

**Quant Mega Quiz for SSC (Solutions)**

**S1. Ans.(b)**

**Sol.**

$$\begin{aligned} 90\% \text{ of } 100 &\Rightarrow 90 \\ 40\% \text{ of } 90 &\Rightarrow 36 \\ 40\% \text{ less} &= 90 - 36 \\ &= 54 \end{aligned}$$

**S2. Ans.(a)**

**Sol.**

$$\begin{aligned} x - y &= \frac{15}{100}(x + y) \\ x - y &= \frac{3}{20}(x + y) \\ 20x - 20y &= 3x + 3y \\ 17x &= 23y \\ \frac{x}{y} &= \frac{23}{17} \end{aligned}$$

**S3. Ans.(b)**

**Sol.**

$$\begin{aligned} C &= \frac{120}{100}B \\ B : C &= 5 : 6 \\ B &= \frac{125}{100}A \\ A : B &= 4 : 5 \\ A : B : C &= 20 : 25 : 30 \\ &= 4 : 5 : 6 \\ \text{Income of C's is} \\ &= \frac{2}{4} \times 100 \\ &= 50\% \end{aligned}$$

**S4. Ans.(a)**

**Sol.**

$$\begin{aligned} \text{Let 2 numbers are } &\Rightarrow 2x, 3x \\ \frac{20}{100} \times 2x + 20 &= \frac{10}{100} \times 3x + 25 \\ \frac{2x}{5} + 20 &= \frac{3x}{10} + 25 \\ \frac{2x}{5} - \frac{3x}{10} &= 5 \end{aligned}$$

**NRA-CET Ready**

**SSC**

Useful for CGL, CHSL & others

**TEST PACK**

Bilingual (with eBooks)  
**12 Months Validity\***

$$\frac{4x - 3x}{10} = 5$$

$$x = 50$$

$$\begin{aligned}\text{Smaller number} &= 2 \times 50 \\ &= 100\end{aligned}$$

**S5. Ans.(a)**

**Sol.**

$$x \times \frac{75}{100} = 225$$

$$x = 300$$

$$\begin{aligned}\% &= \frac{75}{300} \times 100 \\ &= 25\%\end{aligned}$$

**S6. Ans.(d)**

**Sol.**

$$\begin{array}{l} \text{Price} \rightarrow \quad 100 : 125 \\ \quad \quad \quad \quad 4 : 5 \end{array}$$

$$\text{Consumption} \rightarrow 5 : 4$$

Consumption is Reduced by

$$\begin{aligned}&= \frac{1}{5} \times 100 \\ &= 20\%\end{aligned}$$

**S7. Ans.(c)**

**Sol.**

$$\text{Price} \rightarrow \quad 10 : 9$$

$$\text{Consumption} \rightarrow 9 : 10$$

$$1r \rightarrow 6.2 \text{ kg}$$

$$10r \rightarrow 62 \text{ kg}$$

$$\text{Reduced price} = 837/62$$

$$= \text{Rs. } 13.5/\text{kg}$$

**S8. Ans.(c)**

**Sol.**

$$\begin{array}{l} \text{Price} \rightarrow \quad 100 : 120 \\ \quad \quad \quad \quad 5 : 6 \end{array}$$

$$\text{Consumption} \rightarrow 6 : 5$$

$$\text{Original consumption} \rightarrow 6$$

$$\text{Reduction} \rightarrow 1$$

$$\text{Ratio} \rightarrow 1 : 6$$

**S9. Ans.(d)****Sol.**

Let original price be 100

1<sup>st</sup> increase 10%  $\Rightarrow 110$ 2<sup>nd</sup> increase 20%  $\Rightarrow 110 \times \frac{120}{100}$  $= 132$  $132r \rightarrow 33$  $1r \rightarrow \frac{33}{132} \Rightarrow 0.25$  $100r \rightarrow 25$ **S10. Ans.(a)****Sol.**I<sup>st</sup>  $\rightarrow$  Profit = 20% =  $\frac{1}{5}$ 

C.P : S.P = 5 : 6

II<sup>nd</sup>  $\rightarrow$  loss = 25% =  $\frac{1}{4}$ 

C.P : S.P = 4 : 3

S.P in both case are same so

I<sup>st</sup>  $\rightarrow$  C.P : S.P  $\rightarrow 5 : 6$ II<sup>nd</sup>  $\rightarrow$  C.P : S.P  $\rightarrow 8 : 6$ 

