

**Quant Mega Quiz for SSC CGL Tier - 2 (Solutions)**

**S1. Ans.(c)**

**Sol.**

$$1^{\text{st}} \text{ no} = 44 \times 2 = 88$$

$$1^{\text{st}} \text{ no} \times 2^{\text{nd}} \text{ no} = \text{H.C.F.} \times \text{L.C.M.}$$

$$88 \times 2^{\text{nd}} \text{ no} = 44 \times 264$$

$$2^{\text{nd}} \text{ no} = 132$$

**S2. Ans.(c)**

**Sol.**

$$\text{L.C.M. of } = (4, 6, 8, 12, 16) = 48$$

$$\text{Required no.} = 48 + 2 = 50$$

**S3. Ans.(d)**

**Sol.**

$$\text{Greatest no. of 5 digit} = 99999$$

$$\text{L.C.M. of } = (3, 5, 8, 12) = 120$$

$$\frac{99999}{120} = 39 \text{ remainder}$$

$$99999 - 39 = 99960$$

$$\text{Required no.} = 99960 + 2 = 99962$$

**S4. Ans.(d)**

**Sol.**

$$\text{Required time} = \text{L.C.M. } (252, 308, 198)$$

$$= 2772 \text{ seconds}$$

$$= 46 \text{ min } 12 \text{ sec}$$

**S5. Ans.(b)**

**Sol.**

$$\text{L.C.M. of } = (15, 18, 21, 24)$$

$$= 2520$$

$$\text{Largest 4 digit no.} = 9999$$

$$\frac{9999}{2520} = 2439 \leftarrow \text{Remainder}$$

$$9999 - 2439 = 7560$$

$$\text{Required no.} = 7560 - 4 \left[ \begin{array}{l} 15 - 11 = 4, \quad 18 - 14 = 4 \\ 21 - 17 = 4, \quad 24 - 20 = 4 \end{array} \right]$$

$$= 7556$$

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**S6. Ans.(c)**

**Sol.**

$$\text{L.C.M. of } (12, 18, 21, 30) = 1260$$

$$\text{Required no.} = \frac{1260}{2} = 630$$

**S7. Ans.(b)**

**Sol.** Required no. = L.C.M. (6, 8, 10) = 120

**S8. Ans.(c)**

**Sol.**

Here, Divisor - Remainder = 1 [10 - 9 = 1, 9 - 8 = 1, 8 - 7 = 1]

Required Number = L.C.M. of (10, 9, 8) - 1

$$= 360 - 1 = 359$$

**S9. Ans.(c)**

**Sol.**

$$\text{L.C.M. of } (9, 10, 15) = 90$$

The multiple of 90 are divisible by 9, 10 or 15

$$90 \times 21 = 1890 \text{ [ is divisible by 9, 10 and 15]}$$

$$\text{No that give remainder 7} = 1890 + 7 = 1897$$

$$\text{Required no.} = 1936 - 1897 = 39$$

**S10. Ans.(b)**

**Sol.**

$$\text{L.C.M. of } (20, 30, 40) = 120\text{m}$$

$$\text{Time} = 11 \text{ am} + 120 \text{ min}$$

$$= 11 \text{ am} + 2 \text{ hr}$$

$$= 1 \text{ pm}$$

**S11. Ans.(c)**

**Sol.**

	A	:	W	
Original Mixture	1	:	2	) 2   3r → 10.5 1r → 3.5
Resultant Mixture	1	:	4	

$$1r \rightarrow 3.5 \text{ L}$$

$$2r \rightarrow 7 \text{ L}$$

**S12. Ans.(a)**

**Sol.**

Using Allegation

$$450 \quad 525$$

$$500$$

$$\hline 25 \quad : \quad 50$$

$$1 \quad : \quad 2$$

S13. Ans.(a)

Sol.

$$\begin{array}{l} \text{A} \quad : \quad \text{B} \quad : \quad \text{C} \\ 5\text{Lakh} \times 12 \quad : \quad 10\text{Lakh} \times 8 \quad : \quad 15\text{Lakh} \times 6 \\ \underline{\quad 6 \quad \quad \quad} \quad : \quad \underline{\quad 8 \quad \quad \quad} \quad : \quad \underline{\quad 9 \quad \quad \quad} \end{array}$$

$$23r \rightarrow 560000$$

$$9r \rightarrow 180000 \text{ Rs.}$$

S14. Ans.(b)

Sol.

$$\begin{array}{ccccccc} X & : & Y & : & Z & & \\ & & & & 12 & : & 15 & : & 22 \\ & & & & \nearrow & & \nearrow & & \nearrow \\ X \rightarrow & 3 & : & 5, & Y \rightarrow & 5 & : & 6, & Z \rightarrow & 11 & : & 13 \\ & \searrow & & \searrow & & \searrow & & \searrow & & \searrow & & \searrow \\ & 20 & : & 18 & : & 26 & & & & & & \\ \Rightarrow & 10 & : & 9 & : & 13 & & & & & & \end{array}$$

S15. Ans.(c)

Sol.

$$\begin{array}{l} \text{Water} \quad : \quad \text{Pulp} \\ \text{Fresh} \rightarrow \quad 4 \quad : \quad 1 \times 2 \\ \text{Crushed} \rightarrow \quad 3 \quad : \quad 2 \\ \hline \end{array}$$

$$8 : 2$$

$$3 : 2$$

$$10r \rightarrow 1.5$$

$$1r \rightarrow 0.15$$

$$\text{Weigh of grapes crushed} = (8 - 3)r$$

$$= 5r$$

$$= 5 \times 0.15$$

$$= 0.75 \text{ kg}$$

S16. Ans.(b)

Sol.

