

Quant Mega Quiz for SSC Tier-2 (Solutions)

S1. Ans.(b)

Sol.

Hence

$$2M = 3W = 4Y$$

$$\therefore (14M + 12W + 12Y) = 14 + 8 + 6 = 28 \text{ Men}$$

$$\text{Total Unit} = 28 \times 24$$

$$\therefore 28 \times 24 = x \times 24$$

$$x = 48$$

Total no. of men required for additional labour

$$= 48 - 28 = 20 \text{ men}$$

S2. Ans.(b)

Sol.

Let selling price = x

$$\text{C.P. for Vineet} = \frac{(100-25)}{100}x = 0.75x$$

$$\text{C.P. for Roshan} = \frac{1}{1.15}x$$

$$[x - 0.75x] - \left[x - \frac{1}{1.15}x \right] = 275$$

$$x = 2300$$

S3. Ans.(b)

Sol. Let Time taken by each inlet individually to fill the dam are P, Q, R and S min respectively.

One minute work of first three inlets together

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

$$\Rightarrow \frac{1}{P} + \frac{1}{Q} + \frac{1}{R} = \frac{1}{12} \quad \dots (i)$$

$$\text{and } \frac{1}{Q} + \frac{1}{R} + \frac{1}{S} = \frac{1}{15} \quad \dots (ii)$$

$$\text{and } \frac{1}{P} + \frac{1}{S} = \frac{1}{20} \quad \dots (iii)$$

Solving equations (i), (ii) and (iii) we get

$$\frac{1}{P} = \frac{1}{30} \text{ and } \frac{1}{S} = \frac{1}{60}$$

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From (i), adding $\frac{1}{S}$ in both sides of eq. (i)

$$\frac{1}{P} + \frac{1}{Q} + \frac{1}{R} + \frac{1}{S} = \frac{1}{12} + \frac{1}{60} \quad \left(\because \frac{1}{S} = \frac{1}{60} \right)$$

$$\therefore \frac{1}{P} + \frac{1}{Q} + \frac{1}{R} + \frac{1}{S} = \frac{1}{10}$$

i.e. all inlets will fill the tank in 10 minutes

S4. Ans.(b)

Sol. Total expenditure of man

$$= 4 \times 251.25 + 5 \times (251.25 + 26.27) + 760$$

$$= \text{Rs } 3152.6$$

\therefore Required percentage of savings

$$= \frac{3305.2 - 3152.6}{3305.2} \times 100$$

$$\approx 5\%$$

S5. Ans.(c)

Sol. Total cost price = 750×0.6

$$= 450 \text{ rupees}$$

His expected selling price on 600 articles

$$= 750 \times 1.4 \times 0.6$$

$$= 630 \text{ rupees}$$

$$\therefore \text{Selling price of 630 article} = 630 \times \frac{630}{600}$$

$$= 661.5 \text{ rupees}$$

$$\therefore \% \text{ profit} = \frac{661.5 - 450}{450} \times 100$$

$$= 47\%$$

S6. Ans.(a)

Sol.

$$1.1 \text{ CP}_1 \times \frac{125}{100} = 1.25 \text{ CP}_2$$

$$\text{CP}_2 = 1.1 \text{ CP}_2$$

$$\text{Total CP} = 2.1 \text{ CP}_1$$

$$\text{Total SP} = 1.1 \text{ CP}_1 + 1.375 \text{ CP}_1$$

$$= 2.475 \text{ CP}_1$$

$$\text{Profit percentage} = \frac{\text{CP}_1}{\text{CP}_1} \times \left(\frac{2.475 - 2.1}{2.1} \right) \times 100 \approx 17.85\%$$

S7. Ans.(c)

Sol.

Let capital of A = x

Then, capital of B = 2x

Capital of C = 2.5x

$$A : B : C = x \times 4 : 2x \times 6 : 2.5x \times 12 = 2 : 6 : 15$$

$$\therefore \text{Share of B} = \frac{6}{2+6+15} \times 5819 = \text{Rs } 1,518/-$$

S8. Ans.(d)**Sol.**Mr. Arun's one hour's work = $\frac{40}{5} = 8$ questionsMr. Arun's and Satish's together one hour's work
= $\frac{40}{2} = 20$ questions \therefore Mr. Satish's one hour's work = $20 - 8 = 12$ questions

And, Mr. Ayush's one hour's work

$$= \frac{45}{5} - \frac{45}{9}$$

= 4 questions

$$\therefore \text{Required answer} = \frac{24}{4 + 12} = \frac{24}{16} = \frac{3}{2} \text{ hour}$$

