

Quant Mega Quiz for SSC CGL Tier-II (Solutions)

S1. Ans.(c)

Sol.

Let the first CP of the commodity be Rs. 100

∴ First SP = Rs. 110

Second CP = Rs. 90

Gain = $16\frac{2}{3}\% = \frac{50}{3}\%$

∴ Second SP

= $\left(100 + \frac{50}{3}\right)\%$ of Rs. 90 = $\frac{350}{3 \times 100} \times 90 = \text{Rs. } 105$

⇒ Difference of SPs = Rs. (110 - 105) = Rs. 5

⇒ If the difference is Rs. 5, then CP = Rs. 100

So, If the difference be Rs. 2, then

CP = $\frac{100}{5} \times 2 = \text{Rs. } 40$

S2. Ans.(b)

Sol.

Let the MP = Rs.1 per kg then

Weight	MP	Rate
100	100	1
96	$\frac{80}{SP}$	$\frac{80}{96}$

Effective discount = $1 - \frac{80}{96} = \frac{16}{96}$

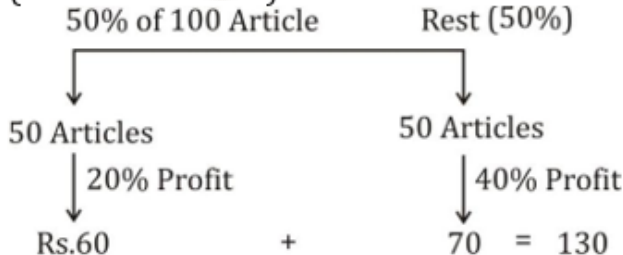
% discount = $\frac{16}{96} \times 100 = 16.66\%$

S3. Ans.(c)

Sol.

Let cost of 100 Articles is Rs. 100

(∴ 1 Article = Rs.1)



If 100 articles $\frac{25\% \text{ Profit}}{SP}$ Rs.125

→ Diff = 5 unit = 100

1 unit = 20

TEST SERIES

Bilingual

Special Offer



SSC CGL TIER-II
PREMIUM

85+ TOTAL TESTS

Validity : 1 Month

S4. Ans.(c)**Sol.**

For the first trader,

Let the CP of the article = Rs. 100

 \Rightarrow SP = Rs. 120

Now, For the second trader,

SP of the article = Rs. 120

& Gain = 20%

Let the CP be Rs. x.

$$\therefore \frac{120-x}{120} \times 100 = 20$$

$$\therefore 120 - x = 20 \times \frac{6}{5} = 24$$

$$\therefore x = 120 - 24 = \text{Rs. } 96$$

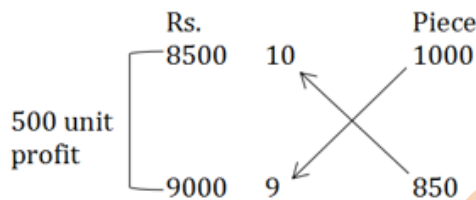
$$\therefore \text{Gain} = \text{Rs. } 24$$

Now when difference of gains = Rs. 4,

Then SP = Rs. 120

So, When the difference = Rs. 85,

$$\text{Then SP} = \frac{120}{4} \times 85 = \text{Rs. } 2550$$

S5. Ans.(a)**Sol.** The mixture and allegation method is apply on cost price and selling price.

$$\text{Actual profit percentage} = \frac{500}{8500} \times 100 = 5\frac{15}{17}\%$$

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

Selling price of laptop paid by customer

$$= 25000 \times \frac{90}{100} \times \frac{114}{100} = 25650$$

S7. Ans.(a)**Sol.**

Let x = number of months for which C joined the business.

So, Ratio of shares of Profit

$$= 30,000 \times 12 : 40,000 \times 8 : 50,000 \times x$$

$$= 32 : 36 : 5x$$

$$C's \text{ share} = \frac{5x}{36+32+5x} = \frac{5x}{68+5x}$$

$$\text{Given, } \frac{5x}{68+5x} = \frac{15000}{49000} \Rightarrow x = 6$$

 \Rightarrow C joined the business (i.e. 6-4) = 2 months after joining of B

S8. Ans.(a)**Sol.**

$$CP = 100\%$$

$$SP \text{ at } 30\% \text{ profit} = 130\%$$

$$SP \text{ at } 4\% \text{ loss} = 96\%$$

$$\text{Difference} = 130 - 96 = 34\%$$

$$34\% = 1020$$

$$96\% = \frac{1020}{34} \times 96 = 2880$$

So, selling price of the stationery = 2880

S9. Ans.(c)**Sol.**

$$120\% = 90\% = 150\% = k$$

$$\text{Ratio of CP} = 15 : 20 : 12$$

$$\therefore 47 \text{ units} = 1880$$

$$1 \text{ unit} = \frac{1880}{47} = 40$$

$$\therefore \text{CP of a pen} = 15 \times 40 = 600$$

$$\text{CP of a marker} = 20 \times 40 = 800$$

$$\text{CP of a book} = 12 \times 40 = 480$$

S10. Ans.(b)**Sol.**

If loss is double of profit earned and diff. Between both price
 $= 3400 - 2800 = 600$