Total C.P = 8 + 5 = 13

Total S.P = 6 + 6 = 12

Loss % =  $\frac{13 - 12}{13} \times 100$  $= \frac{1}{13} \times 100$  $= 7.69\%$  $\cong 7.7\%$ **S11. Ans.(b)****Sol.**

$$\frac{\cos\alpha}{\sin\beta} = n \text{ and } \frac{\cos\alpha}{\cos\beta} = m$$

$$\Rightarrow \cos\alpha = n\sin\beta \text{ and } \cos\alpha = m\cos\beta$$

 $\Rightarrow$  Squaring both equation and equating

$$\Rightarrow n^2\sin^2\beta = m^2\cos^2\beta$$

$$\Rightarrow n^2(1 - \cos^2\beta) = m^2\cos^2\beta$$

$$\Rightarrow n^2 = (m^2 + n^2)\cos^2\beta$$

$$\Rightarrow \cos^2\beta = \frac{n^2}{m^2 + n^2}$$

**S12. Ans.(b)****Sol.**

$$= (2 - 1)(2 + 1)(2^2 + 1)(2^4 + 1)(2^8 + 1)$$

$$= (2^2 - 1)(2^2 + 1)(2^4 + 1)(2^8 + 1)$$

$$= (2^4 - 1)(2^4 + 1)(2^8 + 1)$$

$$= (2^{16} - 1)$$

**S13. Ans.(c)****Sol.**Failed students = 500 that is  $\frac{5}{24}$ and passed students =  $\frac{19}{24} \Rightarrow 1900$ Thus, the number of students appeared in exam =  $2400 \Rightarrow \frac{8}{9}$ Total number of students registered =  $\frac{2400 \times 9}{8} = 2700$ 

12 Months Validity

# SSC CHSL

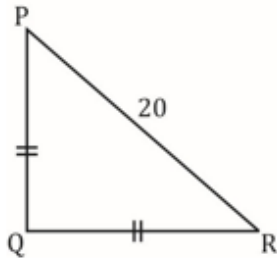
## KA MAHA PACK

Live Class, Video Course,  
Test Series, eBooks

Bilingual (with eBooks)

**S14. Ans.(b)**

**Sol.**



If  $PQ = QR$ ,  $PR = 20$

$$PQ^2 + QR^2 = (20)^2$$

$$2PQ^2 = 400$$

$$PQ = 10\sqrt{2} = QR$$

$$\text{Area} = \frac{1}{2} \times QR \times PQ = \frac{1}{2} \times 10\sqrt{2} \times 10\sqrt{2} = 100$$

**S15. Ans.(b)**

**Sol.**

$$\angle RQA = \angle RAQ = 30^\circ \text{ \& } \angle PQA = \angle PAQ = 55^\circ$$

$$\text{So, } \angle PQR = 55^\circ - 30^\circ = 25^\circ$$

**S16. Ans.(b)**

**Sol.**

$$\frac{a^3 + b^3 + c^3 - 3abc}{(ab + bc + ca - a^2 - b^2 - c^2)}$$
$$= \frac{(a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)}{-(a^2 + b^2 + c^2 - ab - bc - ca)} = -(a+b+c)$$
$$= -(-5-7+10) = 2$$

**S17. Ans.(a)**

**Sol.**

According to the formula,

$$\text{Required time} = \sqrt{ab}$$

Where  $a = 25$  and  $b = 49$

$$\therefore \text{required time} = \sqrt{25 \times 49} = 5 \times 7$$

$$= 35 \text{ days}$$

**S18. Ans.(a)**

**Sol.**

Ratio of times taken by X

$$\text{And } Y = 160 : 100 = 1.6 : 1$$

Suppose Y takes  $y$  days to do the work.

$$\text{Then, } 1.6 : 1 :: 16 : y$$

$$\therefore y = \frac{16 \times 1}{1.6} = 10 \text{ days}$$

S19. Ans.(b)

Sol.

