

**Quant Mega Quiz for SSC CGL Tier-1 (Solutions)**

S1. Ans.(d)

Sol.

$$N_1 : N_2 : N_3 \\ 50 : 10 : 100$$

% increase  $N_2$  in to make it equal to  $N_1$

$$= \frac{50-10}{10} \times 100 = 400\%$$

S2. Ans.(c)

Sol.

$$\frac{2714}{5074} = \frac{23 \times 118}{43 \times 118} = \frac{23}{43}$$

S3. Ans.(a)

Sol.

$$\operatorname{cosec} 120^\circ = \operatorname{cosec} (90^\circ + 30^\circ)$$

$$= \sec 30^\circ = \frac{2}{\sqrt{3}}$$

S4. Ans.(a)

Sol.

$$2\pi r = 22 \Rightarrow r = \frac{7}{2} \text{ cm}$$

$$\pi r^2 h = 770 \Rightarrow h = 20 \text{ cm}$$

$$\text{Curved surface area} = 2\pi r h$$

$$= 2 \times \frac{22}{7} \times \frac{7}{2} \times 20$$

$$= 440 \text{ cm}^2$$

S5. Ans.(b)

Sol.

$$\text{Sum of interior angles} = (n - 2) \times 180^\circ$$

$$= (14 - 2) \times 180^\circ$$

$$= 2160^\circ$$

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S6. Ans.(a)

Sol.

$$\begin{aligned}\text{Distance} &= \frac{5 \times 0.35}{(7-5)} \text{ km} \\ &= 0.875 \text{ km} = 875 \text{ m}\end{aligned}$$

S7. Ans.(a)

Sol.

ATQ,

$$\frac{(A \times 25)}{\frac{3}{4}} = \frac{(A+B) \times 5}{\frac{1}{4}}$$

$$\frac{A}{B} = \frac{3}{2}$$

$$\text{Total work} = \frac{3 \times 25}{\left(\frac{3}{4}\right)} \text{ or } \frac{(3+2) \times 5}{\frac{1}{4}}$$

= 100 units

$$\text{B, alone} = \frac{100}{2} = 50 \text{ days.}$$

S8. Ans.(a)

Sol.

Let the nos be

$$\underbrace{(n-28), (n-26), \dots, n, \dots, (n+26), (n+28)}_{14 \text{ nos}}$$

When the total nos are odd then the middle no is always their mean.

$$\therefore n = 60$$

$$\text{Highest no.} = n + 28 = 88$$

S9. Ans.(b)

Sol.

$$\begin{aligned}& [4(2x-3y) + 5(x+4y)] - [5(2x-y)] \\ &= [13x+8y] - [10x-5y] \\ &= 3x+13y\end{aligned}$$

S10. Ans.(d)

Sol.

$$\text{From, } 3(2-3x) < 2-3x \Rightarrow x > \frac{2}{3}$$

$$\text{From, } 2-3x \geq 4x-6 \Rightarrow x \leq \frac{8}{7}$$

From given options, only (d) X= 1 satisfies both equations.

S11. Ans.(d)

Sol.

$$12T+9C= \text{Rs } 15400$$

$$\text{Overall profit\%} = \frac{2080}{15400} \times 100$$

$$= \frac{1040}{77} \%$$

770

1540

1040

500

270



9 chairs → Rs 5400

3 chairs → Rs 1800

S12. Ans.(b)

Sol.

$$6.6 = M - 18 - \frac{M \times 18}{100}$$

$$\Rightarrow M = 30$$

S13. Ans.(a)

Sol.

$$\text{Net effective discount} = 20 + 25 - \frac{20 \times 25}{100}$$

$$= 40\%$$

$$\frac{CP}{MP} = \frac{100 - D}{100 + P} = \frac{60}{120} = \frac{1}{2}$$

$$\therefore \% \text{ profit} = 100\%$$

S14. Ans.(c)

Sol.

		M		
2	4	(6)	8	10
		↓+10		
12	14	(16)	18	20

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S15. Ans.(b)

Sol.

$$\frac{2x+1}{x+2} = \frac{2}{5}$$
$$10x + 5 = 2x + 4$$
$$8x = -1$$
$$X = -\frac{1}{8}$$

$$\text{Mean proportion} = \sqrt{3.5 \left(1 + \frac{1}{8}\right) \times 8 \left(1 - \frac{1}{8}\right)}$$
$$= \sqrt{3.5 \times \frac{9}{8} \times 8 \times \frac{7}{8}}$$
$$= \frac{7 \times 6}{8}$$
$$= \frac{21}{4}$$

S16. Ans.(c)

Sol.

$$A : B : C$$
$$4 : 5 : 6$$

$$\text{Total work} = 4 \times 30 = 120$$

$$(A + B + C) = 4 + 5 + 6 = 15$$

$$3 \times 15 = 45$$

$$\text{Remaining work done by B} = \frac{120 - 45}{5}$$
$$= \frac{75}{5} = 15 \text{ days.}$$

S17. Ans.(b)

Sol.

$$\text{Rate for two years} = 8\%$$

$$\text{Rate after remaining time} = 8 \times \frac{5}{8}$$
$$= 5\%$$

$$\text{Successive rate} = 8 + 8 + \frac{8 \times 8}{100}$$

$$= 16.64$$

$$16.64 + 5 + \frac{16.64 \times 5}{100}$$

$$= 22.472\%$$

$$\text{C.I} = 12000 \times \frac{22.472}{100}$$

$$= 2696.64 \text{ Rs.}$$

S18. Ans.(c)

Sol.