Let length of pencil x & length of broken parts is a & b

$$\frac{x}{a} = \frac{a}{b}$$

$$x = a + b$$

$$\frac{a + b}{a} = \frac{a}{b}$$

$$ab + b^2 = a^2$$

$$a^2 - b^2 - ab = 0 \quad \dots(i)$$

$$\text{Let } b = 1$$

$$a : b = a : 1$$

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Putting  $b = 1$  in (i)

$$a^2 - 1 - a = 0$$

$$a^2 - a - 1 = 0$$

Using quadratic

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

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

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

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

$$= 1 + \sqrt{5} : 2$$

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

$$= 3 + \sqrt{5}$$

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

**S17. 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 →  $4/5r$

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

**S18. Ans.(b)**

**Sol.**

Density of  $P_1$ ,  $P_2$  and  $P_3$  are 18, 14 and 10 gm/cc

again since volume =  $\frac{\text{weight}}{\text{density}}$

$$\text{Now the weight of } P_3 \text{ in 450 kg mixture} = \frac{450 \times 4}{15} = 120 \text{ kg}$$

$$\text{Now the volume of } P_3 = \frac{120}{10} = 12 \text{ litre}$$

$$\therefore \text{The cost of 12 litre } P_3 \text{ petrol} = 12 \times 40 = \text{Rs. 480}$$

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**S19. Ans.(c)**

**Sol.** Since Pooja and Shipra are twins so their ages be same. Let their ages be  $x$  and age of Monika be  $y$ , then,

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

and

$$\frac{(x - 3)}{(y - 3)} = \frac{2}{7}$$

$$\Rightarrow 7x - 2y = 15$$

Now, from equation (i),

$$7x - 4x = 15 \Rightarrow x = 5$$

So the age of Shipra 3 years hence will be  $5 + 3 = 8$  years.

**S20. Ans.(b)**

**Sol.**

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

$$\Rightarrow x = 20$$

$\therefore$  The actual number of shares of less salaried person

$$= 100 \quad \therefore (5 \times 20 = 100)$$

$$\therefore \text{The salary of Akbar} = 100 \times 75 = 7500$$

**S21. Ans.(b)**

**Sol.** ATQ,

$$\frac{13x + 40}{2x - 20} = \frac{15}{1}$$

$$x = 20$$

$$\text{Total students} = 20 \times 15 = 300$$

**S22. Ans.(a)**

**Sol.**

$$\begin{array}{l} A : B : C \\ 9 : 14 : 5 \\ \downarrow -3 \quad \downarrow -3 \end{array}$$

$$\text{After transforming} \rightarrow 9 : 11 : 2$$

$$3r \rightarrow 90000$$

$$1r \rightarrow 30000$$

$$9r \rightarrow 270000 \text{ Rs.}$$

**S23. Ans.(b)**

$$\text{Sol. } 2(a + b + c)r \rightarrow 30$$

$$(a + b + c)r \rightarrow 15$$

$$15r \rightarrow 30 \Rightarrow 1r \rightarrow 2$$

$$a + b = 18, b + c = 22, c + a = 20$$

$$a = 8, b = 10, c = 12$$

$$\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = \frac{1}{8} : \frac{1}{10} : \frac{1}{12} = 15 : 12 : 10$$

**S24. Ans.(c)**

**Sol.**  $(3x + x) (4 + x) = (25 + x) (7 + x)$

$$x^2 + 39x + 140 = x^2 + 32x + 175$$

$$7x = 35$$

$$x = 5$$

$$(31 + x) = 36$$

$$(9 - x) = 4$$

$$\text{Mean proportion} = \sqrt{36 \times 4}$$

$$= \sqrt{144} = 12$$

**S25. Ans.(a)**

**Sol.** L.C.M of (7, 14, 5) = 70

A & B are mixed in the ratio  $\rightarrow 2 : 3$

$$A \rightarrow 70 \times \frac{2}{5} = 28$$

$$B \rightarrow 70 \times \frac{3}{5} = 42$$

$$\text{Zinc in A} \Rightarrow \frac{4}{7} \times 28 = 16, \text{ Copper in A} \Rightarrow \frac{3}{7} \times 28 = 12$$

$$\text{Zinc in B} = \frac{9}{14} \times 42 = 27, \text{ Copper in B} = \frac{5}{14} \times 42 = 15$$

$$\text{Copper : zinc [in alloy c]} = 27 : 43$$



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