

Quant Mega Quiz for SSC Tier-1 (Solutions)

S1. Ans.(b)

Sol.

$$\text{Time} \rightarrow A : B \Rightarrow 3 : 1$$

$$B : A \Rightarrow 1 : 3$$

$$\text{Time} \rightarrow A : C \Rightarrow 2 : 1$$

$$\text{Time} \rightarrow B : A : C \Rightarrow 2 : 6 : 3$$

Let B takes $\rightarrow 2x$ days

A takes $\rightarrow 6x$ days

C takes $\Rightarrow 3x$ days

$$\text{ATQ} \Rightarrow \frac{1}{6x} + \frac{1}{2x} + \frac{1}{3x} = 1$$

$$\frac{1+3+2}{6x} = 1$$

$$6 = 6x \Rightarrow x = 1$$

A will take $\rightarrow 6$ days.



S2. Ans.(d)

Sol.

12, 16, 20 \rightarrow are Pythagorean triplets.

So, the length of median to hypotenuse is half of the hypotenuse.

$$\text{Length of median} = \frac{20}{2} = 10 \text{ cm}$$

S3. Ans.(a)

Sol.

$$\frac{4+\sqrt{5}}{4-\sqrt{5}} = \frac{4+2.236}{4-2.236} = \frac{6.236}{1.764} = 3.535$$

S4. Ans.(a)

Sol.

$$\Rightarrow \left(\frac{1}{5} - \frac{1}{6}\right)^{-1} - \left(\frac{1}{2} - \frac{1}{3}\right)^{-1}$$

$$\Rightarrow \left(\frac{1}{30}\right)^{-1} - \left(\frac{1}{6}\right)^{-1}$$

$$\Rightarrow 30 - 6 = 24$$

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S5. Ans.(b)

Sol.

$$\begin{aligned} & \sqrt{7 - 2\sqrt{10}} + \sqrt{5 + 2\sqrt{6}} \\ & \Rightarrow \sqrt{5 + 2 - 2\sqrt{5} \times \sqrt{2}} + \sqrt{2 + 3 + 2\sqrt{2}\sqrt{3}} \\ & \Rightarrow \sqrt{(\sqrt{5} - \sqrt{2})^2} + \sqrt{(\sqrt{2} + \sqrt{3})^2} \\ & \Rightarrow \sqrt{5} - \sqrt{2} + \sqrt{2} + \sqrt{3} \\ & \Rightarrow \sqrt{5} + \sqrt{3} \end{aligned}$$

S6. Ans.(a)

Sol.

Sum of square of 1st N natural Number

$$\Rightarrow \frac{n(n+1)(2n+1)}{6}$$

Sum of square of 1st 12 natural number

$$= \frac{12 \times (12+1)(2 \times 12+1)}{6} = 2 \times 13 \times 25 = 650$$

$$4^2 + 5^2 + \dots + 12^2 = 650 - 1 - 4 - 9 = 636$$

S7. Ans.(a)

Sol.

$$2\pi r = 11$$

$$2 \times \frac{22}{7} \times r = 11$$

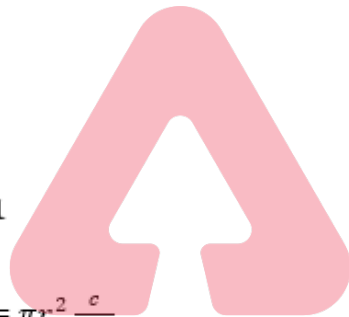
$$r = \frac{7}{4}$$

$$\text{Area of sector} = \pi r^2 \frac{c}{360}$$

C \Rightarrow central angle made by sector

$$= \frac{22}{7} \times \frac{49}{16} \times \frac{90}{360} = \frac{77}{32}$$

$$= 2 \frac{13}{32} \text{ cm}^2$$



S8. Ans.(d)

Sol.

$$\text{Value after discount} = 100 \times \frac{80}{100} \times \frac{70}{100} \times \frac{60}{100} = 33.6$$

$$\text{Single discount} = 100 - 33.6 = 66.4\%$$

S9. Ans.(c)

Sol.

