Quiz Date: 11th September 2020

Q1. Two identical walls of same height can be built in 8hr and 10hr by A and B respectively. If both starts building the wall at the same time, find after how much time ratio of the unbuild part of walls built by A and B become 15:16?
(a) 4hr
(b) 2hr
(c) 3hr
(d) 5hr
(e) 6hr

Q2. A can complete 3/5th of the work in 9 days. A and B together do 1/5th of the same work in $\frac{7}{4}$ days. Find time taken by B to complete the work alone.
(a) 25 days
(b) 21 days
(c) 18 days
(d) 24 days
(e) 15 days

Q3. 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

Q4. A container contained 60l milk. Out of this 6l of milk was taken out and replaced with water. This process was repeated two more times further. How much milk is now in container?(in litres)
(a) 43.74
(b) 42.74
(c) 44.74
(d) 41.74
(e) 45.74

Q5. In an alloy 'A', zinc & copper is in the ratio of 1 : 1. In the second alloy 'B', the same element are in the ratio 3 : 5. If these two alloys mixed to form a new alloy in which zinc and copper is in the ratio 2 : 3, find the ratio in which alloy 'A' and alloy 'B' are mixed?
(a) 2 : 3
(b) 3 : 2
(c) 1 : 4
(d) 4 : 1
(e) 3 : 1

Q6. The efficiency ratio of Shushma & Jyoti is 5 : 3. Shusma & Rani together can complete a piece of work in 12 days while rani alone can complete the same work in 16 days, then in how many days Jyoti alone can complete the same work ?
(a) 96 days
(b) 60 days
(c) 80 days
(d)48 days
(e) 72 days

Q7. A and B together can complete a certain work in 20 days. A third person C, whose efficiency is 20% more than that of B, can complete the same work in 30 days alone. In how many days A and C together can complete the same work?
(a) 18 days
(b) 24 days
(c) 16 days
(d) 30 days
(e) 20 days

Q8. A and B are two alloys of gallium and copper prepared by mixing metals in the ratio 7 : 2 and 7 : 11 respectively. If equal quantities of alloys are melted to form a third alloy C, find the ratio of gallium and copper in C.
(a) 7 : 12
(b) 14 : 13
(c) 7 : 5
(d) 2 : 11
(e) 5 : 3

Q9. There is a mixture of water and alcohol of 84 L. When 12 L of water is added to the mixture the ratio of water to alcohol becomes 11 : 5. Find the original ratio of alcohol to water in the mixture.
(a) 6: 11
(b) 9: 5
(c) 5: 9
(d) 11: 6
(e) 5: 8

Q10. 600 g of sugar solution has 40% sugar in it. How much sugar should be added to make it 50% in the solution?
(a) 160 g
(b) 120 g
(c) 130 g
(d) 140 g
(e) 150 g

Q11. Pipe A can fill a tank in x min while pipe B can fill the same tank in (x+20) min. If they are opened together, they fill the tank in 24 min, then find the time taken by pipe B alone to fill half tank.
(a) 30 min
(b) 40 min
(c) 25 min
(d) 20 min
(e) 10 min

Q12. Pipe A and B are filling pipe. When they are opened together, they take 7.5 min to fill the tank. There is another pipe C, which is a emptying pipe. If they all are opened together, they take 15 min to fill the tank. Find the time taken by pipe C to empty the tank alone.
(a) 12 min
(b) 15 min
(c) 21 min
(d) 18 min
(e) 12.5 min

Q13. Tap 'A' can fill a cistern alone in 16 hours while another tap 'B' alone can empty the tank in 20 hours. If both pipes are opened together and after 5 hours tap 'B' is closed, then in how much time the remaining tank will be filled?
(a) 12 hours
(b) 18 hours
(c) 9 hours
(d) 14 hours
(e) 15 hours

Q14. 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

Q15. 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

Solutions

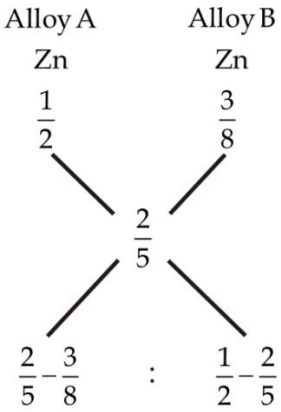
S1. Ans(b)
Sol. let height of both the wall is = 40m (l.c.m. of 8 and 10)
So, efficiency of A and B = 5m/hr and 4m/hr respectively
Let after t time ratio becomes 15:16
ATQ
$\frac{40-5t}{40-4t} = \frac{15}{16}$
$640 - 80t = 600 - 60t$
$20t = 40$
$t = 2hr$

