

Quiz Date: 11th July 2020

Q1. The efficiency ratio of Yuvraj & Pradeep is 8 : 5. Pradeep and Pooja together can complete a piece of work in 24 days while Pooja alone can complete the same work in 60 days, then in how many days Yuvraj alone can complete the same work?

- (a) 30 days
- (b) 25 days
- (c) 36 days
- (d) 40 days
- (e) 18 days

Q2. Rahul is 25% more efficient than Ravi and Ravi is 20% less efficient than Rekha. If Rekha completes a job in 20 days, then in how many days Rahul will complete the same job?

- (a) 25
- (b) 24
- (c) 30
- (d) 20
- (e) 28

Q3. Himanshu and Kapil can complete a piece of work in 18 days and 24 days respectively. Himanshu and Kapil worked together for 6 days and then Himanshu left the work. If the remaining work completed by Kapil and Rekha in 4 days, then Rekha alone can complete the same piece of work in how many days?

- (a) 16 days
- (b) 20 days
- (c) 18 days
- (d) 24 days
- (e) 30 days

Q4. 24 workers working 8 hours a day can complete a work in 12 days. If they work for 6 hours a day, then find how many more workers are required to complete the work in same time.

- (a) 12
- (b) 16
- (c) 8
- (d) 6
- (e) 10

Q5. 18 Men can complete a project in 30 days and 16 women can complete the same project in 36 days. 15 men start working and after 9 days they are replaced by 18 women. In how many days will 18 women complete the remaining work?

- (a) 20
- (b) 30
- (c) 26
- (d) 28

(e) 24

Q6. P and Q together can finish a work in 15 days. P and R take 2 days more to complete the same work than Q and R. P, Q and R can complete the work in 8 days. In how many days P can finish it separately?

(a) 40

(b) 24

(c) $17\frac{1}{7}$

(d) 20

(e) 30

Q7. If 3 men or 9 boys can finish a piece of work in 21 days. In how many days can 5 men and 6 boys can complete the same piece of work?

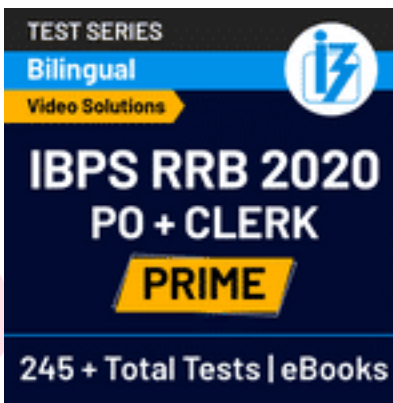
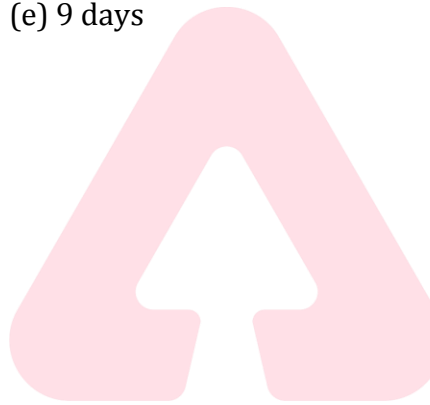
(a) 12 days

(b) 8 days

(c) 14 days

(d) 10 days

(e) 9 days



Q8. Ayush can do a work in 40 days and Rahul is 25% more efficient than Ayush. If Ayush started and worked for 15 days and left then in how many days will Rahul do the remaining work ?

(a) 16 days

(b) 20 days

(c) 28 days

(d) 24 days

(e) 12 days

Q9. Two tap A and B can fill a tank in 24 min and 16 min respectively, if both taps are opened together find after how much time tap A is closed so that whole tank is filled in 12 min?

(a) 12 min

(b) 4 min

(c) 8 min

(d) 6 min

(e) 10 min

Q10. Pipe A alone and pipe B alone can fill a tank in 15 min and 20 min respectively. There is a pipe C at the bottom of the tank which can empty the tank in 30 min alone. If all the three pipes opened together, find how much time they will take to fill the empty tank.

- (a) 15 min
- (b) 18 min
- (c) 9 min
- (d) 30 min
- (e) 12 min

Q11. Pipe A can fill a tank in 60 min and is 20% more efficient than B which is a filling pipe. There is pipe C which empties the tank. It takes $\frac{6}{7}$ hours to fill the tank when all three opened together. Find in how much time pipe C alone can empty the tank?