$$\text{SP} = 100 \times \frac{120}{100} = 120 \text{ rs.}$$

$$\text{MP} \times \frac{80}{100} = 120$$

$$\text{MP} = \frac{120 \times 100}{80} = 150 \text{ rs.}$$

S10. Ans.(a)**Sol.**

$$\frac{a}{3} = \frac{b}{5} = \frac{c}{7} = k$$

$$a = 3k, b = 5k, c = 7k$$

$$\frac{a+b+c}{b} = \frac{3k+5k+7k}{5k} = \frac{15k}{5k} = 3$$

S11. Ans.(b)**Sol.**

$$28\frac{4}{7}\% = \frac{2}{7}$$

$$16\frac{2}{3}\% = \frac{1}{6}$$

$$\text{Money spend on food} = \frac{2}{7}$$

$$\text{Remaining} = 1 - \frac{2}{7} = \frac{5}{7}$$

$$\text{Money spend on house} = \frac{5}{7} \times \frac{1}{6} = \frac{5}{42}$$

$$\text{Remaining} = \frac{5}{7} - \frac{5}{42} = \frac{25}{42}$$

$$\text{Money spend on travelling} = \frac{25}{42} \times \frac{1}{2} = \frac{25}{84}$$

$$\frac{25}{84} \rightarrow 2500$$

$$1 \rightarrow 8400 \text{ Rs.}$$

S12. Ans.(b)**Sol.**

$$\text{Voters of National Party A in 2012} = 2.5 \text{ L} \times \frac{160}{100} = 4 \text{ L}$$

$$\text{Voters of National Party B in 2011} = 4 \text{ L} \times \frac{7}{8} = 3.5 \text{ L}$$

$$x \times \frac{140}{100} = 350000$$

$$x = 2.5 \text{ L}$$

S13. Ans.(c)**Sol.**

$$\text{Passed in class test} = 68$$

$$\text{Failed} = 32$$

$$\text{Passed in half yearly exam} = 68 \times 85\% + 32 \times 81\% = 83.72\%$$

S14. Ans.(a)**Sol.**

$$128\frac{4}{7}\% \Rightarrow \frac{9}{7}$$

$$\text{Let the income of B} = 700$$

$$\text{Income of A} = 700 \times \frac{9}{7} = 900$$

$$\text{Income of C} = 900 \times 120\% = 1080$$

$$A : B : C = 900 : 700 : 1080$$

$$= 45 : 35 : 54$$

$$A + B = 45 + 35 = 80$$

$$\text{Sum of Incomes of A \& B} = 80400 \times \frac{80}{134}$$

$$= 48000$$

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S15. Ans.(a)

Sol.

Correct questions

$$= 25 \times 80\% + 25 \times 60\% + 25 \times 72\% + 25 \times 76\%$$

$$= 20 + 15 + 18 + 19$$

$$= 72$$

$$\text{More questions} = 75 - 72 = 3$$

S16. Ans.(d)

Sol.

$$\text{Expenditure on the printing} = \frac{27}{100} \times 60000$$

$$= 16200$$

S17. Ans.(c)

Sol.

Central angle of the expenditure on paper

$$= \frac{25}{100} \times 360$$

$$= 90^\circ$$

S18. Ans.(a)

Sol.

$$\text{Required \%} = \frac{33-25}{25} \times 100 = 32\%$$

S19. Ans.(b)

Sol.

$$25\% - 20000$$

$$33\% = \frac{20000}{25} \times 33 = 26400$$

S20. Ans.(b)

Sol.

$$5R - 15\%$$

$$\text{Marketing} = 3R = 9\%$$

$$\text{Central angle} = \frac{9}{100} \times 360$$

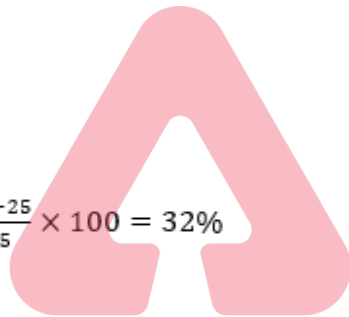
$$= 32.4^\circ$$

S21. Ans.(b)

Sol.

ATQ,

$$1 \times 2x + \frac{1}{2} \times 3x + \frac{1}{4} \times 4x = 216$$



$$2x + \frac{3x}{2} + x = 216$$

$$\frac{9x}{2} = 216$$

$$x = 48$$

$$\text{Number of 50 paise coin} = 48 \times 3 = 144$$

S22. Ans.(c)

Sol.

$$\text{Quantity of water in given mixture} = \frac{1}{5}$$

$$\text{Quantity of water in resultant mixture} = \frac{2}{5}$$

Using Alligation

$$\begin{array}{r} \frac{1}{5} \qquad 1 \\ \frac{2}{5} \\ \hline 1 - \frac{2}{5} \quad : \quad \frac{2}{5} - \frac{1}{5} \end{array}$$

$$\frac{3}{5} : \frac{1}{5}$$

$$3 : 1$$

$$3r \rightarrow 45 \text{ litres}$$

$$1r \rightarrow 15 \text{ litres}$$

S23. Ans.(a)

Sol.

$$\text{Profit's Ratio} = 4500 \times 12 : 3000 \times x$$

$$= 54 : 3x$$

$$= 18 : x$$

$$\frac{18}{x} = \frac{2}{1}$$

$$x = 9 \text{ months}$$

$$\text{B joined after} = 12 - 9 = 3 \text{ months}$$

S24. Ans.(d)

Sol.

