Quant Mega Quiz for SSC CGL Tier – 2 (Solutions)

S1. Ans. (b)

Sol.

$x : y = 3 : 2$

$y : z = 3 : 2$

$x : y : z = 9 : 6 : 4$

$9a + 6a + 4a = 342$

$a = 18$

So,

$A \rightarrow 162$

$B \rightarrow 108$

$C \rightarrow 72$

S2. Ans. (c)

Sol.

$\frac{A}{2} = \frac{B}{3} = \frac{C}{4}$

$A : B : C = 2 : 3 : 4$

$A = \frac{2}{9} \times 900 = 200$

$B = \frac{3}{9} \times 900 = 300$

$C = \frac{4}{9} \times 900 = 400$

S3. Ans. (c)

Sol.

$A : B : C = 2 : 5 : 4$

$\text{Difference} = \left(\frac{5}{11} - \frac{2}{11}\right) \times 126.50$

$= \frac{3}{11} \times 126.50 = 34.50$

S4. Ans. (b)

Sol.

$\frac{a+b+c}{3} = 2d$

$a + b + c = 6d$ ...(i)

$\frac{a+b+c+d}{4} = 12$

$a + b + c + d = 48$

$6d + d = 48$

$d = \frac{48}{7}$

S5. Ans. (b)

Sol.

No. $= x, x + 2 \ldots\ldots\ldots\ldots, x + 10$

Req. diff $= x + 10 - x = 10$

S6. Ans. (d)

Sol.

Req. Avg. Speed $= \frac{2 \times 30 \times 20}{30 + 20} = 24$ kmph

S7. Ans. (b)

Sol.

On adding 6. arithmetic mean $= 24 + 6 = 30$

On multiplying by 2.5 arithmetic mean $= 30 \times 2.5 = 75$

S8. Ans. (c)

Sol.

ATQ,

$11(x - 5) + 120 = 12x$

$x = 65$ runs

S9. Ans. (d)

Sol.

Sixth result $= 6 \times 49 + 6 \times 52 - 11 \times 50$

$= 294 + 312 - 550 = 56$

S10. Ans. (a)
Sol.

SP of 25m of cloth – CP of 25m of cloth
= SP of 5m of cloth
∴ CP of 25m of cloth = SP of 20m of cloth
CP = 20, SP = 25
gain percent = $\frac{5}{20} \times 100 = 25\%$

S11. Ans.(b)
Sol.
Let length of pencil x & length of broken parts is a & b
$\frac{x}{a} = \frac{a}{b}$
x = a + b
$\frac{a+b}{a} = \frac{a}{b}$
$ab + b^2 = a^2$
$a^2 - b^2 - ab = 0$ ...(i)
Let b = 1
a : b = a : 1
Putting b = 1 in (i)
$a^2 - 1 - a = 0$
$a^2 - a - 1 = 0$
Using quadratic

$$a = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = \frac{1 + \sqrt{1+4}}{2}$$

$$a = \frac{1+\sqrt{5}}{2}$$

$$a : b = \frac{1+\sqrt{5}}{2} : 1$$

$= 1 + \sqrt{5} : 2$
$x = a + b = 2 + 1 + \sqrt{5}$
$= 3 + \sqrt{5}$
$b : x = 2 : 3 + \sqrt{5}$

S12. Ans.(b)

Sol.

Cello : Rotomac

2000 → 3 : 5

Cello → 3x

Rotomac → 5x

2005 → Cello → 3x × 3 = 9x

Rotomac → 5x + 100

$$\frac{9x}{5x+100} = \frac{4}{5}$$

45x = 20x + 400

25x = 400

x = 16

Rotomac = 5 × 16= 80 Rs.

S13. Ans.(c)

Sol.

	Water	:	Pulp
Fresh →	4	:	1×2
Crushed →	3	:	2

8 : 2

3 : 2

10r → 1.5

1r → 0.15

Weigh of grapes crushed = (8 – 3) r

= 5r

= 5 × 0.15

= 0.75 kg

S14. Ans.(d)

Sol.

		Milk	:	Water
Bobby →	Initial →	1	:	1 ×2
	Final →	3	:	2
		2	:	2
		3	:	2

Milk added → 1 ratio

		Milk	:	Water
Sunny →	Initial →	1	:	1 ×2
	Final →	3	:	2
		2	:	2
		3	:	2

Replacement formula →

$\frac{2}{5} = \frac{2}{4}\left(1 - \frac{K}{4}\right)$

$k = \frac{4}{5}$

Milk Replaced → 4/5r

Required % = $\frac{1}{\frac{4}{5}} \times 100 = 125\%$

S15. Ans.(b)

Sol.