So, 600 must be divided to find CP.

Ratio of loss and profit = 2 : 1

So, CP of the goat = $2800 + (200 \times 2)$

$$= 2800 + 400$$

$$= 3200$$

S11. Ans.(b)**Sol.**

Let the maximum marks = x

Case (i) Pass marks = 32% of x + 16

Case (ii) Pass marks = 36% of x - 10

From Case (i) & Case (ii), we get,

$$32\% \text{ of } x + 16 = 36\% \text{ of } x - 10$$

$$\text{Or, } 4\% \text{ of } x = 26$$

$$\text{Or, } \frac{4}{100} \times x = 26$$

$$\Rightarrow x = \frac{26 \times 100}{4} = 650$$

So,

$$\text{Pass\%} = 32\% + \left(\frac{16}{650} \times 100 \right) \%$$

$$= 32\% + 2 \frac{6}{13} \% = 34 \frac{6}{13} \%$$

TEST SERIES

Bilingual

Special Offer



SSC CGL TIER-II

QUANTITATIVE APTITUDE

20 TOTAL TESTS

Validity : 1 Month

S12. Ans.(b)**Sol.** We know that

$$10\% = \frac{1}{10} \text{ and } 40\% = \frac{4}{10}$$

So,

Price of tickets	No. of seats	Income
Initial value → 10	× 10	= 100
Final value → 14	× 9	= 126

So, increase % is = $126 - 100 = 26\%$ **S13. Ans.(b)****Sol.**

Average age of the couple is 25 years

The sum = 2×25

= 50 years

After 3 years, sum = $50 + 2 \times 3$

= 56 years

Age of baby = 2 years

Then average $(\bar{x}) = \frac{\sum x}{n}$

$$= \frac{56+2}{3} = 58/3 = 19\frac{1}{3} \text{ years}$$

S14. Ans.(c)**Sol.**

Let minors be x

Consumption by adults = $8 \times 15 = 120$ Total Consumption = $(x + 8) \times 10.8$

Average consumption by minors

$$= \frac{(8+x)10.8 - 120}{x} = 6 \Rightarrow x = 7$$

S15. Ans.(a)**Sol.**Cost of raw material = $4x$ Cost of labour = $3x$ Cost of miscellaneous = $2x$ Total cost = $4x + 3x + 2x$ = $9x$

$$\text{Amount} = \frac{4x \times 110}{100} + \frac{3x \times 108}{100} + \frac{2x \times 95}{100}$$

= $9.54x$

$$\text{Percentage rise} = \frac{9.54x - 9x}{9x} \times 100 = 6\%$$

S16. Ans.(d)**Sol.**

$$\text{Total marks} = 50 \times 65$$

$$\text{New average} = \frac{65 \times 50 - 83 + 38}{50} = 64.1$$

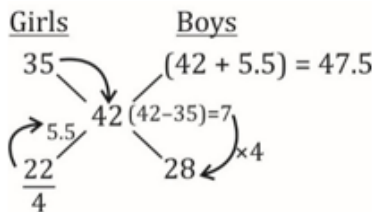
Alternate method:-

Diff. in wrong marks

$$(38 - 83) = -45$$

$$\text{Divide by no. of students} = \frac{-45}{50} = -0.9$$

$$\text{Now, New average} = 65 - 0.9 = 64.1$$

S17. Ans.(c)**Sol.**

Alternate METHOD:

$$\text{Total marks} = 50 \times 42 = 2100$$

$$\text{Girls marks} = 22 \times 35 = 770$$

$$\text{Boys} = \frac{(2100 - 770)}{28} = 47.5$$

S18. Ans.(c)**Sol.**

$$\text{Sum of 8 numbers} = 20 \times 8 = 160$$

$$\left(15\frac{1}{2}\right) \times 2 + \left(21\frac{1}{3}\right) \times 3 + x + x + 4 + x + 7 = 160$$

$$31 + 64 + 3x + 11 = 160$$

$$3x = 160 - 106 \Rightarrow x = 54/3 \Rightarrow x = 18$$

$$\text{8th Number} = x + 7$$

$$= 18 + 7 = 25$$

S19. Ans.(a)**Sol.**

	Side	Surface area
Old →	a	a ²
New →	1.25a	1.5625a ²

$$\therefore \% \text{ area} = \frac{0.5625}{1} \times 100$$

$$= 56.25\%$$

TEST SERIES

Bilingual

SSC CGL TIER-II

PREMIUM

85+ TOTAL TESTS

Validity : 12 Months

S20. Ans.(b)

