Quiz Date: 10th June 2020

Q1. Raghuveer can do a work in certain days. Rohan can do $\frac{3}{5}th$ of the same work in 18 days. If Ravi, Rohan and Raghuveer together can complete the whole work in 12 days and Raghuveer is 20% more efficient than Rohan, then in how many days Ravi alone can complete the work ?
(a) 120 days
(b) 75 days
(c) 72 days
(d) 100 days
(e) 96 days

Q2. Two pipes A and B can fill a tank in 24 minutes and 32 minutes respectively. If both the pipes are opened simultaneously, after how much time should B be closed so that the tank is full in 18 minutes?
(a) 6 min
(b) 8 min
(c) 10 min
(d) 11 min
(e) None of these

Q3. Two pipes A and B can fill a cistern in 6 minutes and 7 minutes respectively. Both the pipes are opened alternatively, first pipe A and 2nd pipe B for 1 minute each. In what time will they fill the cistern.
(a) 6 minutes
(b) $6\frac{2}{3}$ minutes
(c) $6\frac{3}{7}$ minutes
(d) $3\frac{1}{2}$ minutes
(e) $7\frac{3}{7}minutes$

Q4. Efficiency of Asha is 25% more than Usha and Usha take 25 days to complete a piece of work. Asha started the work alone and then Usha joined her 5 days before completion of the work. For how many days Asha worked alone ?
(a) 13 days
(b) 11 days
(c) 10 days
(d) 15 days
(e) None of these

Q5. In what time would a cistern be filled by three pipes whose diameters are 2 cm, 3 cm and 4 cm running together, when the largest alone can fill it is 58 minutes? The amount of water flowing per minute in each pipe is proportional to the square of its diameter:
(a) 36 minutes

(b) 32 minutes
(c) 23 minutes
(d) 28 minutes
(e) None of these

Q6. Ravi alone would take 32 hours more to complete a job than both Ravi and Rajesh together. If Rajesh worked alone, he took $12\frac{1}{2}$ hours more to complete it than both Ravi and Rajesh worked together. What time would they take if both Ravi and Rajesh worked together?
(a) 19 hours
(b) $6\frac{1}{3}$ hours
(c) 20 hours
(d) $7\frac{1}{2}$ hours
(e) 23 hours

Q7. Rahul and Ayush together can complete a work in half the time of Veer, while Ayush and Veer together can complete the same work in 1/3 rd time of Rahul. If they together complete the work in 30 days then in how many days Rahul alone can complete the work?
(a) 120 days
(b) 150 days
(c) 90 days
(d) 100 days
(e) 140 days

Q8. Tap A can empty a tank in 6 hours and another tap B can fill the tank at the rate of 15 l/min. If both the taps are opened the tank can be emptied in 10 hours then find the capacity of tank?
(a) 13,200 ℓ
(b) 14,500ℓ
(c) 13,700ℓ
(d) 13,500ℓ
(e) 12,240ℓ

Q9. X takes 4 days to complete one-third of a job, Y takes 3 days to complete one-sixth of the same work and Z takes 5 days to complete half the job. If all of them work together for 3 days and X and Z quit, how long will it take for Y to complete the remaining work done.
(a) 6 days
(b) 8.1 days
(c) 5.1 days
(d) 7 days
(e) None of these

Q10. A, B and C working together completed a job in 10 days. However, C only worked for the first three days when 37/100 of the job was done. Also, the work done by A in 5 days is equal to the work done by B in 4 days. How many days would be required by the fastest worker to complete the entire work?
(a) 20 days
(b) 25 days
(c) 30 days
(d) 40 days
(e) None of these

Direction (11-15): What approximate value should come in the place of question (?) mark:
Q11. 125.09 % of 440.01 + 74.98 % of 839.98 + $\sqrt[3]{7.99}$ = 39.89 × ?
(a) 40
(b) 30
(c) 50
(d) 60
(e) 70

Q12. ? × 128.09 + 1728.09 = $(12.99)^3$ + 170.99
(a) 2
(b) 5
(c) 7
(d) 9
(e) 12

Q13. $?^3 \times 15.02 + 125\ \%\ of\ 463.94 = (38.01)^2 + 95.98$
(a) 2
(b) 8
(c) 4
(d) 12
(e) 14

Q14. 1267.98 + $?^3$ = $(12.02)^3$ + 51.98
(a) 4
(b) 8
(c) 10

(d) 12
(e) 14

Q15. $\frac{?}{14.09} + (11.97)^2 - \sqrt{1936.01} = (15.98)^2$
(a) 2164
(b) 2296
(c) 2118
(d) 2184
(e) 2124

Solutions

S1. Ans.(d)
Sol. Time taken by Rohan to complete whole work $= 18 \times \frac{5}{3} = 30 days$
Time taken by Raghuveer $= 30 \times \frac{5}{6} = 25\ days$
$\therefore$ Time taken by Ravi $\rightarrow \frac{1}{12} - \left(\frac{1}{25} + \frac{1}{30}\right)$
$\Rightarrow \frac{1}{12} - \frac{11}{150}$
$\Rightarrow \frac{3}{300} = \frac{1}{100}$
So, Ravi alone will complete the whole work in 100 days.