$\frac{5x + 40}{6x + 40} = \frac{7}{8} \Rightarrow \frac{\text{Akbar}}{\text{Birbal}}$

⇒ x = 20

∴ The actual number of shares of less salaried person

= 100 ∴ (5 × 20 = 100)

∴ The salary of Akbar = 100 × 75 = 7500

S16. Ans.(c)

Sol.

Let salary of men → 100

His brother's salary → $100 \times \frac{110}{100}$

= 110

$9.09\% \Rightarrow \frac{1}{11}$

11r → 110

12r → 120

His sisters salary = 120

$56\frac{12}{23}\% \Rightarrow \frac{1300}{23}\% \Rightarrow \frac{13}{23}$

Brother + Sister ⇒ 110 + 120

⇒ 230

23r ⇒ 230

1r ⇒ 10

Wife's Salary = 23 − 13

= 10r

= 10 × 10

= 100

Wife's Salary is equal to Husbands salary.

S17. Ans.(b)

Sol.

$$\frac{0.75 + 0.25}{\frac{0.75}{B} + \frac{0.25}{S}}$$

$$\Rightarrow \frac{BS}{0.75S + 0.25B}$$

$$\Rightarrow \frac{100BS}{75S + 25B}$$

$$\Rightarrow \frac{4BS}{3S + B}$$

S18. Ans.(a)

Sol.

Earning from autorickshaw for 1 round= $4 \times 12 = 48$ Rs.

Earning from Maxi cab for 1 round= $10 \times \frac{80}{100} \times 15 = 120$ Rs.

Earning from minibus= $20 \times \frac{75}{100} \times 8 = 120$ Rs.

Average earning= $\frac{120+120+48}{3} = \frac{288}{3} = 96$ Rs.

S19. Ans.(b)

Sol.

1982 → Average Age → 50

Total Age ⇒ $50 \times 100 = 5000$

1984 → Average age before Retirement = 52

Total = 5200

Average age of 20 Nurses who retired = 60

Total age = $5200 - 60 \times 20 = 4000$

Average age of 80 Nurses = $\frac{4000}{80} = 50$

1987 → Average age of 80 Nurses before recruitment = 50 + 3= 53

Total = $53 \times 80 = 4240$

Average age of 40 new nurses = 38

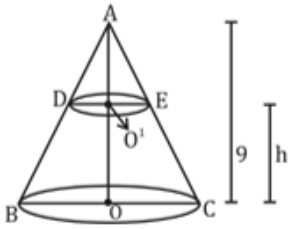
Total = $38 \times 40 = 1520$

Total age of 120 nurses = 1520 + 4240= 5760

Average age of 120 nurses = 5760/120= 48

Average Age in 1990= 48 + 3= 51

S20. Ans.(b)
Sol.



$\Delta ADO' \cong \Delta ABO$

$\frac{AO'}{AO} = \frac{DO'}{BO}$

$\frac{9-h}{9} = \frac{r}{3}$

$3r = 9 - h$

$h = 9 - 3r$

volume of frustum $= \frac{1}{3}\pi h(r_1^2 + r_1 r_2 + r_2^2)$

$44 = \frac{1}{3}\pi(9 - 3r)(9 + r^2 + 3r)$

$44 = \frac{1}{3}\pi \times 3(3-r)(3^2 + 3r + r^2)$

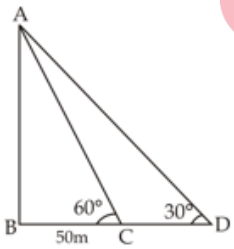
$44 = \frac{22}{7}[(3)^3 - r^3]$

$14 = 27 - r^3$

$r = \sqrt[3]{13}\ cm$

S21. Ans.(c)
Sol.

In ΔABD,



$\tan 60° = \frac{AB}{BD}$

$\sqrt{3} = \frac{AB}{50}$

$AB = 50\sqrt{3}$ m

In ΔABC

$\tan 30° = \frac{AB}{BC}$

$\frac{1}{\sqrt{3}} = \frac{50\sqrt{3}}{BC}$

$BC = 150$ m

$DC = 150 - 50 = 100$m

Speed of boat $= \frac{100\text{m}}{8\text{sec}}$

$= \frac{100}{8} \times \frac{18}{8}$ km/hr

$= 45$ km/hr

S22. Ans.(a)
Sol.

