

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

S1. Ans.(c)

Sol.

Let the initial quantity of solution be x lit

ATQ,

$$\frac{\text{Sugar}}{\text{water}} = \frac{\frac{x \times 3}{8} - \frac{30x}{100} \times \frac{3}{8}}{\left(\frac{x \times 5}{8} - \frac{30x}{100} \times \frac{5}{8}\right) + \frac{5x}{100}}$$

$$= \frac{21x \times 80}{80 \times 39x} = 7:13$$

S2. Ans.(d)

Sol. Let the investment of A, B and C be Rs. 3x, Rs. 5x and Rs. y. respectively

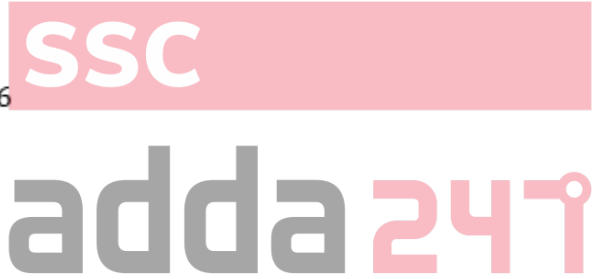
Therefore,

A	B	C
3x × 12	5x × 12	y × 6
36x	60x	6y

ATQ,

$$60x = 6y \Rightarrow y = 10x$$

$$\text{Required percentage} = \frac{3x}{10x} \times 100 = 30\%$$



S3. Ans.(d)

Sol. Let the speed of boat in still water be 5x km/hr and that of stream be 3x km/hr.

ATQ,

$$\frac{48}{8x} + \frac{48}{2x} = 12$$

$$\Rightarrow \frac{48+192}{8x} = 12$$

$$\Rightarrow x = 2.5$$

Speed of boat in still water = 5x

= 12.5 km/hr

S4. Ans.(a)

Sol.

$$SI = \frac{\text{principle} \times \text{rate} \times \text{time}}{100}$$

$$T = \frac{5040 \times 100}{12600 \times 8} = 5 \text{ year}$$

Amount in 2 year at CI = $12600 \times \frac{7}{6} \times \frac{7}{6} = \text{Rs. } 17150$

CI = Rs. 17150 – Rs. 12600 = Rs. 4550

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S5. Ans.(d)**Sol.**

Let the CP be Rs. 100x

Then,

$$MP = 100x \times \frac{145}{100} = \text{Rs. } 145x$$

$$SP = 145x \times \frac{85}{100} \times \frac{98}{100} = \text{Rs. } 108.46x$$

ATQ,

$$8.46x = 126.9$$

$$\Rightarrow x = 15$$

$$CP = \text{Rs. } 1500$$

$$SP \text{ at a profit of } 15\% = 1500 \times \frac{115}{100} = \text{Rs. } 1725.$$

S6. Ans.(b)**Sol.**

Let efficiency of A and B per hour be a and b respectively.

$$\text{Total work} \rightarrow (7.5a + 7.5b) \times 4 = 30a + 30b$$

Now they work 4 hour in a day

Work done by A in one day

$$= a + \frac{a}{2} + \frac{a}{4} + \frac{a}{8}$$

$$= \frac{15a}{8}$$

Similarly,

$$\text{work done by B in one day} \Rightarrow \frac{15b}{8}$$

$$\text{Work done by both in} = \frac{30a + 30b}{\frac{15a}{8} + \frac{15b}{8}} = \frac{30}{15} \times 8 = 16 \text{ days}$$

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S7. Ans.(d)**Sol.**

ATQ,

$$\left(5X \times \frac{25}{100} \times 4\right) + \left(8X \left(\left(1 + \frac{20}{100}\right)^3 - 1\right)\right) = 1,29,888$$

$$5X + \frac{728X}{125} = 1,29,888$$

$$\frac{1353X}{125} = 1,29,888$$

$$X = 12,000$$

S8. Ans.(c)**Sol.**

Let total work be 120 units (LCM of 20 & 24)

$$\text{So, efficiency of A} = \frac{120}{20}$$

$$= 6 \text{ units/day}$$

$$\text{And, efficiency of B} = \frac{120}{24}$$

$$= 5 \text{ units/day}$$

$$\text{And, efficiency of C} = \frac{80}{100} \times 5$$

$$= 4 \text{ units/day}$$

$$\text{Required time} = \frac{120}{6+5+4}$$

$$= 8 \text{ days}$$

S9. Ans.(d)

Sol.

Let the present age of Himanshu be $2x$ years.

So, present age of Adarsh = $3x$ years

And, present age of Prashant = $(3x - 5)$ years

ATQ,

$$\frac{(3x-5)-5}{2x-5} = \frac{4}{3}$$

$$9x - 30 = 8x - 20$$

$$x = 10$$

$$\text{Required average} = \frac{2x+3x+3x-5}{3}$$

$$= \frac{75}{3}$$

$$= 25 \text{ years}$$

S10. Ans.(b)

Sol.

