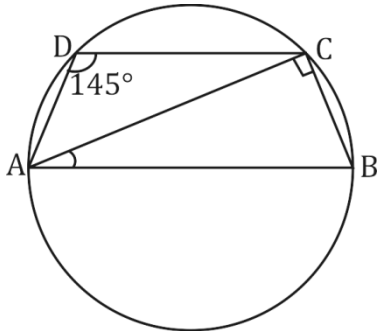


$$1 \text{ ----- } 3$$

$$4 \text{ ----- } 12$$

S3. Ans.(d)

Sol.



$$\angle ABC = 180^\circ - 145^\circ = 35^\circ$$

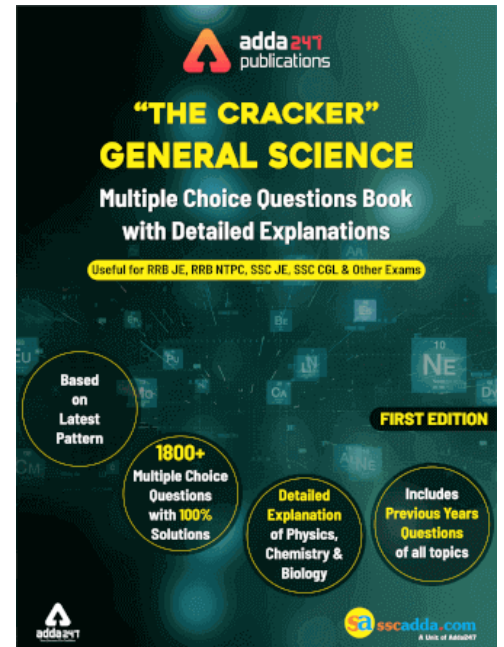
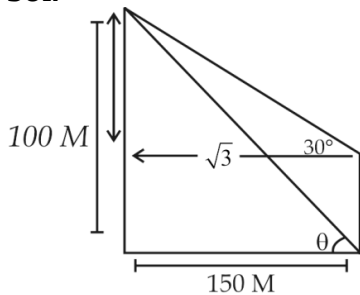
$$\angle BAC = 180^\circ - (90 + 35^\circ)$$

$$\angle BAC = 180^\circ - 125^\circ$$

$$\angle BAC = 55^\circ$$

S4. Ans.(a)

Sol.



$$\tan\theta = \frac{2}{3}$$

$$2 \text{ ----- } 100$$

$$3 \text{ ----- } 150$$

$$\sqrt{3} \text{ --- } 150$$

$$1 - \frac{150}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = 50\sqrt{3}$$

$$\text{Required height of pole} = 100 - 50\sqrt{3}$$

$$= 50(2 - \sqrt{3})\text{m}$$

S5. Ans.(d)

Sol.

$$\text{Mean proportion} = \sqrt{\frac{49 \times 169}{100}} = \frac{7 \times 13}{10} = 9.1$$

$$\text{Third proportion } \frac{3}{7} = \frac{7}{x}$$

$$x = \frac{49}{3}$$

$$\therefore 9.1 : \frac{49}{3} = 27.3 : 49 = 39 : 70$$

S6. Ans.(c)

Sol.

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

$$x^2 + \frac{1}{x^2} = 7$$

$$x^3 + \frac{1}{x^3} = 27 - 9 = 18$$

$$\left(x^2 + \frac{1}{x^2}\right)\left(x^3 + \frac{1}{x^3}\right) = x^5 + \frac{1}{x} + x + \frac{1}{x^5}$$

$$(7)(18) = x^5 + \frac{1}{x^5} + \left(x + \frac{1}{x}\right)$$

$$126 = x^5 + \frac{1}{x^5} + 3$$

$$x^5 + \frac{1}{x^5} = 123$$

S7. Ans.(c)

$$\text{Sol. } \operatorname{Cosec}(90^\circ - 3x) = \operatorname{cosec}(4x - 35^\circ)$$

$$90^\circ - 3x = 4x - 35^\circ$$

$$125^\circ = 7x$$

$$x = 17.8$$

S8. Ans.(a)

Sol.

$$\frac{32 \times 8 \times 6}{64} = x$$

$$x = 24$$

$$\text{total surface area of cube} = 6a^2$$

$$\text{total surface area of all 24 cuboid is}$$

$$6 \times 4 \times 4 \times 24 = 2304$$

S09. Ans.(b)

Sol.

$$a^3 - b^3 = (a - b)(a^2 + b^2 + ab)$$

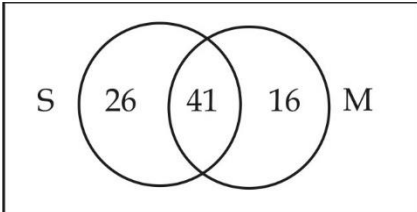
$$((a + b)^2 - ab = a^2 + b^2 + ab)$$

$$4104 = 6((a + b)^2 - ab)$$

$$(a+b)^2 - ab = 684$$

S10. Ans.(c)

Sol.