$$\frac{n_1}{n_2} = \frac{5}{6}$$

$$\frac{\frac{(n_1 - 2) \times 180}{n_1}}{\frac{(n_2 - 2) \times 180}{n_2}} = \frac{24}{25}$$

$$\frac{(n_1 - 2)}{(n_2 - 2)} \times \frac{n_2}{n_1} = \frac{24}{25}$$

$$\frac{(n_1 - 2)}{(n_2 - 2)} \times \frac{6}{5} = \frac{24}{25}$$

$$\frac{(n_1 - 2)}{(n_2 - 2} = \frac{4}{5}$$

$5n_1 - 10 = 4n_2 - 8$

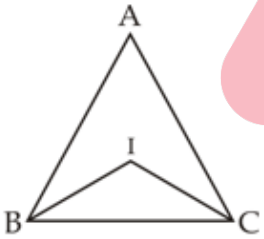
$5n_1 - 4n_2 = 2$

$$\frac{25n_2}{6} - 4n_2 = 2$$

$n_2 = 12$

$n_1 = 10$

S23. Ans.(b)
Sol.



$\angle BAC = 180° - (65 + 55°)$

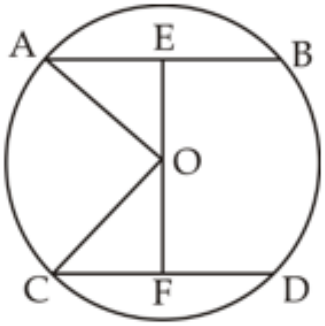
$= 180° - 120$

$= 60°$

$$\angle BIC = 90 + \frac{\angle A}{2}$$

$= 90 + 30 = 120°$

S24. Ans.(a)
Sol.



EO = x, OF = 17 – x

AB = 10 CD = 24

AE = 5cm CF = 12

In ΔAOE

$AO^2 = 25 + x^2$

In ΔCOF

$CO^2 = 144 + (17 - x)^2$

AO = CO =r

$25 + x^2 = 144 + 289 + x^2 - 34x$

$34x = 144 + 289 - 25$

$x = 12$

$AO^2 = 25 + 144$

$AO^2 = 169$

AO = 13 cm

Radius = 13 cm

S25. Ans.(b)

Sol.

$\frac{Run_{10}}{10} = 60$

Run10 = 600

$\frac{Run_{11}}{11} = 62$

Run11 = 682

Run10 + 11th Inning = 682

Run required in 1th inning = 682 – 600

= 82

S26. Ans.(a)

Sol.

Workers	⇒	15	:	11
Wages	⇒	22	:	25
Total wages	⇒	330	:	275

:

Ratio by which total wage of worker be decreased

= 330 : 275

= 6 : 5

S27. Ans.(b)

Sol.

Interest on ¼ capital $= \frac{1}{4} \times \frac{3}{100}$

$= \frac{3}{400}$

Interest on $\frac{2}{3}$ capital $= \frac{2}{3} \times \frac{5}{100} = \frac{1}{30}$

Interest on $\frac{1}{12}$ capital $= \frac{1}{12} \times \frac{11}{100} = \frac{11}{1200}$

Total interest $= \frac{3}{400} + \frac{1}{30} + \frac{11}{1200}$

$= \frac{9 + 40 + 11}{1200}$

$= \frac{60}{1200} = \frac{1}{20}$

% he receives on the whole

$= \frac{1}{\frac{20}{1}} \times 100$

= 5%

S28. Ans.(c)

Sol.

$n_1^{\frac{1}{t_1}} = n_2^{\frac{1}{t_2}}$

$2^{\frac{1}{4}} = 4^{\frac{1}{t_2}}$

$2^{\frac{1}{4}} = 2^{\frac{2}{t_2}}$

$\frac{1}{4} = \frac{2}{t_2}$

t_2 = 8 years

S29. Ans.(c)

Sol.

$x \rightarrow \frac{1}{4th}$ work → 6days

Whole work → 24 days

$y \rightarrow \frac{3th}{4}$ work → 12 days whole work ⇒ 16 days

x & y will complete the whole work is

$\Rightarrow \frac{1}{24} + \frac{1}{16}$

$\Rightarrow \frac{24+16}{24\times 16}$

$\Rightarrow \frac{40}{24\times 16}$

$\Rightarrow \frac{5}{48}$

Days required $= \frac{48}{5}$

$= 9\frac{3}{5}$ days

S30. Ans.(c)

Sol.

$(2M + 3B) \times 10 = (3M + 2B) \times 8$

$20M + 30B = 24M + 16B$

$4M = 14B$

$M = \frac{7}{2}B$

$2M + 3B \Rightarrow 2 \times \frac{7}{2}B + 3B \Rightarrow 10B$

$2M + 1B \Rightarrow 2 \times \frac{7}{2}B + 1B \Rightarrow 8B$

$10B \times 10 = 8B \times$ Days

Days $= \frac{100}{8}$

$= \frac{25}{2}$

$= 12\frac{1}{2}$ days