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

Population of males one year before

$$= \frac{3}{5} \times 18000 \times \left(1 + \frac{50}{300}\right)^2$$

$$= 10800 \times \frac{49}{36}$$

$$= 14,700$$

and that of females

$$= \frac{2}{5} \times 18000 \times \left(\frac{105}{100}\right)^2$$

$$= 7938$$

$$\therefore \text{Required answer} = 14700 + 7938 = 22638$$

S10. Ans.(b)**Sol.**Let original speed of the train was x km/hr.And original time was t hours

$$\therefore x \left(t - \frac{1}{2}\right) = (x - 25)t$$

$$\Rightarrow t = \frac{x}{50}$$

$$\text{also } x \left(t - \frac{1}{2}\right) = 250$$

$$\therefore x \left(\frac{x}{50} - \frac{1}{2}\right) = 250$$

$$\Rightarrow x^2 - 25x - 12500 = 0$$

$$\Rightarrow (x - 125)(x + 100) = 0$$

$$\Rightarrow x = 125 \text{ km/hr}$$

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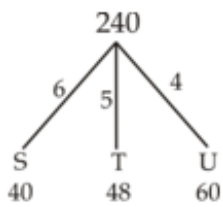
S11. Ans.(b)

Sol.

$$\begin{aligned} & \frac{12}{(\sqrt{5}+\sqrt{3})} + \frac{18}{(\sqrt{5}-\sqrt{3})} \\ \Rightarrow & \frac{12(\sqrt{5}-\sqrt{3})+18(\sqrt{5}+\sqrt{3})}{2} \\ \Rightarrow & 6\sqrt{5} - 6\sqrt{3} + 9\sqrt{5} + 9\sqrt{3} \\ \Rightarrow & 3(5\sqrt{5} + \sqrt{3}) \end{aligned}$$

S12. Ans.(d)

Sol.



Total work = 240

⇒ work done by S in last two days = 12

⇒ work done by S & T in last 3 days after S two days = $(6 + 5) \times 3 = 33$

So, remaining work to be completed by S, T & U

$$= 240 - (12 + 33) = 195$$

So, No of days taken by S, T & U = $\frac{195}{(6+5+4)} = 13$

So,

Received amount is accordingly to efficiency and number of day

$$S : T : U = 18 \times 6 : 16 \times 5 : 13 \times 4 = 108 : 80 : 52$$

So,

$$S's \text{ share ratio} = \frac{10800}{240} \times 108 = 4860$$

S13. Ans.(c)

Sol.

Required amount = $\frac{1}{2}$ (sum of parallel side) × height * cost

$$= \frac{1}{2} (2.56 + 3.44) \times 1.44 \times 1800 = 7776$$

S14. Ans.(c)

Sol.

$$\text{Marked price} = \frac{1599}{82} \times 100 = 1950$$

S15. Ans.(d)

Sol.

Given that,

$$\frac{D}{S} = 1.5 \quad \dots (i)$$

and,

$$W = S - 600 \quad \dots (ii)$$

and,

$$3S + 2D + W = 19000 \quad \dots (iii)$$

$$3S + 2 \times \frac{3}{2}S + (S - 600) = 19000$$

$$7S = 19600$$

$$\Rightarrow 3S = \frac{19600}{7} \times 3 = 8400$$

S16. Ans.(c)

Sol.

Let 3 consecutive even number = 2, 4, 6

$$\& \text{ it's average} = \frac{2+4+6}{3} = 4$$

and next 5 even number = 8, 10, 12, 14, 16

$$\& \text{ it's average} = \frac{8+10+12+14+16}{5} = 12$$

$$\& \text{ total average of 8 number} = \frac{72}{8} = 9$$

So, its increment = (A + 5)

S17. Ans.(c)

Sol.

We know that

If he sells in 50% loss for article = 18450

So, if he want to earn 50% profit then = 18450×3

$$= 55350$$

S18. Ans.(a)

Sol.

$$\begin{array}{r} 2\% = \frac{102}{100} = \frac{51}{50} \\ 50 \quad 51 \\ 50 \quad 51 \\ \hline 2500 \quad 2601 \end{array}$$

So, given that amount after 2 year ago = 26010

It is compared with amount of ratio it is to times its's original value

So, population before 2 year ago = $2500 \times 10 = 25000$

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S19. Ans.(d)

Sol.

$$\text{relative speed} = \frac{\text{Distance}}{\text{Time}}$$

when in opposite direction speed $(S_1 + S_2)$

So,

Speed of another train S_2

$$(40 + S_2) = \frac{(100+150)}{9} \times \frac{18}{5}$$

$$S_2 = 60 \text{ km/hr}$$

S20. Ans.(d)

Sol.

Rate = 20% per half/year

$$20,000 \xleftarrow{\times 800} \begin{array}{c} \text{Actual} \\ \text{Amount} \end{array} \begin{array}{c} 5 \text{ --- } 6 \\ 5 \text{ --- } 6 \\ \hline 25 \quad 36 \\ \text{11} \end{array}$$

$$\text{So, compound interest} = 800 \times 11 = 8800$$

S21. Ans.(c)

Sol.