- (a) 60 min
- (b) 120 min
- (c) 110 min
- (d) 75 min
- (e) 90 min

Q12. In how many minutes can a tank be filled by three pipes whose diameters are 20 cm, 30 cm and 60 cm. Given that the largest pipe alone can fill it in 49 min.

- (a) 36 minutes
- (b) 40 minutes
- (c) 24 minutes
- (d) 19 minutes
- (e) 28 minutes

Q13. Two pipes can fill a cistern in 30 and 15 hours respectively. The pipes are opened simultaneously and it is found that due to leakage in the bottom, 5 hrs extra are taken for the cistern to be filled up. If the cistern is full, in what time would the leak alone empty it?

- (a) 60 hrs
- (b) 45 hrs
- (c) 35 hrs
- (d) 30 hrs
- (e) None of these

Q14. If two pipes function simultaneously, a tank is filled in 12 hours. One pipe fills the tank 10 hours faster than the other. How many hours does the faster pipe alone take to fill the tank?

- (a) 15 hours
- (b) 18 hours
- (c) 20 hours
- (d) 12 hours
- (e) 14 hours

Q15. There are three pipes connected with a tank. The first pipe can fill $\frac{1}{2}$ part of the tank in 1 hours, second pipe can fill $\frac{1}{3}$ part of the tank in 1 hour. Third pipe is connected to empty the tank. After opening all the three pipes, $\frac{7}{12}$ part of the tank can be filled in 1 hour, then how long will third pipe take to empty the full tank?

- (a) 3 hours
- (b) 4 hours
- (c) 5 hours
- (d) 6 hours
- (e) 8 hours

Solutions

S1. Ans (b)

Sol. one day work of Pradeep = $\frac{1}{24} - \frac{1}{60} = \frac{3}{120} = \frac{1}{40}$ units

So, time taken by Pradeep alone to complete the work = 40 days

∴ required time = $40 \times \frac{5}{8} = 25$ days

S2. Ans.(d)

Sol.

Time taken by Rahul to complete the job

$$= \frac{100}{125} \times \frac{100}{80} \times 20$$

$$= 20 \text{ days}$$

S3. Ans (a)

Sol. one day work of Himanshu + Kapil = $\frac{1}{18} + \frac{1}{24} = \frac{7}{72}$ units

6 day work of Himanshu + Kapil = $6 \times \frac{7}{72} = \frac{7}{12}$ units

Remaining work = $1 - \frac{7}{12} = \frac{5}{12}$ units

Let Rekha alone can complete the work in x days

One day work of Kapil + Rekha = $\frac{1}{24} + \frac{1}{x}$

So, 4 days work of Kapil + Rekha = $4 \left[\frac{1}{24} + \frac{1}{x} \right]$

ATQ

$$4 \left[\frac{1}{24} + \frac{1}{x} \right] = \frac{5}{12}$$

$$\frac{1}{x} = \frac{5}{48} - \frac{1}{24}$$

$$x = 16 \text{ days}$$

S4. Ans (c)

Sol.

$$M_1 \times D_1 \times T_1 = M_2 \times D_2 \times T_2$$

$$24 \times 12 \times 8 = M_2 \times 12 \times 6$$

$$M_2 = 32$$

So, required workers = $32 - 24 = 8$

S5. Ans.(e)

Sol.

One minute work of 1 man = $\frac{1}{18 \times 30}$ units

\therefore One minute work of 15 men = $\frac{15}{18 \times 30}$ units

$$= \frac{1}{36}$$

and one minute work of 18 women

$$= \frac{18}{16 \times 36} = \frac{1}{32} \text{ units}$$

Let required time is x days

$$\therefore \frac{9}{36} + \frac{x}{32} = 1$$

$$\Rightarrow x = 24 \text{ days}$$



S6. Ans.(a)

Sol.