Let cost price of an article be Rs. $100x$.

So, marked price of an article = $100x \times \frac{140}{100}$

$$= \text{Rs. } 140x$$

In Shivam's transaction:

Total cost price of transaction for shopkeeper = $10 \times 100x$

$$= \text{Rs. } 1000x$$

Total selling price of transaction for shopkeeper = $8 \times 140x$

$$= \text{Rs. } 1120x$$

$$\text{Required profit \%} = \frac{1120x - 1000x}{1000x} \times 100$$

$$= 12\%$$

S11. Ans.(d)

Sol.

Let the usual time be ' t ' hrs and usual speed be ' x ' km/h

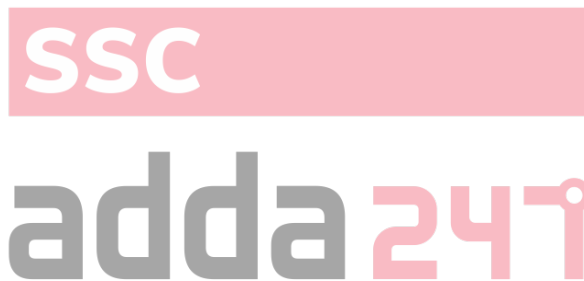
ATQ,

$$126 = xt \quad \dots(i)$$

$$\text{And } 126 = (x-6) \times \left(t + \frac{3}{60}\right)$$

$$126 = (x-6) \times \left(\frac{126}{x} + \frac{1}{20}\right) \quad \dots(ii)$$

By using options $x = 126$ km /hr satisfies the above equation



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S12. Ans.(d)

Sol.

$$x \xrightarrow{6\text{yrs}} 3x$$

$$81 \Rightarrow (3^4)$$

$$\text{Hence, } 6 \times 4 \text{ yrs} = 24 \text{ yrs}$$

S13. Ans.(b)

Sol.

$$\text{gain percent} = \frac{40-25}{25} \times 100 = 60\%$$

S14. Ans.(b)

Sol.

A.T.Q.

$$x \times \frac{6}{5} \times \frac{6}{5} \times \frac{5}{6} = 600$$

$$x = 500$$

S15. Ans.(d)

Sol.

A.T.Q.

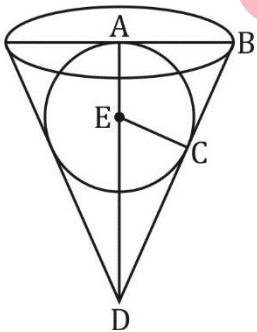
$$x - \frac{x}{5} - \frac{4x}{5} \times \frac{5}{100} - 120 = 1400$$

$$x = 2000$$

$$\text{Expenditure on transport} = \frac{1}{25} \times 2000 = 80$$

S16. Ans.(c)

Sol.



$$AB = 6, AD = 8$$

$$BD = \sqrt{64 + 36} = \sqrt{100} = 10$$

$$BA = BC = 6 \text{ cm}$$

$$DC = 10 - 6 = 4$$

$$\triangle ABD \cong \triangle EDC$$

$$\frac{AD}{AB} = \frac{DC}{EC}$$

$$EC = \frac{AB \times DC}{AD} = \frac{6 \times 4}{8} = 3 \text{ cm}$$

$$\text{Radius of sphere} = 3 \text{ cm}$$

Required fraction of water overflows

$$= \frac{\text{Volume of sphere}}{\text{Volume of cone}}$$

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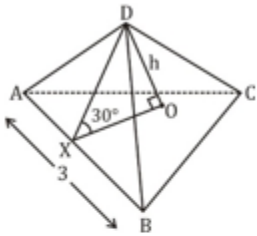
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$$\begin{aligned}
 &= \frac{\frac{4}{3}\pi(3)^3}{\frac{4}{3}\pi \times 36 \times 8} \\
 &= \frac{4 \times 27}{8 \times 36} \\
 &= 3:8
 \end{aligned}$$

S17. Ans.(b)

Sol.

