

Solutions

S1. Ans.(c)

Sol.

$$x \rightarrow \frac{1}{4^{\text{th}}} \text{ work} \rightarrow 6 \text{ days}$$

Whole work $\rightarrow 24$ days

$$y \rightarrow \frac{3^{\text{th}}}{4} \text{ work} \rightarrow 12 \text{ days whole work} \Rightarrow 16 \text{ days}$$

x & y will complete the whole work is

$$\Rightarrow \frac{1}{24} + \frac{1}{16}$$

$$\Rightarrow \frac{24 + 16}{24 \times 16}$$

$$\Rightarrow \frac{40}{24 \times 16}$$

$$\Rightarrow \frac{5}{48}$$

$$\text{Days required} = \frac{48}{5}$$

$$= 9\frac{3}{5} \text{ days}$$

S2. Ans.(c)

Sol.

$$(2M + 3B) \times 10 = (3M + 2B) \times 8$$

$$20M + 30B = 24M + 16B$$

$$4M = 14B$$

$$M = \frac{7}{2}B$$

$$2M + 3B \Rightarrow 2 \times \frac{7}{2}B + 3B \Rightarrow 10B$$

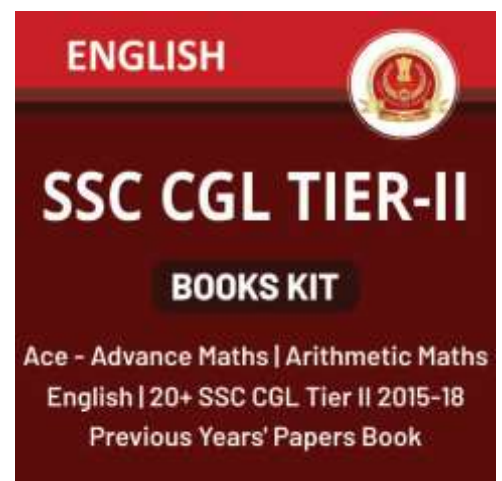
$$2M + 1B \Rightarrow 2 \times \frac{7}{2}B + 1B \Rightarrow 8B$$

$$10B \times 10 = 8B \times \text{Days}$$

$$\text{Days} = \frac{100}{8}$$

$$= \frac{25}{2}$$

$$= 12\frac{1}{2} \text{ days}$$



S3. Ans.(c)

Sol.

	$\frac{\text{L.CM}}{\text{(Total Work)}}$	Efficiency
A →	2	3
	6	
B →	6	1

Work done by A in 1 hour = 3

Remaining work = 6 - 3 = 3

Efficiency of A & B = 3 + 1 = 4

Time required by A & B to till the tank

$$= \frac{3}{4} \text{ hours}$$

$$= \frac{3}{4} \times 60 \text{ min}$$

$$= 45 \text{ min}$$

The tank will be full at 11 : 45 am

S4. Ans.(c)

Sol. Distance travelled = $8 \times 2\pi r$

$$16\pi r = \text{Speed} \times \text{Time}$$

$$16\pi r = \text{Speed} \times \frac{40}{60}$$

$$\text{Increased Radius} = 10r$$

$$\text{Distance to be travelled} = 2\pi \times 10r$$

$$= 20\pi r$$

$$20\pi r = \text{Speed} \times \text{Time}$$

$$20\pi r = \frac{16\pi r \times 60}{40} \times \text{Time}$$

$$\text{Time} = \frac{800}{16 \times 60} \text{ hours}$$

$$= \frac{50}{60} \text{ hours} = 50 \text{ minutes}$$

S5. Ans.(c)

Sol. Area \times cost = 7700

$$\frac{22}{7} \times r^2 \times \frac{1}{2} = 7700$$

$$r^2 = 7 \times 7 \times 10 \times 10$$

$$r = 70 \text{ m}$$

$$\text{Perimeter} = 2\pi r$$

$$= 2 \times \frac{22}{7} \times 70$$

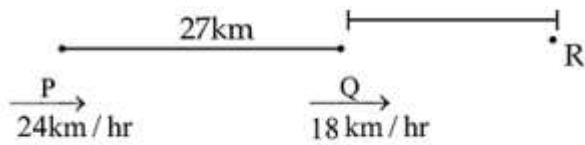
$$= 440 \text{ m}$$

$$\text{Cost} = 440 \times 1.20$$

$$= 528 \text{ Rs}$$

S6. Ans.(b)

Sol.



They will meet after $= \frac{27}{6} = \frac{9}{2}$ hours

$$QR = \frac{9}{2} \times 18$$
$$= 81 \text{ km}$$

S7. Ans.(a)

Sol.

33% \rightarrow 165 crores
Income From others = 67%
1% \Rightarrow 5 crore
67% \Rightarrow 335 crore

S8. Ans.(c)

Sol.

100% \rightarrow 733 crore
Income tax + Excise duty
 $= 10\% + 35\% = 45\%$
1 \rightarrow 7.33 crore
45% $= 45 \times 7.33$ crore
 $= 329.85$ crore

S9. Ans.(a)

Sol.