S2. Ans.(b)
Sol.
1 minute work of (A + B)both $= \left(\frac{1}{24} + \frac{1}{32}\right)$
$= \frac{4+3}{8 \times 12}$
$= \frac{7}{96}$ minutes
i.e. tank will full in $\frac{96}{7}$ minutes.
Let B is closed after x minutes
$\therefore \frac{7x}{96} + \frac{18-x}{24} = 1$
$\Rightarrow \frac{7x+72-4x}{96} = 1$

$\Rightarrow x = 8$ minutes

S3. Ans.(c)
Sol.

Part of the cistern filled by pipe A in 1 minute $= \frac{1}{6}$

Part of the cistern filled by pipe B in 2nd minute $= \frac{1}{7}$

Part of the cistern filled in first 2 minutes $= \frac{1}{6} + \frac{1}{7} = \frac{13}{42}$

Part of the cistern filled in 6 minutes $= \frac{3 \times 13}{42} = \frac{39}{42}$

Remaining part $= 1 - \frac{39}{42} = \frac{3}{42} = \frac{1}{14}$

$\therefore$ Time taken to fill $\frac{1}{14}$ parts by pipe A $= \frac{6}{14} = \frac{3}{7}$

$\therefore$ Total time $= 6 + \frac{3}{7} = 6\frac{3}{7}$ minutes

S4. Ans.(b)
Sol.
Usha takes 25 days to complete the work.
Since Asha is 25% more efficient, so she will take $\frac{4}{5} \times 25$ i.e. 20 days to complete the work.
Let Asha worked alone for x days.
Now, $\frac{x}{20} + 5\left(\frac{1}{20} + \frac{1}{25}\right) = 1$
$\Rightarrow x = 11$ days.

S5. Ans.(b)
Sol.
Amount of water from three pipes is 4 units, 9 units and 16 units.
Let capacity of cistern be x units.
$\therefore \frac{x}{58} = 16$
$\Rightarrow x = 928$ units.
In 1 minute quantity to be filled by 3 pipes = 29 units
$\therefore$ Total time required $= \frac{928}{29} = 32$ minutes

S6. Ans.(c)
Sol.
Time taken by both Ravi and Rajesh = $\sqrt{t_1 t_2}$
Here, t_1 = 32 hours,
$t_2 = 12\frac{1}{2} = \frac{25}{2}$

So, required time $= \sqrt{32 \times \frac{25}{2}} = 20\ hours$

S7. Ans.(a)
Sol.
Let efficiency of Rahul, Ayush & veer be x, y & z resp.
And we know time is inversely proportional to efficiency

$\therefore \frac{x+y}{z} = \frac{2}{1} = \frac{8}{4}$

$\frac{y+z}{x} = \frac{3}{1} = \frac{9}{3}$

Therefore ratio of efficiency

$x : y : z = 3 : 5 : 4$

total work $= 12 \times 30$

$= 360$ unit

Rahul alone can complete the work $= \frac{360}{3} = 120$ days

S8. Ans.(d)
Sol.

	Time	Efficiency
A	6hr	-5
		30
A+B	10hr	-3

$\therefore$ Efficiency of B $= 2$

$\therefore$ tap B can fill the tank $= \frac{30}{2} = 15$ hrs

Capacity of tank $= 15 \times 60 \times 15$

$= 13500$ litre

S9. Ans.(c)
Sol.

$$x \text{ are day work} = \frac{1}{12}$$
$$y \text{ are day work} = \frac{1}{18}$$
$$z \text{ are day work} = \frac{1}{10}$$

Let y take n days to complete remaining work then

$$\frac{3}{12}+\frac{3}{18}+\frac{3}{10}+\frac{n}{18}=1$$
$$\frac{n}{18}=1-\frac{1}{4}-\frac{1}{6}-\frac{3}{10}$$
$$=\frac{60-15-10-18}{60}$$
$$\Rightarrow \frac{n}{18}=\frac{17}{60}$$
$$n=\frac{17\times 18}{60}=n=5.1 \text{ days}$$

S10. Ans.(a)
Sol.

3 days work =37%

Remaining 63% done by (A +B) in 7 day

(A + B)'s 1 day's work = 9%

So,

A one day's work = 4%

B one day work = 5%

C's 3 days work = 37% − 27% = 10%

So fastest is B and complete work in 20 days.

S11.Ans(b)
Sol.

$$\frac{125}{100}\times 440+\frac{75}{100}\times 840 + 2 = 40\times ?$$
$$550 + 630+2 = 40 \times ?$$
$$? \approx 30$$

S12. Ans(b)
Sol.

$$? \times 128 + 1728 = (13)^3 + 171$$
$$? \times 128 = 2197 + 171 - 1728$$
$$? = \frac{640}{128}$$
$$? = 5$$

S13. Ans(c)
Sol.

$?^3 \times 15 + \frac{125}{100} \times 464 = (38)^2 + 96$

$?^3 \times 15 = 1444 + 96 - 580$

$?^3 \times 15 = 960$

$?^3 = 64$

$? = 4$

S14. Ans(b)
Sol.

$1268 + ?^3 = (12)^3 + 52$

$?^3 = 1780 - 1268$

$?^3 = 512$

$? = 8$

S15. Ans(d)
Sol.

$\frac{?}{14} + 12^2 - \sqrt{1936} = (16)^2$

$\frac{?}{14} = 256 + 44 - 144$

$\frac{?}{14} = 156$

$? = 2184$