Ram	Rohit	Sam	Rohan	Ravi
$x-25$	x	$x-45$	75	
85	110	65		119
+34				

$$\text{M.M} = 169$$

$$\frac{119}{169} \times 100 = 70\%$$

S22. Ans.(d)

Sol.

$$L_{T_1} = 80 \times \frac{5}{18} \times 18 = 400$$

$$L_{T_2} = 500$$

$$T = \frac{900}{80 \times 5} \times 18 = 40.5 \text{ sec}$$

S23. Ans.(c)

Sol.

$$100\% \text{ --- } 60000$$

$$60\% \text{ --- } \frac{60}{100} \times 60000 = 36000$$

$$\text{A --- B}$$

$$3 \quad 7$$

$$10 \text{ --- } 36000$$

$$1 \text{ --- } 3600$$

$$7 \text{ --- } 25200$$

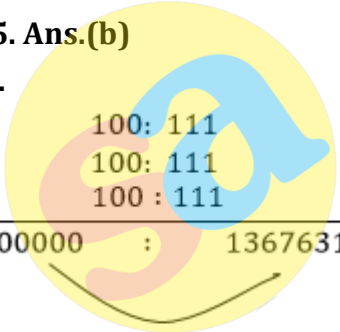
S24. Ans.(d)

Sol.

$$\begin{array}{r}
 M : W \\
 2 : 5 \\
 \left| +x \right. \\
 3 : 5 \\
 \left| -y \right. \\
 7 : 10 \\
 30 - 1 \left(\begin{array}{l} 7 : 10 \\ \left| \right. \\ 2(4) : (5)2 \\ \left| \right. \\ 8 : 10 \end{array} \right. \\
 \text{1 unit — 30 litre} \\
 (3)70 : (5)70 \\
 210 : 350 \\
 210 : 300 \left. \right) y = 50 \\
 (2)70 : (5)70 \\
 140 : 350 \\
 x = 70 \left(\begin{array}{l} 140 : 350 \\ 210 : 300 \end{array} \right. \\
 x + y/3 = 120/3 = 40
 \end{array}$$

S25. Ans.(b)

Sol.



$$\begin{array}{r}
 100 : 111 \\
 100 : 111 \\
 100 : 111 \\
 \hline
 1000000 : 1367631 \\
 \hline
 367631 \\
 1000000 \underline{\hspace{2em}} 12347 \\
 367631 \underline{\hspace{2em}} 4539.13
 \end{array}$$

S26. Ans.(b)

Sol.

Multiply all equations

$$\left(ab + \frac{a}{c} + 1 + \frac{1}{bc} \right) \left(c + \frac{1}{a} \right) = \frac{28}{3}$$

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$$abc + a + c + \frac{1}{b} + b + \frac{1}{c} + \frac{1}{a} + \frac{1}{abc} = \frac{28}{3}$$

$$abc + \frac{1}{abc} + 4 + \frac{7}{3} + 1 = \frac{28}{3}$$

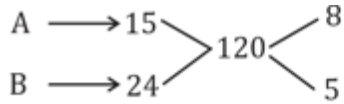
$$abc + \frac{1}{abc} = \frac{6}{3}$$

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

$$\therefore abc = 1$$

S27. Ans.(c)

Sol.



Total work - 120

$$(A+B) 8 \text{ days work} = (8+5) \times 8 = 104$$

Remaining work $(120 - 104) = 16$ done by C

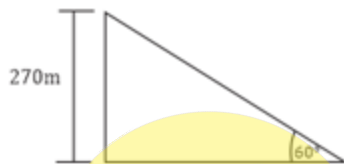
6000 paid for 120 work

$$\text{Paid for 1 work} = \frac{6000}{120} = 50 \text{ Rs.}$$

$$\begin{aligned} \text{C's share} &= 50 \times 16 \\ &= 800 \text{ Rs.} \end{aligned}$$

S28. Ans.(b)

Sol.

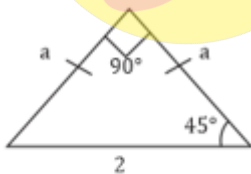


$$\sqrt{3} \rightarrow 270 \text{ m.}$$

$$1 \rightarrow 155.88 \text{ m.}$$

S29. Ans.(d)

Sol.



$$a^2 + a^2 = 4$$

$$2a^2 = 4$$

$$a = \sqrt{2}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times \sqrt{2} \times \sqrt{2} \\ &= 1 \text{ cm}^2 \end{aligned}$$

S30. Ans.(d)

Sol.

Let the no. is 232323

10101 is completely divided any two digit no.
repeated by three times

$$\begin{array}{r} 10101 \overline{) 232323} \quad (23 \\ \underline{20202} \\ 30303 \\ \underline{30303} \\ x \end{array}$$

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