

**Quiz Date: 27<sup>th</sup> March 2020**

Q1. Satish can complete a piece of work in 16 days which Arun can destroy in 6 days. Satish has worked for 12 days, during the last 4 days of which Arun has been destroying. How many days must Satish now work alone to complete the remaining work?

- (a) 6 days
- (b)  $7\frac{2}{3}$  days
- (c) 5 days
- (d)  $6\frac{2}{3}$  days
- (e) None of these

Q2. A and B are working on an assignment, A takes 8 hours to type 40 pages on a computer, while B takes 5 hours to type 45 pages. How much time will they take working together on two different computers to type an assignment of 147 page ?

- (a) 10 hr. 50 min.
- (b) 9 hr. 30 min.
- (c) 10 hr. 30 min.
- (d) 10 hr.
- (e) 9 hr. 50 min.

Q3. A completes  $\frac{2}{3}$  of a certain job in 6 days. B can complete  $\frac{1}{3}$  of the same job in 8 days and C can complete  $\frac{3}{4}$  of the work in 12 days. All of them work together for 4 days and then A and C quit. How long will it take for B to complete the remaining work alone?

- (a) 3.8 days
- (b) 3.33 days
- (c) 2.22 days
- (d) 4.3 days
- (e) 5.55 days

Q4. Four persons started to do a work together. 'A' works only in starting two days after that B, C and D works alternately starting from B. Ratio of time taken by A, B, C and D if they work alone is 4 : 3 : 2 : 5. If the work is completed in 12 days then in how many days A and C can complete the work if they work together ?

- (a) 6 days
- (b) 12 days
- (c) 10 days
- (d) 8 days
- (e) 15 days

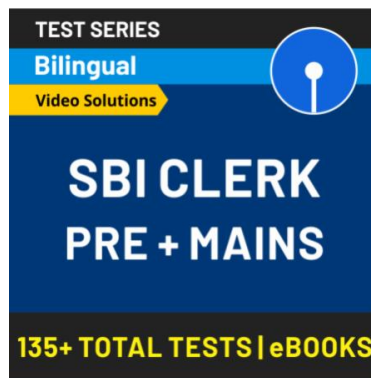
Q5. A and B take turns in doing the task with each working 2 days at a time. If A starts, they finish the task in exactly 10 days. If B starts, they take one day more. How long does it take to complete the task if they both work together?

- (a)  $6\frac{2}{3}$  days
- (b)  $5\frac{1}{3}$  days

- (c)  $4\frac{2}{3}$  days
- (d)  $5\frac{2}{3}$  days
- (e)  $3\frac{1}{3}$  days

Q6. A tank has a leak which would empty the completely filled tank in 10 hours. If the tank is full of water and a tap is opened which admits 4 litres of water per minute in the tank, the leak takes 15 hours to empty the tank. How many litres of water does the tank hold?

- (a) 2400 l
- (b) 4500 l
- (c) 1200 l
- (d) 7200 l
- (e) 6000 l



Q7. Two pipes A and B can fill a cistern in  $37\frac{1}{2}$  minutes and 45 minutes respectively. Both the pipes are opened. The cistern will be filled in just half an hour, if pipe B is turned off after:

- (a) 12 minutes
- (b) 6 minutes
- (c) 9 minutes
- (d) 15 minutes
- (e) 10 minutes

Q8. There was a leakage in the container of the refined oil. If 11 lit oil is leaked out per day then it would have lasted for 50 days, if the leakage was 15 lit per day, then it would have lasted for only 45 days. For how many days would the oil have lasted, if there was no leakage and it was completely used for eating purpose?

- (a) 80 days
- (b) 72 days
- (c) 100 days
- (d) 120 days
- (e) 125 days

Q9. Two pipes A and B can separately fill a cistern in 60 minutes and 75 minutes respectively. There is a third pipe in the bottom of the cistern to empty it. If all the three pipes are

simultaneously opened, then the cistern is full in 50 minutes. In how much time the third pipe alone can empty the cistern?

- (a) 110 minutes
- (b) 100 minutes
- (c) 120 minutes
- (d) 90 minutes
- (e) 130 minutes

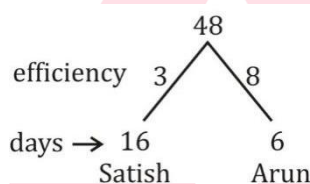
Q10. Two pipes can fill a tank in 16 and 14 hours respectively. Both pipes are opened simultaneously but it is found that due to leakage in the bottom of the tank it takes 32 minutes extra for the tank to be filled. Find the time in which tank can be emptied if it is full and both pipes are closed.

- (a) 114 h
- (b) 90 h
- (c) 100 h
- (d) 112 h
- (e) 105 h

Solutions

S1. Ans.(e)

Sol.



Sathish worked for 12 days =  $12 \times 3 = 36$  units

Arun destroys =  $8 \times 4 = 32$  units

Now work left after destroying by Arun =  $36 - 32 = 4$  units

Now Sathish will do =  $48 - 4 = 44$  units

A completes remaining work in =  $\frac{44}{3} = 14\frac{2}{3}$  days.

S2. Ans.(c)

Sol.

A working =  $\frac{40}{8}$  pages 1 hr.

= 5 pages/hr.

B working =  $\frac{45}{5}$  pages/hr

= 9 pages/hr.

(A + B) working =  $5 + 9$

= 14 pages/hr.