Sol. Required Percent = $100 \times \frac{90}{100} \times \frac{70}{100} \times \frac{50}{100} = 31.5$
Means total discount = $100 - 31.5 = 68.5$

S21. Ans.(a)

Sol.

If α and β are roots of eqn. and given (Given $\alpha + \beta = 8$) & $\alpha - \beta = 2\sqrt{5}$

Therefore finding value of $\alpha\beta$ from given equation

$$\begin{aligned} \alpha + \beta &= 8 \\ \alpha^2 + \beta^2 + 2\alpha\beta &= 64 \dots (i) \end{aligned} \quad \left| \begin{aligned} \alpha - \beta &= 2\sqrt{5} \\ \alpha^2 + \beta^2 - 2\alpha\beta &= 20 \dots (ii) \end{aligned} \right.$$

Subtract Eq (i) from eq (ii)

$$4\alpha\beta = 44$$

$\alpha\beta = 11$ and hence,

$$\alpha^4\beta^4 = (11)^4 = 14641$$

$$\alpha^2 + \beta^2 = 64 - 22 = 42 \dots (3)$$

Again squaring eq (3) from both side

$$\alpha^4 + \beta^4 + 2\alpha^2\beta^2 = (42)^2 \quad (\text{put value of } \alpha^2\beta^2 = 11 \times 11 = 121)$$

$$\alpha^4 + \beta^4 = (42)^2 - 2 \times 121 = 1522$$

So, eqn. having roots α^4 & β^4 is

$$x^2 - (\alpha^4 + \beta^4)x + \alpha^4\beta^4 = 0$$

$$x^2 - 1522x + 14641 = 0$$

S22. Ans.(b)

Sol.

Eqn. Given = $Px^2 - Qx + R = 0$, a & b are roots

Then $a + b = \frac{Q}{P} \dots (1)$ & $a \times b = \frac{R}{P} \dots (2)$

(as sum of roots = $-\frac{b}{a}$ & product of roots = $\frac{c}{a}$)

Squaring both side of eq 1

$$a^2 + b^2 + 2ab = \frac{Q^2}{P^2} \quad (\text{put value of } a \times b = \frac{R}{P})$$

$$a^2 + b^2 = \frac{Q^2}{P^2} - \frac{2R}{P} = \frac{Q^2 - 2RP}{P^2}$$

Hence Value of $\frac{1}{a^2} + \frac{1}{b^2} + \frac{a}{b} + \frac{b}{a}$

$$= \frac{a^2+b^2}{a^2b^2} + \frac{a^2+b^2}{ab}$$

$$\Rightarrow \frac{\frac{Q^2 - 2RP}{P^2}}{\frac{R^2}{P^2}} + \frac{\frac{Q^2 - 2RP}{P^2}}{\frac{R}{P}}$$

$$\Rightarrow \frac{P(Q^2 - 2PR) + R(Q^2 - 2PR)}{PR^2}$$

$$\Rightarrow \frac{(P + R)(Q^2 - 2PR)}{PR^2}$$

S23. Ans.(b)

Sol.

Given equation is

$$x^2 - 16x + 59 = 0 \dots\dots\dots(1)$$

let $x-6=k$

hence, $x=k+6$, put value of $x=k+6$ in eq 1

$$(k + 6)^2 - 16(k + 6) + 59 = 0$$

$$36 + k^2 + 12k - 16k - 96 + 59 = 0$$

$$\Rightarrow k^2 - 4k - 1 = 0$$

$$\Rightarrow k^2 - 1 = 4k$$

$$\Rightarrow \boxed{k - \frac{1}{k} = 4}$$

$$\text{So, } k^2 + \frac{1}{k^2} = (4)^2 + 2$$

$$\boxed{(x-6)^2 + \frac{1}{(x-6)^2} = 18}$$

S24. Ans.(d)