ATQ,

$$\frac{1}{12} + \frac{1}{15} - \frac{1}{x} = \frac{1}{20}$$

$$\frac{1}{x} = \frac{1}{12} + \frac{1}{15} - \frac{1}{20}$$

$$\frac{1}{x} = \frac{5 + 4 - 3}{60}$$

$$\frac{1}{x} = \frac{6}{60}$$

$$x = 10 \text{ min}$$



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S25. Ans.(c)

Sol.

$$\text{Work done by 12 men in 6 days} = \frac{6}{18} = \frac{1}{3}$$

$$\text{Remaining work} = 1 - \frac{1}{3} = \frac{2}{3}$$

$$12 \times 18 = \frac{16 \times d}{2/3}$$

$$\frac{12 \times 15 \times 2}{16 \times 3} = \text{days}$$

$$9 = \text{days}$$

Work gets completed in = $9 + 6 = 15$ days

S26. Ans.(d)

Sol.

ATQ,

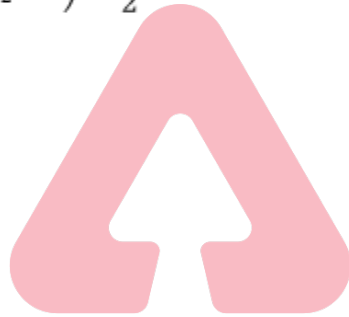
$$\frac{30}{15-x} + \frac{30}{15+x} = \frac{9}{2}$$

$$30 \left(\frac{15+x+15-x}{225-x^2} \right) = \frac{9}{2}$$

$$\frac{200}{225-x^2} = 1$$

$$x^2 = 25$$

$$x = 5 \text{ km/hr}$$



S27. Ans.(c)

Sol.

$$a + b = 153$$

$$a \times b = 630 \times 9$$

$$(a - b)^2 = (a + b)^2 - 4ab$$

$$(a - b)^2 = (153)^2 - 4 \times 630 \times 9$$

$$(a - b)^2 = 23409 - 22680$$

$$(a - b)^2 = 729$$

$$a - b = 27$$

S28. Ans.(a)

Sol.

$$\frac{S_5}{5} = 24$$

$$S_5 = 120$$

$$S_4 = 120 - 8 = 112$$

$$\text{Sum of four members 8 years ago} = 112 - 4 \times 8$$

$$= 112 - 32$$

$$= 80$$

Average at the time of the birth of youngest

$$\text{Member} = \frac{80}{4} = 20 \text{ years}$$

S29. Ans.(b)

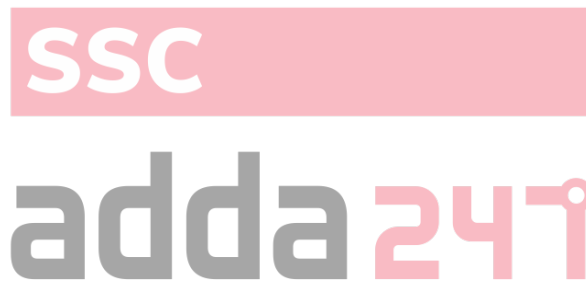
Sol.

$$\begin{aligned}\text{Profit \%} &= \frac{40}{960} \times 100 \\ &= \frac{400}{96} \\ &= \frac{100}{24} \\ &= \frac{25}{6} \% \\ &= 4\left(\frac{1}{6}\right)\%\end{aligned}$$

S30. Ans.(c)

Sol.

$$\begin{aligned}\text{Profits Ratio} &= 35000 \times 12 : 20000 \times 5 : 15000 \times 7 \\ &= 420 : 100 : 105 \\ &= 84 : 20 : 21 \\ \text{B's profit} &= 84125 \times \frac{20}{125} \\ &= 673 \times 20 \\ &= 13460\end{aligned}$$



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