

Quant Mega Quiz for SSC Tier-1 (Solutions)

S1. Ans.(a)

Sol.

Let no. are $5x$ and $11x$

$$\frac{5x + 10}{11x + 10} = \frac{7}{13}$$

$$65x + 130 = 77x + 70$$

$$60 = 12x$$

$$x = 5$$

The sum of two numbers = $5x + 11x$

$$= 16x$$

$$= 16 \times 5$$

$$= 80$$

S2. Ans.(d)

Sol.

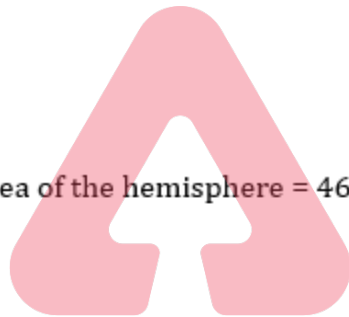
Total surface area of the hemisphere = 462

$$\Rightarrow 3\pi r^2 = 462$$

$$\Rightarrow \pi r^2 = 154$$

$$\Rightarrow r = 7 \text{ cm}$$

$$\text{Diameter} = 2r = 14 \text{ cm}$$



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S3. Ans.(d)

Sol.

$$\text{Discount \%} = 15\% = \frac{3}{20}$$

We have, 17 unit = 2397

$$\text{MP} = 20 \text{ unit} = \frac{2397}{17} \times 20 = \text{Rs. } 2820$$

S4. Ans.(c)

Sol.

We have

$$3\sqrt{2} + \sqrt{18} + \sqrt{50} = 15.55$$

$$\Rightarrow 3\sqrt{2} + 3\sqrt{2} + 5\sqrt{2} = 15.55$$

$$\Rightarrow 11\sqrt{2} = 15.55$$

$$\text{Now, } \sqrt{32} + \sqrt{72} = 4\sqrt{2} + 6\sqrt{2}$$

$$= 10\sqrt{2} = \frac{15.55}{11} \times 10 = 14.13$$

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S5. Ans.(a)

Sol.

$$\sin 60 - \frac{2}{\sqrt{3}} = \frac{\sqrt{3}}{2} - \frac{2}{\sqrt{3}} = \frac{3-4}{2\sqrt{3}} = -\frac{1}{2\sqrt{3}}$$

S6. Ans.(b)

Sol.

$$3P = 5Q = 15R$$

$$P : Q = 5 : 3$$

$$Q : R = 15 : 5$$

$$\text{OR } Q : R = 3 : 1$$

$$P : Q : R = 5 : 3 : 1$$

S7. Ans.(b)

Sol.

Let, Amy have x coins.

Hina have $(x + 4)$ coins.

Bani have $(x + 5)$ coins.

Lima have $(x + 6)$ coins.

and Rima have $(x + 10)$ coins.

When we that,

$$\text{Total no. of coins} = 5x + 25$$

Then we seen clearly 25 divide equally then all have equal no. of coins.

So, min. no. of coins transferred when Rima gives 5 coins to Amy and Lima gives 1 coins to Hina.

So, total min. coins required = 6

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S8. Ans.(b)

$$\text{Sol. Smallest No.} = \sqrt{11} + \sqrt{3}$$

S9. Ans.(c)

Sol.

We know that,

$$\text{Perfect square near } 709 \Rightarrow 729$$

$$27^2 = 729 \text{ So, } 20 \text{ is added in } 709.$$

S10. Ans.(a);

Sol.

Let pure milk = 8 litres

$$\text{Now, CP of pure milk} = 20 \times 8 = \text{Rs } 160$$

He sells $(8 + 2)$ litres at the cost of Rs 22 litre

$$\text{SP} = 10 \times 22 = \text{Rs } 220$$

$$\% \text{ profit} = \frac{60}{160} \times 100 = 37.5\%$$

S11. Ans.(d)

Sol.

Let $x_1 = -5, x_2 = 4, x_3 = 4$

$y_1 = 7, y_2 = -1, y_3 = -1$

Area of triangle formed by given points

$$= \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$$

$$= \frac{1}{2} [(-5)\{-1 - (-1)\} + (4)(-1 - 7) + 4(7 - (-1))]$$

$= 0$

Hence the example ten points are not forming any triangle, rather they are collinear.

S12. Ans.(b)

Sol.

When we need remainder put the value of divider and x solve the equation

$$gx = x - \frac{1}{3} \Rightarrow x - \frac{1}{3} = 0, x = \frac{1}{3}$$

$$f(x) = 27x^3 - 45x^2 + 9x + 12$$

$$= 27 \times \frac{1}{27} - 45 \times \frac{1}{9} + 9 \times \frac{1}{3} + 12$$

$$= 1 - 5 + 3 + 12$$

$= 11$



S13. Ans.(a)

Sol.

Efficiency $\rightarrow A : B = 1 : 2$

Efficiency $\rightarrow B : C = 1 : 1$

A : B : C = 1 : 2 : 2

Days Ratio ($\propto \frac{1}{\text{Efficiency}}$) = $1 : \frac{1}{2} : \frac{1}{2}$

$= 2 : 1 : 1$

$2r \rightarrow 14$ days

$1r \rightarrow 7$ days

	<u>Totalwork</u>	<u>Efficiency</u>
A \rightarrow 14 days		1
B \rightarrow 7 days	14	2
C \rightarrow 7 days		2

Work done by A \times B in 3 days = $3 \times 3 = 9$

Remaining work = $14 - 9 = 5$

Time taken by A, B & C to finish 5 work = $\frac{5}{5} = 1$

More days required = 1

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S14. Ans.(b)

Sol.