Sol. ATQ,

$$x = y - z$$

$$\Rightarrow x - y + z = 0$$

If $a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$

$$\therefore x^3 + (-y)^3 + (z)^3$$

$$= 3x(-y)(z) = -3xyz$$

S25. Ans.(a)

Sol.

$$\begin{aligned} & \frac{1}{(a-1)(b-1)(c-1)} + \frac{1}{(b-1)(c-1)(d-1)} + \frac{1}{(c-1)(d-1)(a-1)} \\ & + \frac{1}{(d-1)(a-1)(b-1)} \\ & = \frac{d-1 + a-1 + b-1 + c-1}{(a-1)(b-1)(c-1)(d-1)} \\ & = \frac{(a+b+c+d) - 4}{(a-1)(b-1)(c-1)(d-1)} = 0 \end{aligned}$$

S26. Ans.(b)

Sol. ATQ,

$$p = \frac{1}{p-7}$$

$$\Rightarrow p^2 - 7p = 1$$

$$\Rightarrow p^2 - 1 = 7p$$

$$\Rightarrow p - \frac{1}{p} = 7$$

TEST SERIES
Bilingual
Special Offer



SSC CGL TIER-II
Previous Years' Papers of 2011-2018

29 TOTAL TESTS

Validity : 1 Month

SSCadda.com

Square both sides

$$p^2 + \frac{1}{p^2} - 2 = 49$$

$$\Rightarrow p^2 + \frac{1}{p^2} = 51$$

$$\Rightarrow p^2 + \frac{1}{p^2} + 2 = 53$$

$$\Rightarrow \left(p + \frac{1}{p}\right)^2 = 53$$

$$\Rightarrow \left(p + \frac{1}{p}\right) = \sqrt{53}$$

S27. Ans.(d)

Sol.

ATQ,

$$p + \frac{1}{q} = q + \frac{1}{r} = r + \frac{1}{p}$$

$$\text{Put } p = \frac{1}{2}, q = 2, r = -1$$

$$\therefore \frac{1}{2} + \frac{1}{2} = 2 - 1 = -1 + 2$$

$$\Rightarrow 1 = 1 = 1 \text{ (Satisfies)}$$

$$\therefore p + q + r = \frac{1}{2} + 2 - 1 = \frac{3}{2}$$

Also, put

$$p = -\frac{1}{2}, q = -2, r = 1$$

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

$$\Rightarrow -1 = -1 = -1 \text{ (satisfies)}$$

$$\therefore p + q + r = -\frac{1}{2} - 2 + 1 = -\frac{3}{2}$$

S28. Ans.(c)

Sol.

ATQ,

$$mx + ny = 1$$

$$\text{Let } m = n = 1$$

$$\therefore x + y = 1 \quad \dots(i)$$

And,

$$nx + my = \frac{3mn}{2m^2 + n^2}$$

$$\text{Put, } m = n = 1$$

$$x + y = \frac{3 \times 1 \times 1}{2 + 1} = 1$$

Now $x = y = 1/2$ satisfies both eqn (i) & (ii)

$$\therefore \text{Value of } (x^2 + y^2) (2m^2 + 2n^2)$$

$$= (1/4 + 1/4) (2 + 2)$$

$$= 2$$

S29. Ans.(a)

Sol.

Given equation is

$$Ax^2 - A^2x + AB = 0, \quad A \text{ \& B are roots}$$

So,

$$A + B = \frac{A^2}{A} \quad \&$$

$$A \times B = \frac{AB}{A}$$

$$A + B = A \quad \&$$

$$\boxed{A = 1}$$

On putting value of A=1

$$\boxed{B = 0}$$

$$A \text{ \& B} = 1, 0$$

S30. Ans.(a)

Sol.

Given eq is

$$x^2 - x - 1 = 0$$

If α & β are roots of eq

$$\alpha + \beta = 1 \dots\dots\dots(1) \quad \& \quad \alpha \times \beta = -1$$

squaring eq 1 from both sides

$$\alpha^2 + \beta^2 + 2(-1) = 1$$

$$\alpha^2 + \beta^2 = 3$$

again squaring both side above eq


$$\alpha^4 + \beta^4 = 9 - 2 = 7$$

Again squaring one more time both sides

$$\alpha^8 + \beta^8 + 2\alpha^4\beta^4 = (7)^2$$

$$\boxed{\alpha^8 + \beta^8 = 49 - 2 = 47}$$

TEST SERIES
English
Special Offer



SSC CGL TIER-II
ENGLISH LANGUAGE
20 TOTAL TESTS
Validity : 1 Month

SSCadda.com