$$\text{Passed} = 100 - (41 + 26 + 16)$$

$$\text{Passed} = 17\%$$

S11. Ans.(b)

Sol. Let t be the right time

$$78(t + 25) = 91(t + 10)$$

$$6(t + 25) = 7(t + 10)$$

$$150 - 70 = t$$

$$t = 80 \text{ min}$$

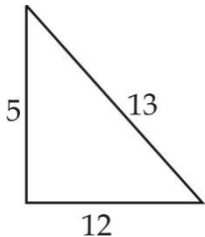
S12. Ans.(b)

Sol.

$$\frac{135 \times 22}{9} \times \frac{65}{100} = 214 \frac{1}{2} \text{ days}$$

S13. Ans.(d)

Sol.



$$12 \text{ ----- } 36$$

$$5 \text{ ----- } 15$$

S14. Ans.(b)

Sol.

$$\frac{3x6249y}{88} = \frac{11 \times 8}{49y}$$

$$\frac{8}{8} \Rightarrow \boxed{y = 6}$$

$$\frac{(3 + 6 + 4 + 6) - (x + 3 + 9)}{11} = \frac{7 - x}{11}$$

$$\boxed{x = 7}$$

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S15. Ans.(a)

Sol.

$$(x - 4)^3 + (3x - 7)^3 + (x - 2)^3 - 3(x - 4)(3x - 7)(x - 2) = 0$$

$$x - 4 + 3x - 7 + x - 2 = 0$$

$$5x - 13 = 0$$

$$x = \frac{13}{5} = 2.6$$

S16. Ans.(a)

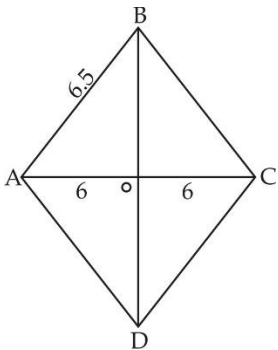
Sol.

$$100 \left(\frac{(72.5)^3 + (27.5)^3}{(72.5)^2 + (27.5)^2 - (72.5)(27.5)} \right)$$

$$100 (100) \Rightarrow 10,000$$

S17. Ans.(b)

Sol.



$$OB = \sqrt{(6.5)^2 - (6)^2}$$

$$OB = 2.5 \text{ cm}$$

$$BD = 5 \text{ cm}$$

$$\text{Area} = \frac{1}{2} \times 12 \times 5 = 30 \text{ cm}^2$$

S18. Ans.(b)

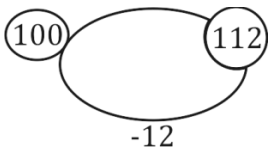
Sol.



$$\frac{27}{73} \times 100 = 36.98\%$$

S19. Ans.(a)

Sol.



$$\frac{12}{112} \times 100 = 10.7\%$$

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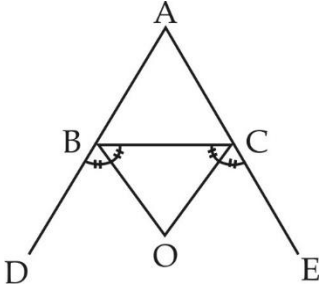
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S20. Ans.(a)

Sol.

$$\begin{aligned}\angle BOC &= 90 - \frac{1}{2}\angle A \\ &= 90 - 17.5 = 72.5^\circ\end{aligned}$$



S21. Ans.(b)

Sol.

$$\begin{array}{r} +A \quad +B \quad -C \\ 12 \quad 36 \quad 72 \\ \begin{array}{l} +6 \quad | \quad +2 \quad -1 \\ \hline 72 \end{array} \end{array}$$

$$T.W = 72$$

$$\text{Remaining work} = 72 - 42$$

Remaining work done by (b+c)

$$\therefore \frac{30}{1} = 30$$

S22. Ans.(c)

Sol.

$$\text{Loss}\% = \frac{xy}{100} = 1.21\%$$

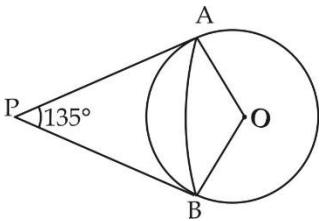
S23. Ans.(d)

Sol.

$$\frac{\frac{1}{4} + \frac{3}{4} - 1}{\frac{1}{3} + 3} = 0$$

S24. Ans.(c)

Sol.

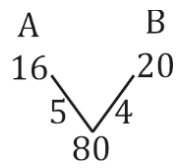


$$\because \angle OAB = \angle OBA$$

$$\angle OAB = \frac{180^\circ - 45^\circ}{2} = 67.5^\circ$$

S25. Ans.(c)

Sol.



One cycle work done (4+5) in two hours

In 8 cycle work done = 9×8

Remaining work $80 - 72 = 8$

Remaining work 1st done by A in one hour = $8 - 4$

Now remaining work done by B = $\frac{4}{5}$ hours

Total time to complete the work = $16 + 1 + \frac{4}{5} = 17 \frac{4}{5}$ hours