$$\text{Volume of pyramid} = \frac{1}{3} A_{\text{base}} \times h$$



Let 'm' be the slant height DX of the Pyramid,

$$A_{ABD} = \frac{1}{2} \times AB \times m$$

$$12 = \frac{1}{2} \times 3 \times m$$

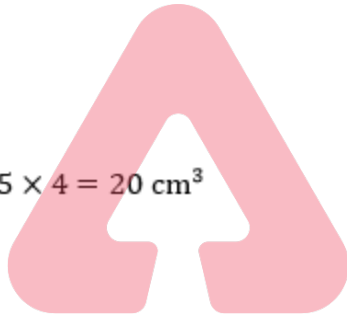
$$\text{or } m = 8 \text{ cm}$$

Now in ΔXOD ,

$$\frac{m}{h} = 2$$

$$\text{or } h = 4 \text{ cm}$$

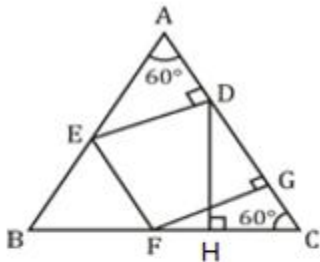
$$\therefore V_{ABCD} = \frac{1}{3} \times 15 \times 4 = 20 \text{ cm}^3$$



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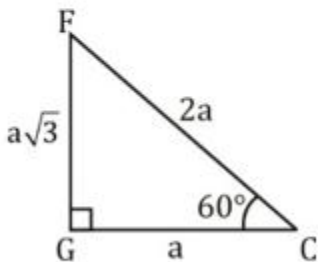
S18. Ans.(b)

Sol.



Let $GC = a$

So, In ΔGFC



So, $FG = DG = ED = EF = a\sqrt{3}$

& In ΔAED

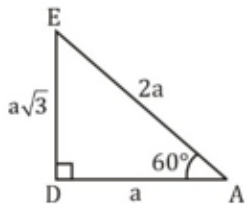
$AD = a$

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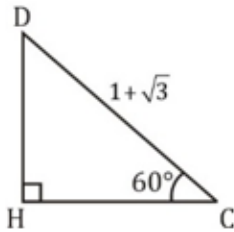
So,

$$AC = AD + DG + GC = 2 + \sqrt{3}$$

$$\text{or } a + a\sqrt{3} + a = 2 + \sqrt{3}$$

$$\text{or } a = 1$$

So, In $\triangle DHC$



$$\sin 60^\circ = \frac{DH}{DC}$$

$$\frac{DH}{1 + \sqrt{3}} = \frac{\sqrt{3}}{2}$$

$$\text{or } DH = \frac{3 + \sqrt{3}}{2}$$

S19. Ans.(d)

Sol.

Let A & B have Rs x each in their wallets

And C has y rupees in his wallet

$$= 8\% x - 7\% x = 56$$

$$\Rightarrow \frac{1}{100}x = 56$$

$$\Rightarrow x = \text{Rs } 5600$$

$$\text{Now, } \frac{63}{100} * \left(\frac{7}{100} + \frac{8}{100} \right) 5600 = \frac{9}{100}y \Rightarrow y = 5880$$

$$\text{Total amount in wallets} = 5600 + 5600 + 5880 = \text{Rs } 17080$$

$$\text{Total loss} = (7 + 8) \frac{5600}{100} + \frac{9}{100} \times 5880 = \text{Rs } 1369.2$$

$$\% \text{ loss} = \frac{1369.2}{17080} \times 100 = 8.01\%$$

S20. Ans.(b)

Sol.

$$\text{Total borrowed money} = \text{Rs } = 40000$$

$$\text{Rate of interest} = 8\%$$

$$\text{The interest for 2 yrs} = \frac{40000 \times 8 \times 2}{100} = \text{Rs } 6400$$

Let he paid Rs x at the end of second year

Interest will be calculated on Rs (40000 - x + 6400)

$$\text{Interest for 3 years} = \frac{(46400 - x) \times 3 \times 8}{100} = \text{Rs } \frac{6}{25} (46400 - x)$$

$$\therefore \frac{6}{25} (46400 - x) + 46400 - x = 35960$$

$$\Rightarrow 11136 - \frac{6x}{25} + 46400 - x = 35960$$

$$\Rightarrow \frac{31x}{25} = 21576$$

$$\therefore x = \frac{21576 \times 25}{31} = \text{Rs } 17400$$

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S21. Ans.(d)

Sol.

Let money with him $\Rightarrow 100$

Stolen $\Rightarrow 25$

Lost through the hole $\Rightarrow 10$

Remaining $\Rightarrow 100 - 35 \Rightarrow 65$

On food $\Rightarrow 65 \times \frac{1}{2}$

$= 32.5$

Remaining $\Rightarrow 32.5$

$32.5r \rightarrow 26$

$1r \rightarrow \frac{260}{325}$

$100r \Rightarrow \frac{26000}{325}$

$\Rightarrow \text{Rs. } 80$

S22. Ans.(c)

Sol.

1st year = 25% = $\frac{1}{4}$

2nd year = 4% = $\frac{1}{25}$

	Original	Final
1 st year \rightarrow	4	5
2 nd year \rightarrow	25	24
3 rd year \rightarrow	4	5
4 th year \rightarrow	25	24
5 th year \rightarrow	4	5
	100	: 180

$180r \rightarrow 72000 \text{ Rs.}$

$1r \rightarrow 400 \text{ Rs.}$

$100r \rightarrow 40000 \text{ Rs.}$

S23. Ans.(b)

Sol.

