

Quant Mega Quiz for SSC CGL (Solutions)

S1. Ans.(c)

Sol.

General formula,

$$\cot A - \cot B = \frac{\cot A \cot B + 1}{\cot B - \cot A}$$

S2. Ans.(a)

Sol.

Let the marks scored by two candidates be x & $(x + 23)$

ATQ,

$$(x + 23) = \frac{60}{100} [x + x + 23]$$

$$\Rightarrow x = 46$$

So, the marks scored are 46 & 69

S3. Ans.(b)

Sol.

ATQ,

$$\Rightarrow \frac{1}{\left(\frac{6}{7} + \frac{9}{1}\right)} = \frac{1}{69/7}$$

$$= \frac{7}{69}$$

S4. Ans.(a)

Sol.

$$\text{Chakor's profit} = \frac{277200}{(3+6+2)} \times 2$$

$$= \text{Rs } 50400$$

S5. Ans.(d)

Sol.

$$(x + y)^2 = x^2 + y^2 + 2xy$$

$$= 45 + 2 \times 18 = 81$$

$$x + y = \sqrt{81} = 9$$

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S6. Ans.(b)

Sol.

$$\begin{aligned}\text{Slope (m)} &= \left[\frac{y_2 - y_1}{x_2 - x_1} \right] \\ &= \left[\frac{-3 - 2}{4 + 1} \right] = -1 \\ \text{Eq}^n &\Rightarrow (y - y_1) = m(x - x_1) \\ (y - 2) &= -1(x + 1) \\ y - 2 &= -x - 1 \\ x + y &= 1\end{aligned}$$

S7. Ans.(d)

Sol.

ATQ,

$$\text{CSA} \Rightarrow \pi r \ell = 2310$$

$$r = \frac{2310}{\pi \ell} = \frac{2310}{\frac{22}{7} \times 35}$$

$$r = 21 \text{ cm}$$

$$\text{TSA} = \pi r(r + \ell)$$

$$= \frac{22}{7} \times 21(21 + 35)$$

$$= 3696 \text{ cm}^2$$

S8. Ans.(a)

Sol.

Let the point c be (x, y)

ATQ,

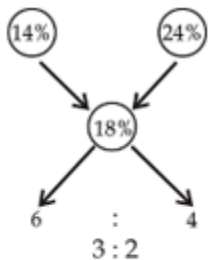
$$\frac{x+3-1}{3} = -1 \text{ \& \ } \frac{y+0-1}{3} = 2$$

$$\Rightarrow x = -5 \text{ \& \ } y = 7$$

$$\Rightarrow \text{Point C} = (-5, 7)$$

S9. Ans.(d)

Sol. ATQ,



\therefore Wheat sold at 24% profit

$$= \frac{13 \times 100}{5} \times 2$$

$$= 520 \text{ kg}$$

S10. Ans.(c);

Sol. Except parallelogram, all figures have supplementary opposite angles.

S11. Ans.(d)

Sol.

$$\text{Alcohol} = \frac{1}{5} \times 40 = 8\text{ l}$$

$$\text{Water} = \frac{4}{5} \times 40 = 32\text{ l}$$

$$\text{New quantity of water} = 32 + 10$$

$$= 42\text{ l}$$

$$\therefore \frac{\text{Alcohol}}{\text{Water}} = \frac{4}{21}$$

S12. Ans.(b)

Sol.

$$a - 6, a - 4, a - 2, a, a + 2, a + 4, a + 6$$

$$\therefore a = 31$$

$$\text{New average} = \frac{9a}{9} = a = 31$$

S13. Ans.(a)

Sol.

$$\Sigma \text{boys} = 24b$$

$$\Sigma \text{boys} - 36 + 30 = 23.5b$$

$$24b - 6 = 23.5b$$

$$\text{Or } 0.5b = 6$$

$$\text{Or, } b = 12$$

S14. Ans.(a)

Sol.

$$\text{Let CP} = 100$$

$$\therefore \text{SP} = 150$$

$$\text{Now, SP} = 75 \text{ \& CP} = 200$$

$$\text{So, Loss} = 125$$

$$\text{Loss\%} = \frac{125}{200} \times 100 = 62.5\%$$

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S15. Ans.(c)

Sol.

$$105 = 0.7CP$$

$$\text{Or, } CP = 150$$

$$\text{So, } SP = 1.3CP = 1.3 \times 150$$

$$= 130 + 65$$

$$= \text{Rs } 195$$

S16. Ans.(a)

Sol.

$$188160 = P \left(1 + \frac{12}{100}\right)^2$$

$$188160 = P \times \frac{112^2}{100^2}$$

$$188160 = P \times \frac{12544}{10000}$$

$$P = \frac{1881600000}{12544}$$

$$= 1,50,000$$

S17. Ans.(c)

Sol.

$$\text{Milk} = 0.4 \times 120$$

$$= 48\ell$$

$$\text{Water} = 72\ell$$

Quantity of water remaining same

$$\therefore \text{milk} = 72\ell$$

$$\text{So, quantity to be added} = 72 - 48 = 24\ell$$

S18. Ans.(b)

Sol.

$$\frac{d}{50} = t - \frac{1}{6} \quad \dots (i)$$

$$\frac{d}{40} = t + \frac{1}{3} \quad \dots (ii)$$

$$\Rightarrow \frac{10d}{40 \times 50} = \frac{1}{2}$$

$$\Rightarrow d = 100 \text{ km}$$

So, in equation $2 + \frac{1}{6} = t$

$$\frac{13}{6} = t$$

$$\therefore \text{speed} = \frac{100 \times 6}{13}$$

$$= \frac{600}{13} = 46 \frac{2}{13} \text{ km/hr}$$

S19. Ans.(a)

Sol.