$\therefore$  Required time =  $\frac{147}{14} = 10\frac{7}{14}$

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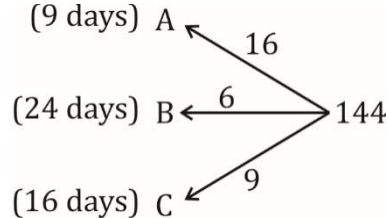
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$$= 10\frac{1}{2}$$

$$= 10 \text{ hr. } 30 \text{ min.}$$

S3. Ans.(b)

Sol.



$$A + B + C \xrightarrow[4 \text{ days}]{\text{work}} 4 \times 31 = 124$$

$$\text{Remaining work} = 20$$

$$\therefore \text{required time} = \frac{20}{6} = 3.33 \text{ days}$$



S4. Ans.(d)

Sol.

A, B, C and D worked for 2 days together after that A leave and B, C and D worked alternatively for 10 days starting from B

$\therefore$  B worked for 4 days, C for 3 days, and D for 3 days.

$$\text{Total days A worked} = 2$$

$$\text{Total days B worked} = 4 + 2 = 6$$

$$\text{Total days C worked} = 3 + 2 = 5$$

$$\text{Total days D worked} = 3 + 2 = 5$$

Let, their alone time to complete the work is  $4x$ ,  $3x$ ,  $2x$  and  $5x$  respectively.

$$\therefore \frac{2}{4x} + \frac{6}{3x} + \frac{5}{2x} + \frac{5}{5x} = 1$$

$$\Rightarrow \frac{30 + 120 + 150 + 60}{60x} = 1$$

$$\Rightarrow x = \frac{360}{60} = 6$$

'A' can complete the work in  $4 \times 6 = 24$  days

'C' can complete the work in  $2 \times 6 = 12$  days

$$\begin{aligned} \text{Required time} &= \frac{12 \times 24}{12 + 24} = \frac{12 \times 24}{36} \\ &= 8 \text{ days} \end{aligned}$$

S5. Ans.(b)

Sol.

Let A and B working alone can complete a and b part of the work respectively in a day.

If each works 2 days at a time alternately starting with A, the work is completed in exactly 10 days.

∴ A works for 6 days and B worked for 4 days.

$$6a + 4b = 1 \quad \dots\dots\dots(i)$$

If B starts, the work is completed in 11 days.

∴ B works for 6 days and A worked for 5 days.

$$6b + 5a = 1 \quad \dots\dots\dots(ii)$$

By solving (i) and (ii)

$$a = \frac{1}{8}$$

$$\text{And, } b = \frac{1}{16}$$

Time taken by A and B working together to complete the work

$$\begin{aligned} &= \frac{1}{a+b} \\ &= \frac{1}{\frac{1}{8} + \frac{1}{16}} \\ &= \frac{16}{3} \\ &= 5\frac{1}{3} \text{ days} \end{aligned}$$

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S6. Ans.(d)

Sol. let leak be A and filling pipe be B.

$$A \rightarrow 10$$

$$30 \begin{cases} -3 \\ -2 \end{cases}$$

$$A + B \rightarrow 15$$

$$\text{Efficiency of filling pipe } (3 - 2) = 1 \text{ unit/hour}$$

$$1 \text{ unit} = 4 \times 60$$

$$1 \text{ unit} = 240 \text{ litre}$$

$$\text{Total capacity} = 30 \text{ units} = 240 \times 30 = 7200 \text{ litres}$$

S7. Ans.(c)

Sol.

Two pipes A and B can fill a cistern in  $37\frac{1}{2}$  minutes and 45 minutes respectively. Both the

pipes are opened. The cistern will be filled in just half an hour, if pipe B is turned off after

Let, pipe B is turned off after x minutes.

Then, pipes B is opened for x minutes only and pipe A is opened for 30 minutes.

According to the question,

$$\frac{30}{37\frac{1}{2}} + \frac{x}{45} = 1$$

$$\Rightarrow \frac{4}{5} + \frac{x}{45} = 1$$

$$\Rightarrow \frac{x}{45} = \frac{1}{5}$$

$$\Rightarrow x = 9$$

Hence, pipe B is turned off after 9 minutes.

S8. Ans.(b)

Sol.

Let  $x$  kg of oil is used for eating daily.

Then,  $(11 + x) \times 50 = (15 + x) \times 45$

or,  $x = 25$  kg

$\therefore$  Required number of days =  $\frac{(25+11) \times 50}{25} = 72$  days



S9. Ans.(b)

Sol. LCM of 60, 75 and 50 = 300 unit

So, pipe A's unit per minute =  $\frac{300}{60} = 5$  unit/minute

Pipe B's unit per minute =  $\frac{300}{75} = 4$  unit/minute

(A + B + C)'s unit per minute =  $\frac{300}{50} = 6$  unit/minute

So, C's unit work =  $6 - (5 + 4) = -3$

So, Time taken by pipe C =  $\frac{300}{3}$

= 100 minutes

S10. Ans.(d)

Sol.

	Time	Efficiency	
1 <sup>st</sup> pipe	16 hrs	7	$\xrightarrow{\text{LCM}} 112 \rightarrow$ (Total Capacity of Tank)
2 <sup>nd</sup> pipe	14 hrs	8	

Total time =  $\frac{\text{Total capacity}}{\text{Total efficiency}} = \frac{112}{15}$

= 7 hr 28 min.

When, the leak is founded then total time to fill a tank

= 7 hr 28 min + 32 min = 8 hr.

Now,

$$1^{\text{st}} + 2^{\text{nd}} \text{ pipe} = \frac{112}{15} \text{ hr} \begin{array}{l} \xrightarrow{15} \text{Efficiency} \\ \xrightarrow{14} \text{LCM} \end{array} \quad \begin{array}{l} \text{LCM} \\ 112 \end{array}$$

$1^{\text{st}} + 2^{\text{nd}} \text{ pipe} + \text{Leak} = 8 \text{ hr}$   
 i.e. leak can empty 1 unit/hr.

so, the full tank will be emptied in  $= \frac{112}{1} = 112 \text{ hr}$ .

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