A, B, C are the angles of triangles.

$$\Rightarrow A + B + C = 180^\circ$$

$$\Rightarrow A + B = 180^\circ - C$$

$$\Rightarrow \tan(A + B) = \tan(180^\circ - C)$$

$$\Rightarrow \frac{\tan A + \tan B}{1 - \tan A \tan B} = -\tan C$$

$$\Rightarrow \tan A + \tan B = -\tan C(1 - \tan A \tan B)$$

$$\Rightarrow \tan A + \tan B + \tan C = \tan A \tan B \tan C$$

Dividing the equation by  $\tan A \tan B \tan C$

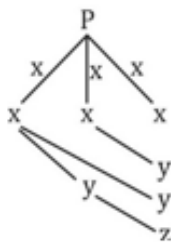
$$\cot B \cot C + \cot C \cot A + \cot A \cot B = 1$$

Now from given option  $\tan 45^\circ$

$$= 1$$

S20. Ans.(a)

Sol.



Difference of 2 years =  $y = 7$

And difference of 3 years

$$= 3y + z = 23$$

$$\Rightarrow z = 2$$

$$\therefore \text{Required rate} = \frac{2}{7} \times 100 = \frac{200}{7}\%$$

Alternate;

$$\frac{\frac{Pr^2(300+r)}{100^3}}{\frac{Pr^2}{100^2}} = \frac{23}{7}$$

$$\Rightarrow \frac{300+r}{100} = \frac{23}{7}$$

$$\Rightarrow 2100 + r = 2300$$

$$\Rightarrow r = \frac{200}{7}\%$$

S21. Ans.(c)

Sol.

$$1x + 3x + 5x = 10,800$$

$$x = 1200$$

$$5x = 6000$$

**Bilingual**



**SSC CHSL**

**PRIME**

**265+ Total Tests**

**2020-21 Online Tests**

**S22. Ans.(b)****Sol.**

$$x = \sqrt{x} + 30 \quad \text{_____ (i)}$$

$$x - 30 = \sqrt{x}$$

Squaring both side we get

$$X^2 + 900 - 60x = x$$

$$X^2 - 61x + 900 = 0$$

$$X^2 - 36x - 25x + 900 = 0$$

$$X = 36, 25$$

Only  $x=36$  satisfies (i)**S23. Ans.(a)****Sol.**Let the total distance =  $2D$ 

$$\frac{D}{50} + \frac{D}{60} = \text{Total time}$$

$$\text{Average speed} = \frac{2D}{\frac{D}{50} + \frac{D}{60}} = \frac{2 \times 50 \times 60}{110}$$

$$= \frac{600}{11} = 54.54 \text{ km/hr}$$

**S24. Ans.(b)**

$$\text{Sol. Surface area of box} = 2[80 \times 60 + 60 \times 40 + 40 \times 80] = 2[4800 + 2400 + 3200] = [10400] \times 2 = 20800 \text{ cm}^2$$

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

$$10x + y - 10y - x = 54$$

$$9(x - y) = 54$$

$$x - y = 6$$

$$x + y = 10$$

From this we get  $x=8, y=2$ 

$$\text{Number} = 28$$

**S26. Ans.(b)****Sol.**

$$\frac{3x - 14000}{2x - 10000}$$

$$3x - 14000 = 4000$$

$$X = \text{Rs } 6000$$

$$\text{B's income} = 2 \times 6000$$

$$\text{Saving of B} = \text{Rs } 2000$$

**S27. Ans.(a)****Sol.**

$$\frac{\frac{2}{9} + \frac{3}{5}}{\frac{2}{9} + \frac{2}{5}} = \frac{10 + 27}{10 + 18} = \frac{37}{28}$$

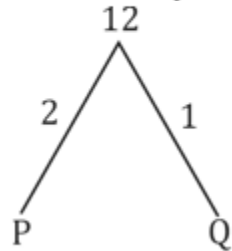
**S28. Ans.(c)**

**Sol.**

P:Q=2:1 [efficiency]

Q takes 12 days

P takes 6 days



Time taken by both =  $\frac{12}{3} = 4$  days

**S29. Ans.(b)**

**Sol.** Median = 1, 3, 5, 6, 9, 11, 19, Median = 6

**S30. Ans.(a)**

**Sol.**

A → 100 - CP for A

B = 115 - CP for B

B sold it to A at a profit of 20%

$$20\% = \frac{1}{5}$$

SP - 6

CP - 5 → 115

$$SP = \frac{6 \times 115}{5} = 138$$

Gain for B = 138 - 115

= 23

23 → 552

1 → 24

100 → Rs 2400

Complete Preparation for  
SSC Exams

**SSC**  
**EXTREME**

Video Courses, Test Series,  
eBooks