Number $\rightarrow 3x, 4x$
LCM $\Rightarrow 12x = 240$
 $x = 20$
Smaller number = 60

S10. Ans.(d)

Sol.

$$\frac{x}{12} + \frac{x}{9} = 2 \frac{20}{60}$$

$$\frac{3x + 4x}{36} = \frac{7}{3}$$

$$\frac{7x}{36} = \frac{7}{3}$$

$$x = 12 \text{ km}$$

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BILINGUAL

S11. Ans.(b)

Sol. ATQ,

$$1 \times 2x + \frac{1}{2} \times 3x + \frac{1}{4} \times 4x = 216$$

$$2x + \frac{3x}{2} + x = 216$$

$$\frac{9x}{2} = 216$$

$$x = 48$$

$$\text{Number of 50 paise coin} = 48 \times 3 = 144$$

S12. Ans.(c)

Sol.

$$\text{Quantity of water in given mixture} = \frac{1}{5}$$

$$\text{Quantity of water in resultant mixture} = \frac{2}{5}$$

Using Alligation

$$\begin{array}{r} \frac{1}{5} \qquad 1 \\ \frac{2}{5} \\ \hline 1 - \frac{2}{5} : \frac{2}{5} - \frac{1}{5} \end{array}$$

$$\frac{3}{5} : \frac{1}{5}$$

$$3 : 1$$

$$3r \rightarrow 45 \text{ litres}$$

$$1r \rightarrow 15 \text{ litres}$$

S13. Ans.(a)

$$\text{Sol. Profit's Ratio} = 4500 \times 12 : 3000 \times x$$

$$= 54 : 3x$$

$$= 18 : x$$

$$\frac{18}{x} = \frac{2}{1}$$

$$x = 9 \text{ months}$$

$$\text{B joined after} = 12 - 9 = 3 \text{ months}$$

S14. Ans.(d)

Sol. ATQ,

$$\frac{1}{12} + \frac{1}{15} - \frac{1}{x} = \frac{1}{20}$$

$$\frac{1}{x} = \frac{1}{12} + \frac{1}{15} - \frac{1}{20}$$

$$\frac{1}{x} = \frac{5 + 4 - 3}{60}$$

$$\frac{1}{x} = \frac{6}{60}$$

$$x = 10 \text{ min}$$

S15. Ans.(c)

Sol.

$$\text{Work done by 12 men in 6 days} = \frac{6}{18} = \frac{1}{3}$$

$$\text{Remaining work} = 1 - \frac{1}{3} = \frac{2}{3}$$

$$12 \times 18 = \frac{16 \times d}{2/3}$$

$$\frac{12 \times 15 \times 2}{16 \times 3} = \text{days}$$

$$9 = \text{days}$$

Work gets completed in = $9 + 6 = 15$ days

S16. Ans.(d)

Sol.

ATQ,

$$\frac{30}{15-x} + \frac{30}{15+x} = \frac{9}{2}$$

$$30 \left(\frac{15+x+15-x}{225-x^2} \right) = \frac{9}{2}$$

$$\frac{200}{225-x^2} = 1$$

$$x^2 = 25$$

$$x = 5 \text{ km/hr}$$

S17. Ans.(c)

Sol.

$$a + b = 153$$

$$a \times b = 630 \times 9$$

$$(a-b)^2 = (a+b)^2 - 4ab$$

$$(a-b)^2 = (153)^2 - 4 \times 630 \times 9$$

$$(a-b)^2 = 23409 - 22680$$

$$(a-b)^2 = 729$$

$$a-b = 27$$

S18. Ans.(a)

Sol.

$$\frac{S_5}{5} = 24$$

$$S_5 = 120$$

$$S_4 = 120 - 8 = 112$$

$$\text{Sum of four members 8 years ago} = 112 - 4 \times 8$$

$$= 112 - 32$$

$$= 80$$

Average at the time of the birth of youngest

$$\text{Member} = \frac{80}{4} = 20 \text{ years}$$

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BILINGUAL

S19. Ans.(b)

Sol.

$$\begin{aligned}\text{Profit \%} &= \frac{40}{960} \times 100 \\ &= \frac{400}{96} \\ &= \frac{100}{24} \\ &= \frac{25}{6} \% \\ &= 4\left(\frac{1}{6}\right) \%\end{aligned}$$

S20. Ans.(c)

Sol.

Profits Ratio
= $35000 \times 12 : 20000 \times 5 : 15000 \times 7$
= $420 : 100 : 105$
= $84 : 20 : 21$
B's profit = $84125 \times \frac{20}{125}$
= 673×20
= 13460

S21. Ans.(a)

Sol.