L.C.M. of (24, 36, 54)

$\Rightarrow 216\text{sec}$

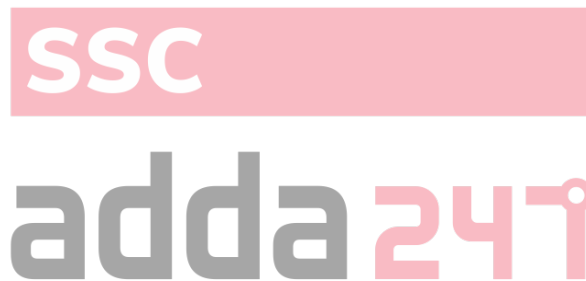
$\Rightarrow 3 \text{ min } 36 \text{ second}$

This will again change simultaneously at = 10 : 18 : 36 am

S15. Ans.(b)

Sol.

$$\begin{aligned} &\Rightarrow \frac{1}{5 \times 9} + \frac{1}{9 \times 13} + \frac{1}{13 \times 17} + \dots + \frac{1}{61 \times 65} \\ &\Rightarrow \frac{1}{4} \left(\frac{4}{5 \times 9} + \frac{4}{9 \times 13} + \frac{4}{13 \times 17} + \dots + \frac{4}{61 \times 65} \right) \\ &\Rightarrow \frac{1}{4} \left(\frac{1}{5} - \frac{1}{9} + \frac{1}{9} - \frac{1}{13} + \frac{1}{13} - \frac{1}{17} + \dots + \frac{1}{61} - \frac{1}{65} \right) \\ &= \frac{1}{4} \left(\frac{1}{5} - \frac{1}{65} \right) \\ &= \frac{1}{4} \left(\frac{13-1}{65} \right) \\ &= \frac{3}{65} \end{aligned}$$



S16. Ans.(a)

Sol.

$$\begin{aligned} &5.\overline{12} + 3.\overline{21} + 4.\overline{31} \\ &= 5 \left(\frac{12}{99} \right) + 3 \left(\frac{21}{99} \right) + 4 \left(\frac{31}{99} \right) \\ &= (5 + 3 + 4) \left(\frac{12}{99} + \frac{21}{99} + \frac{31}{99} \right) \\ &= 12 \left(\frac{64}{99} \right) \\ &= 12 \frac{64}{99} \end{aligned}$$

S17. Ans.(d)

Sol.

$$\text{Principal} = \frac{8730 \times 100}{3 \times 6} = 48500 \text{ Rs.}$$

$$\text{C.I Rate} = 6\% = \frac{6}{100}$$

$$\text{C.I 1st year} = 48500 \times \frac{6}{100} = 2910$$

$$\text{C.I 2nd year} = 48500 \times \frac{6}{100} + 2910 \times \frac{6}{100} = 2910 + 174.6 = 3084.6$$

$$\text{Total C.I} = 2910 + 3084.6 = 5994.6$$

S18. Ans.(d)

Sol.

$$C.I - S.I = P \left(\frac{R}{100} \right)^2$$
$$72 = 5000 \left(\frac{R}{100} \right)^2$$
$$\frac{36}{2500} = \left(\frac{R}{100} \right)^2$$
$$\frac{6}{50} = \frac{R}{100}$$
$$R = 12\%$$

S19. Ans.(d)

Sol.

Buffalo $\rightarrow x$

Duck $\rightarrow y$

Number of legs = $4x + 2y$

Number of heads = $x + y$

ATQ,

$$4x + 2y - 2x - 2y = 24$$

$$2x = 24$$

$$x = 12$$

No. of Buffaloes = 12

S20. Ans.(a)

Sol.

$$a^b = 125$$

$$a^b = 5^3$$

$$a = 5, b = 3$$

$$(a - b)^{a+b-4}$$

$$= (2)^4 = 16$$

S21. Ans.(b)

Sol.

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

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

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

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

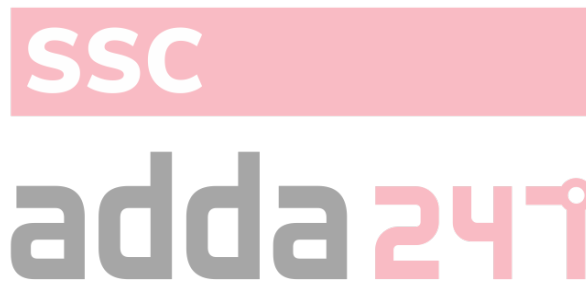
$$\text{Money spend on house} = \frac{5}{7} \times \frac{1}{6} = \frac{5}{42}$$

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

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

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

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



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S22. Ans.(b)**Sol.**

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

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

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

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

S23. Ans.(c)**Sol.**

Passed in class test = 68

Failed = 32

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

S24. Ans.(a)**Sol.**

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

Let the income of B = 700

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

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

$$\text{A : B : C} = 900 : 700 : 1080$$

$$= 45 : 35 : 54$$

$$\text{A} + \text{B} = 45 + 35 = 80$$

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

$$= 48000$$

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S25. Ans.(a)**Sol.**

Correct questions

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

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

$$= 72$$

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

S26. Ans.(d)**Sol.**

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

$$= 16200$$

S27. Ans.(c)**Sol.**

Central angle of the expenditure on paper

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

$$= 90^\circ$$

S28. Ans.(a)

Sol.

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

S29. Ans.(b)

Sol.

$$25\% - 20000$$

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

S30. Ans.(b)

Sol.

$$5R - 15\%$$

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

$$\begin{aligned} \text{Central angle} &= \frac{9}{100} \times 360 \\ &= 32.4^\circ \end{aligned}$$

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