Let distance be 1200 km

\therefore 400 km at 40 km/hr

300 km at 25 km/hr

& 500 km at 50 km/hr

So,

$$t_{\text{total}} = \frac{400}{40} + \frac{300}{25} + \frac{500}{50}$$

$$= 10 + 12 + 10 = 32 \text{ hrs}$$

$$\therefore \text{avg speed} = \frac{1200}{32} = 37.5 \text{ km/hr}$$

S20. Ans.(a)

Sol.

$$SI = \frac{1440 \times 3 \times 8}{100} = \text{Rs } 345.6$$

S21. Ans.(c)

Sol.

$$\frac{(\sqrt{2}-\sqrt{1})}{(\sqrt{2}^2-\sqrt{1}^2)} + \frac{(\sqrt{3}-\sqrt{2})}{(\sqrt{3}^2-\sqrt{2}^2)} + \frac{(\sqrt{4}-\sqrt{3})}{(\sqrt{4}^2-\sqrt{3}^2)} + \dots + \frac{(\sqrt{121}-\sqrt{120})}{(\sqrt{121}^2-\sqrt{120}^2)}$$

$$= (\sqrt{2}-\sqrt{1}) + (\sqrt{3}-\sqrt{2}) + (\sqrt{4}-\sqrt{3}) + \dots + (\sqrt{121}-\sqrt{120})$$

$$= -\sqrt{1} + \sqrt{121} = 11 - 1 = 10$$

S22. Ans.(a)

Sol.

$$\frac{\sqrt{5}}{2} - \frac{10}{\sqrt{5}} + \sqrt{125} = \frac{\sqrt{5}}{2} - \frac{10}{\sqrt{5}} + \frac{5\sqrt{5}}{1}$$

$$= \frac{5 - 20 + 10 \times 5}{2\sqrt{5}} = 7.826$$

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S23. Ans.(d)

Sol.

$$\left(\frac{-1}{216}\right)^{-\frac{2}{3}} = \left(\frac{-1}{6^3}\right)^{-\frac{2}{3}} = \left(\frac{-1}{6}\right)^{-2} = (-6)^2 = 36$$

S24. Ans.(d)

Sol.

$$AM = \frac{x+y}{2} = 5$$

$$x + y = 10 \quad \dots(i)$$

GM =

$$\sqrt{xy} = 4$$

$$xy = 16 \quad \dots(ii)$$

$$x = 8, y = 2$$

S25. Ans.(b)

Sol.

Work done by A in 1 day = $\frac{1}{40}$ units

Work done by A in 5 days = $5 \times \left(\frac{1}{40}\right) = \frac{1}{8}$ units

Remaining work = $1 - \frac{1}{8} = \frac{7}{8}$ units

Work done by B in 1 day = $\frac{7}{8 \times 21} = \frac{1}{24}$ units

Work done by both A and B in 1 day = $\frac{1}{40} + \frac{1}{24} = \frac{1}{15}$

Required no. of days = $\frac{1}{\frac{1}{15}} = 15$ days

S26. Ans.(d)

Sol.

Time taken by A = $(x+8)$ hours

Time taken by B = $\left(x + \frac{9}{2}\right)$ hours

Work done together in one hour = $\frac{1}{x+8} + \frac{1}{x + \frac{9}{2}}$

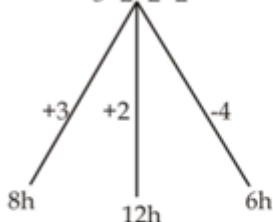
Required no. of hours = $x = \frac{[(x+8)(x + \frac{9}{2})]}{[2x + \frac{25}{2}]} = 6$ hours

S27. Ans.(b)

Sol.

Till 3pm the total fill the tank = $6 + 2 = 8$

$3 \times 2 \times 2 \times 2$



& total capacity = 24

So remaining capacity = 16

& req. time = $\frac{16}{3+2-4} = \frac{16}{1} = 16$ hours

So, time = 3pm + 16 hour = 7 a.m

S28. Ans.(c)

Sol.

$$\begin{aligned} \text{Total work} &= 124 \times 120 = 14880 \text{ men days} \\ \text{Work completed in 64 days} &= \frac{2}{3} \times 14880 \text{ men days} \\ &= 9920 \text{ men days} \\ \text{Remaining work for remaining 60 days} &= (14880 - 9920) \text{ men days} \\ &= 4960 \text{ men days} \\ \Rightarrow \frac{120 \times 64}{9920} &= \frac{M_2 \times 60}{4960} \\ M_2 &= 64 \\ \text{So, workman reduced} &= 120 - 64 = 56 \end{aligned}$$

S29. Ans.(c)

Sol.

let the speed of train on level terrain = x km/h
And mountainous terrain = $(x - 10)$ km/h

mountainous level
← 111 km → ← 188 km →

$$\frac{188}{x} + \frac{111}{x - 10} = 7$$
$$x = 47 \text{ km/hr}$$

S30. Ans.(d)

Sol.

Speed of train 20% faster than the car

$$\text{So, } 6(t - 12.5) = 5t$$

$$t = 1\frac{1}{4} \text{ hr}$$

$$\text{Speed of car} = \frac{75}{t} = \frac{75}{1\frac{1}{4}} = 60 \text{ km/hr}$$

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