Let Q and R take x days to complete the work

P and R will finish the work in (x + 2) days

$$\frac{1}{x} + \frac{1}{x+2} + \frac{1}{15} = 2 \times \frac{1}{8}$$

Solving it x = 10 days

Q and R per day work = $\frac{1}{10}$ units

P per day work = $\frac{1}{8} - \frac{1}{10} = \frac{1}{40}$ units

So work can be completed by P in 40 days

S7. Ans.(e)

Sol. \therefore 3 men = 9 boys

\therefore 1 man = 3 boys

\therefore 5 men + 6 boys

= (5 \times 3 + 6) boys = 21 boys

\therefore $M_1 D_1 = M_2 D_2$

= 9 \times 21 = 21 \times D₂

= D₂ = $\frac{9 \times 21}{21} = 9$ days

S8. Ans.(b)

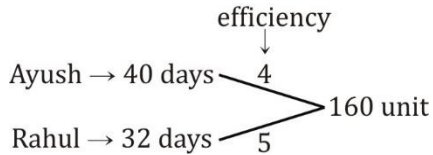
Sol.

Ratio of efficiency of Ayush and Rahul = $100 : 125 = 4 : 5$

∴ Ratio of time taken by Ayush and Rahul = $5 : 4$

∴ Ayush does the work in 40 days.

∴ Rahul does the work in 32 days.



∴ work completed by Ayush in 15 days = $15 \times 4 = 60$ unit.

Remaining work = $160 - 60 = 100$ unit

∴ Remaining work completed by Rahul in

$$= \frac{100}{5} = 20 \text{ days.}$$

S9. Ans(d)

Sol. let capacity of tank = 48 lit (LCM)

Efficiency of Tap A = 2 lit/min

Efficiency of Tap B = 3 lit/min

If tank is filled in 12 min it indicated that tap B would have worked for 12 min.

$$\text{Required time} = \frac{48 - 12 \times 3}{2} = 6 \text{ min.}$$

S10. Ans (e)

Sol. let the capacity of the tank be 60 units (LCM)

So, the efficiency of the pipe A, pipe B and pipe C be 4 units/min, 3 units/min and 2 units/min respectively.

$$\text{So, required time} = \frac{60}{(4+3-2)} = \frac{60}{5} = 12 \text{ min}$$

S11. Ans (e)

Sol. Let time taken by pipe C to empty the tank alone is T min.

ATQ

$$\frac{360}{7} \left[\frac{1}{60} + \frac{1}{60} \times \frac{100}{120} - \frac{1}{T} \right] = 1$$

$$\frac{1}{60} + \frac{1}{72} - \frac{1}{T} = \frac{7}{360}$$

$$\frac{11}{11} - \frac{1}{T} = \frac{7}{360}$$

$$\frac{1}{T} = \frac{1}{90}$$

$$T = 90 \text{ min}$$

S12. Ans.(a)

Sol.Rate of flow \propto cross section areaOr rate of flow \propto (diameter)²

Ratio of diameter = 20: 30: 60

$$= 2:3:6$$

Rate of flow = 4: 9: 36

Total work = 36 \times 49Total time taken by all = $\frac{36 \times 49}{4+9+36} = 36$ minutes

S13. Ans.(d)

Sol. Let total capacity of tank be 30 units (LCM)

So, efficiency of A and B is 1 unit/hr and 2 unit/hr respectively.

A and B together fill the tank in $\frac{30}{3} = 10$ hours but due to leak C, tank is filled in 5 more hours

so time = 10 + 5 = 15 hours

$$(A + B + C) \times 15 = 30$$

$$(1 + 2 + C) \times 15 = 30$$

$$45 + 15C = 30$$

$$C = -1$$

Time required by leak C to empty the tank = $\frac{30}{1} = 30$ hours**S14. Ans.(c)**Sol. Faster Pipe = x hours \rightarrow x + 10 unit per hourSlower pipe = x + 10 hours \rightarrow x unit per hour

According to question,

$$12(x + 10) + 12x = x(x + 10)$$

$$x = 20$$

So, faster pipe alone take to fill the tank in 20 hours.

S15. Ans.(b)Sol. A can fill $\frac{1}{2}$ part of tank in 1 hours

A can fill full the tank in 2 hours

B can fill $\frac{1}{3}$ part of tank in 1 hours

B can fill full tank in 3 hours.

C is an outlet pipe.

When A, B and C are opened together

 $\frac{7}{12}$ part of tank can fill in = 1 hours(A + B - C) full tank can be filled in $\frac{12}{7}$

$$\text{LCM of } \left(2, 3, \frac{12}{7}\right) = 12$$

Efficiency A	B	A + B - C
6	4	7

So, efficiency of C = 6 + 4 - 7 = 3

So, C can empty the tank = $\frac{12}{3} = 4$ hours

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