Initial eggs $\rightarrow 100$

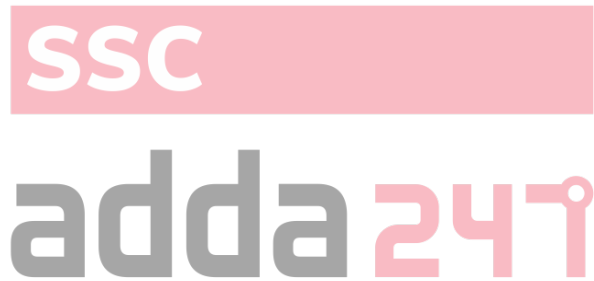
Broken $\rightarrow 5$

Remaining $\rightarrow 95$

7% of 95 $\rightarrow 266$

$1r \rightarrow 40$

$100r \rightarrow \text{Rs. } 4000$



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S24. Ans.(c)**Sol.**

Total → 60

Singer → 20

$$\text{Singers less than 25 years} \Rightarrow 20 \times \frac{20}{100}$$

$$\Rightarrow 4$$

Total below 25 years

$$= 60 \times \frac{40}{100}$$

$$= 24$$

Dancers below 25 years

$$= 24 - 4 = 20$$

Dancers below 25 years

$$= \frac{20}{40} \times 100$$

$$= 50\%$$

S25. Ans.(b)**Sol.**

$$A = \frac{125}{100} B$$

$$A : B = 5 : 4$$

$$C = \frac{80}{100} B$$

$$B : C = 5 : 4$$

$$A : B : C = 25 : 20 : 16$$

$$(25 + 20 + 16)r \rightarrow 61000$$

$$61r \rightarrow 61000$$

$$1r \rightarrow 1000 \text{ Rs.}$$

$$C \text{ invested} \Rightarrow 1000 \times 16$$

$$\Rightarrow 16000 \text{ Rs.}$$

**S26. Ans.(c)****Sol.**

Total → 100

Skilled worker → 75

Unskilled worker → 25

$$\text{Permanent skilled worker} = 75 \times \frac{80}{100}$$

$$= 60$$

$$\text{Permanent unskilled worker} = 25 \times \frac{20}{100}$$

$$= 5$$

Temporary worker = 100 - 65

$$= 35$$

$$35r \rightarrow 126$$

$$1r \rightarrow \frac{126}{35}$$

$$100r \rightarrow \frac{126}{35} \times 100$$

$$= 360$$

S27. Ans.(c)

Sol.

Sum of 1st three = 45
Sum of last three = 48
Score of last = 19
Score of 2nd & 3rd = 48 - 19
= 29
Score of 1st = 45 - 29
= 16
 $\% = \frac{16}{16} \times 100$
= 100 %

S28. Ans.(a)

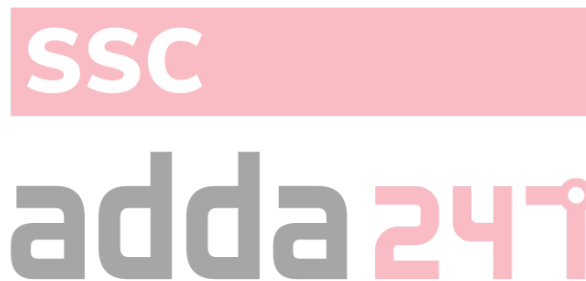
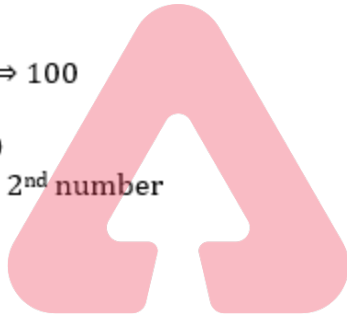
Sol.

Original sale = 100 × 100 = 10000
New Sale = 80 × 180 = 14400
Net effect = 44% Increase

S29. Ans.(d)

Sol.

Let 3rd number ⇒ 100
1st number = 20
2nd number = 50
% 1st number to 2nd number
 $= \frac{20}{50} \times 100$
= 40%



S30. Ans.(d)

Sol.

Time = 2 years
Rate = 4%
Compound interest = Rs. 102

$$\text{CI for 2 years} = R + R + \frac{R \times R}{100}$$

Where R → Rate of interest
Combined Rate% of CI for 2 years
 $= 4 + 4 + \frac{4 \times 4}{100} = 8.16\%$

SI for two years = 2 × 4 = 8%

According to the question SI for 2 years = $\frac{102}{8.16} \times 8 = \text{Rs. } 100$
required simple interest = Rs. 100

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