$x \rightarrow$  speed of person.

$y \rightarrow$  speed of current

$$x - y = \frac{15 \times 2}{4 \times 3} = 2.5 \text{ km/h}$$

$$x + y = \frac{15}{2} = 7.5$$

$$x - y = 2.5$$

$$x + y = 7.5$$

$$\hline 2x = 10$$

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

ATQ,

Distance covered by person

$$\frac{80}{5} = 16 \text{ hr.}$$

S19. Ans(a)

Sol.

$$\text{Required average} = \frac{250+340+280+450+360}{5} = 336$$

S20. Ans(b)

Sol. No. of student studying five different disciplines from institute A =  $340+250+460+150+300=1500$

No. of student studying five different disciplines from institute D =  $430 + 450 + 425 + 130 + 350 = 1785$

$$\text{Required \%} = \frac{1785}{1500} \times 100 = 119\%$$

S21. Ans.(a)

Sol.

$$\frac{1}{2} - \frac{1}{2} = 0$$

$$\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2}$$

S22. Ans.(b)

Sol.

$$x^3 + y^3 + z^3 - 3xyz = (x + y + z)\{(x + y + z)^2 - 3(xy + yz + zx)\}$$

$$\Rightarrow x + y + y + z + z + x = 4 + 5 + 5 = 14$$

$$2(x + y + z) = 14$$

$$x + y + z = 7$$

$$= (7) (49 - 3(2 + 3 + 4)) = (7) (22) = 154$$

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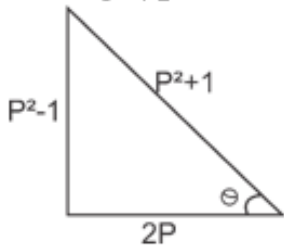
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S23. Ans.(a)

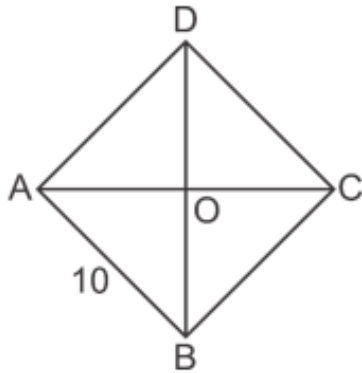
Sol.

$$\sin\theta = \frac{p^2-1}{p^2+1}$$



S24. Ans.(c)

Sol.



$$AC = 12\text{cm}$$

$$AO = 6\text{ cm}$$

$$BO = 8\text{ cm (by Pythagoras)}$$

$$BD = 8 \times 2 = 16$$

$$\text{Area} = \frac{1}{2} \times 16 \times 12 = 96\text{ cm}^2$$

S25. Ans.(a)

Sol.

$$= 40 - 6 + [24 \div 6 - 4]$$

$$= 40 - 6 + 0$$

$$= 34$$

S26. Ans.(d)

Sol.

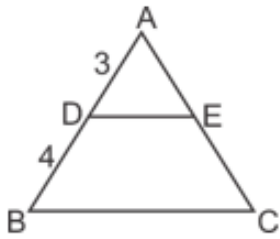
$$\text{Total students in 2014-15} = 200+100=300$$

$$\text{Total students in 2013-14} = 150+100=250$$

$$\% \text{ increase} = \frac{50}{250} \times 100 = 20\%$$

S27. Ans.(c)

Sol.



$$\frac{\text{Area of } \triangle ADE}{\text{Area of } \triangle ABC} = \left(\frac{3}{7}\right)^2 = \frac{9}{49}$$

$$\frac{\text{DECB}}{\triangle ABC} = \frac{40}{49}$$

S28. Ans.(a)

Sol.

$$x + 65^\circ + 9x = 90^\circ$$

$$10x = 25^\circ$$

$$x = 2.5^\circ$$

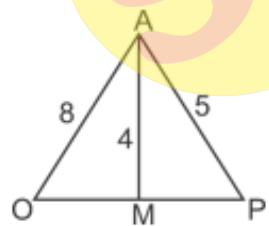
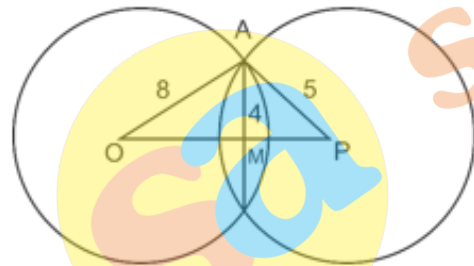
S29. Ans.(d)

Sol.

$$\text{Req. Avg} = \frac{100 + 100 + 50 + 100 + 100}{5} = 90$$

S30. Ans.(b)

Sol.



$$OM = \sqrt{64 - 16} = \sqrt{48} \simeq 7$$

$$MP = \sqrt{25 - 16} = \sqrt{9} = 3$$

$$OP = x = 7 + 3 = 10$$

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