M + W + B	3	6
M	6	18
B	18	1

Efficiency of women

$$= 6 - 3 - 1 = 2$$

$$\text{Women alone will take} = \frac{18}{2} = 9 \text{ days}$$

S22. Ans.(b)

Sol.

$$(A + B)'s \text{ 2 day work} = \frac{1}{3} \times 2 = \frac{2}{3}$$

$$A + B's \text{ 2 days work} = 1 - \frac{2}{3} = \frac{1}{3}$$

$$B's \text{ 2 days work} = \frac{2}{3} - \frac{1}{3} = \frac{1}{3}$$

$$B's \text{ 1 day work} = \frac{1}{6}$$

B will take \rightarrow 6 days

S23. Ans.(a)**Sol.**

$$A \quad 12 \quad 3$$

$$36$$

$$B \quad 18 \quad 2$$

$$A + B's \ 2 \text{ days work} = 5$$

$$A + B's \ 4 \text{ days work} = 35$$

$$A \text{ will complete 1 work is } \Rightarrow \frac{1}{3} \text{ days}$$

$$\text{Total time} = 14\frac{1}{3} = \frac{43}{3}$$

S24. Ans.(d)**Sol.**

$$8 \times 12M = 4 \times 48W = 10 \times 24B$$

$$1M = 2W, W = \frac{5}{4}B$$

$$1M = \frac{5}{2}B, B = \frac{4}{5}W$$

$$10M + 4W + 10B$$

$$= 25B + 5B + 10B$$

$$= 40B$$

$$10 \times 24 = 40B \times \text{days}$$

$$\text{days} = 6$$

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

$$B = \frac{160}{100} A$$

$$A : B = 5 : 8$$

(Efficiency)

$$\text{Efficiency} \propto \frac{1}{\text{Time}}$$

$$\text{Time taken Ratio of A : B}$$

$$= 8 : 5$$

$$8 \text{ ratio} \rightarrow 12 \text{ days}$$

$$1 \text{ ratio} \rightarrow 12/8 \text{ days}$$

$$5 \text{ ratio} \rightarrow 60/8 \text{ days}$$

$$\text{Time taken by B} = 60/8$$

$$= 7\frac{1}{2} \text{ days}$$

S26. Ans.(d)**Sol.**

$$9 \times 7 \times 15 = 6 \times 9 \times \text{days}$$

$$\text{days} = \frac{35}{2} \text{ days}$$

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S27. Ans.(b)

Sol.

$$1 \text{ Women 1 days work} = \frac{1}{12 \times 162}$$

$$12 \text{ Women 1 day work} = \frac{1}{162}$$

$$1 \text{ Men 1 day work} = \frac{1}{18 \times 72}$$

$$4 \text{ Men's 1 days work} = \frac{4}{18 \times 72} = \frac{1}{18 \times 18}$$

$$1 \text{ Children} = \frac{1}{9 \times 360}$$

$$10 \text{ Children's 1 day work} = \frac{10}{9 \times 360} = \frac{1}{9 \times 36}$$

$$\text{Required time} = \frac{1}{162} + \frac{1}{324} + \frac{1}{324}$$

$$= \frac{2 + 1 + 1}{324} = \frac{4}{324}$$

$$= \frac{1}{81}$$

$$\Rightarrow 81 \text{ days}$$

S28. Ans.(d)

Sol.

$$10W \times 8 = 10C \times 12$$

$$W = \frac{3}{2}C$$

$$10 \times 12 = 12 \text{ Children} \times \text{days}$$

$$\text{days} = 10 \text{ days}$$

S29. Ans.(b)

Sol.

$$A \rightarrow 8 \quad 3$$

$$24$$

$$B \rightarrow 12 \quad 2$$

$$\frac{1}{8} + \frac{1}{12} + \frac{1}{C} = \frac{1}{4}$$

$$\frac{1}{C} = \frac{1}{24}$$

$$C \rightarrow 24$$

$$A : B : C$$

$$= \frac{1}{8} : \frac{1}{12} : \frac{1}{24}$$

$$= 3 : 2 : 1$$

$$C's \text{ share} = 4500 \times \frac{1}{6}$$

$$= \text{Rs. } 750$$

S30. Ans.(b)

Sol.

Ratio of water of A, B, C

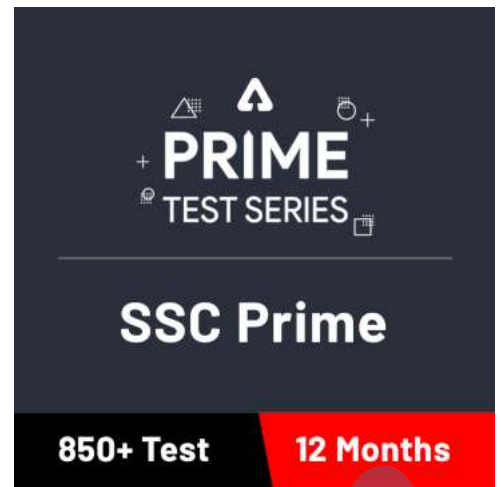
$$\Rightarrow 6 \times 5 : 4 \times 6 : 9 \times 4$$

$$= 30 : 24 : 36$$

$$= 5 : 4 : 6$$

$$\text{A's share} = 1800 \times \frac{5}{15}$$

$$= 600 \text{ Rs.}$$



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