S2. Ans (b)
Sol. Time taken by A to complete the work alone $= 9 \times \frac{5}{3} = 15\ days$
Time taken by A and B together to complete the work $= 5 \times \frac{7}{4} = \frac{35}{4}\ days$
Let total work $= 105\ units$ (LCM)
So, efficiency of A $= \frac{105}{15} = 7$ units/day
And efficiency of A+B $= \frac{105}{\frac{35}{4}} = 12$ units/day
$\therefore$ efficiency of B $= 12 - 7 = 5$ units/day
Now, time taken by B alone to complete the work alone $= \frac{105}{5} = 21\ days$

S3. Ans.(e)
Sol. $\because$ 3 men = 9 boys
$\therefore$ 1 man = 3 boys
$\therefore$ 5 men + 6 boys
= (5 × 3 + 6) boys = 21 boys
$\therefore M_1D_1 = M_2D_2$
$= 9 \times 21 = 21 \times D_2$
$= D_2 = \frac{9\times21}{21} = 9$ days

S4. Ans.(a)
Sol.
Remaining milk in the container
$= x\left[1 - \frac{y}{x}\right]^n$
Where, x = Initial quantity of milk
And, y = Quantity of milk taken out
$= 60\left[1 - \frac{6}{60}\right]^3$
$\Rightarrow 60 \times \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10} = 43.74$ litre

S5. Ans.(c)
Sol.



$\Rightarrow \frac{1}{40}:\frac{1}{10} \Rightarrow 1:4$

S6. Ans.(c)

Sol. One day work of shushma = $\frac{1}{12}-\frac{1}{16}=\frac{4-3}{48}=\frac{1}{48}$

⇒ Shushma will complete the work in 48 days alone

∴ Time taken by Jyoti = $\frac{5}{3}\times 48 = 80$ days

S7. Ans.(a)

Sol. Ratio of efficiency of B and C = 5 : 6

∴ Time required by B = $\frac{6}{5}\times 30 = 36$ days

∴ Time required by $A = \frac{1}{\frac{1}{20}-\frac{1}{36}} = \frac{180}{9-5} = 45$ days

∴ Required time = $\frac{1}{\frac{1}{30}+\frac{1}{45}} = \frac{90}{3+2} = 18$ days

S8. Ans.(c)

Sol.

Alloy A	Alloy B
Gallium : Copper	Gallium : Copper
7 : 2	7 : 11

Now equal quantities are added

Hence

Gallium $= \frac{7}{9}+\frac{7}{18}=\frac{14+7}{18}=\frac{21}{18}$

Copper $= \frac{2}{9}+\frac{11}{18}=\frac{15}{18}$

Gallium : Copper $= \frac{21}{18}:\frac{15}{18} = 7:5$

S9. Ans.(c)

Sol.

Let quantity of water in mixture be x lit.

So, quantity of alcohol in mixture be 84 – x lit.
ATQ
$\frac{x+12}{84-x} = \frac{11}{5}$
$x = 54\ lit$
∴ original mixture of mixture $\frac{30}{54} = \frac{5}{9}$

S10. Ans.(b)
Sol. Let x g sugar is added
Original sugar = $600 \times \frac{40}{100}$
= 240 g
$\frac{(240+x)}{(600+x)} \times 100 = 50$
$\Rightarrow 480 + 2x = 600 + x$
$\Rightarrow x = 120g$

S11.
Ans (a)
Sol. ATQ
$24\left[\frac{1}{x} + \frac{1}{x+20}\right] = 1$
$\frac{48x+480}{x(x+20)} = 1$
$x^2 - 28x - 480 = 0$
$x = 40$ (neglecting negative value of x)
So, required time $= \frac{x+20}{2} = \frac{60}{2} = 30\ min$

S12. Ans (b)
Sol. Let total capacity of tank be 15 units (LCM)
So, efficiency of pipe A + pipe B $= \frac{15}{7.5} = 2\ units/min$
And, efficiency of Pipe A + pipe B – pipe C $= \frac{15}{15} = 1\ units\ /min$
So, efficiency of pipe C $= 2 - 1 = 1 unit/min$
So, required time $= \frac{15}{1} = 15\ min$

S13. Ans (e)
Sol.
Let total work = 80 units
One hour's work of A $= \frac{80}{16} = 5$ units
One hour's work of B $= \frac{-80}{20} = -4$ units (∵ B is emptying pipe)
∴ Remaining work after 5 hours
= 80 – (5 × 5 – 4 × 5)
= 75 units
∴Total time required to fill the tank

$= \frac{75}{5} = 15$ hours

S14. Ans(d)
Sol. let capacity of tank = 48 lit (LCM)
Efficiency of Tap A = 2 lit/min
Efficiency of Tap B = 3 lit/min
Since tank is filled in 12 min & tap B worked for whole duration
Required time = $\frac{48-12\times3}{2} = 6\ min.$

S15. 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.
So, required time $= \frac{60}{(4+3-2)} = \frac{60}{5} = 12\ min$