Quiz Date: 26th February 2020

Q1. Pipe A and B can fill a tank in 24 hours and 42 hours respectively. Pipe C is an outlet pipe whose efficiency is $71\frac{3}{7}$% of efficiency of pipe A. Starting with pipe A, followed by pipe B and then Pipe C each opens for one hour till the tank completely filled, find total time taken to fill the tank?
(a) $82\frac{2}{3}$ hours
(b) $80\frac{2}{7}$ hours
(c) $81\frac{6}{7}$ hours
(d) 78 hours
(e) 96 hours

Q2. A and C working together can complete a piece of work in 12 days and A is $33\frac{1}{3}$% more efficient than B. If they all work together, they can finish the same work in 8 days. Find the wages of A out of total wages Rs.2340?
(a) Rs. 1040
(b) Rs. 1020
(c) Rs. 1080
(d) Rs. 1120
(e) Rs. 960

Q3. Shivam, Gaurav and Manish can complete a piece of work in 20 days, 24 days and 30 days respectively. They work in pair at alternate days. Gaurav and Manish together start the work followed by Manish and Shivam together and then Shivam and Gaurav together. Find total time taken by them to finish the work?
(a) 8 days
(b) 4 days
(c) 15 days
(d) 12 days
(e) 10 days

Q4. Three pipes A, B and C can fill a cistern in 15 hours, 18 hours and 21 hours respectively. First of all, Pipe C was opened and after 1 hours, Pipe B was opened and after 2 hours from the starting of Pipe C, A was also opened. Find the time in which the cistern was filled?
(a) 5 hrs
(b) 9 hrs
(c) 6 hrs 45 min
(d) 7 hrs 30 min
(e) 7 hours

Q5. A can do a piece of work in 120 days and B can do it in 160 days. They work together for 15 days. Then A leaves and B continues the work. 21 days after that, C also joins the work and the work is completed in 52 more days. In how many days C can do it alone?
(a) 150

(b) 140
(c) 160
(d) 175
(e) 192

Q6. Shivam and Maanik can do a piece of work in 48 days and 72 days respectively. Amit can finish the same work alone in $\frac{5}{6}th$ of the time taken by Shivam and Maanik working together. Shivam and Maanik started the work, after some days Maanik left the work and remaining work finished by Shivam and Amit in 6 days. What part of work done by Maanik?
(a) $\frac{3}{4}$
(b) $\frac{1}{8}$
(c) $\frac{1}{3}$
(d) $\frac{1}{4}$
(e) $\frac{3}{8}$

Q7. A labourer was appointed by a contractor on the condition he would be paid Rs 170 for each day of his work but would be fined at the rate of Rs 40 per day for his absent. After 35 days, the contractor paid the labourer Rs 3640. The number of days the labourer absented from work days:
(a) 9 days
(b) 11 days
(c) 12 days
(d) 8 days
(e) 7 days

Q8. Veer can do a piece of work in 30 days. After 8 days, he left the work and remaining work completed by Mohit in 20 days. What is the total time require to complete the whole work if they work together?
(a) $\frac{50}{7}$ days
(b) $\frac{75}{7}$ days
(c) 21 days

(d) 10.5 days

(e) $\frac{100}{7}$ days

Q9.   A, B and C alone can finish a work in 10, 12 and 15 days respectively. They managed to complete $\frac{1}{3}$ rd of the work in 3 days. Now they decided to take a leave of 1 day and work alternatively either in pair or individually. Then find the minimum number of days required to finish that task (Given, All of them do not work together)

(a) $7\frac{3}{11}$ days

(b) $8\frac{3}{11}$ days

(c) $7\frac{8}{11}$ days

(d) 8 days

(e) $8\frac{10}{11}$ days

Q10. A & B together can complete a work in $14\frac{2}{5}$ days while B & C together can complete the same work in $10\frac{2}{7}$ days. A alone starts work and after 8 days B replaced him. B did the work for next 12 days and the remaining work is completed by C in next 5 days, then find time taken by A, B & C together to complete that work, if C work with 50% of his usual efficiency?

(a) $9\frac{2}{9}$ days

(b) $7\frac{2}{7}$ days

(c) $9\frac{2}{7}$ days

(d) $10\frac{2}{7}$ days

(e) None of these

Q11. A contractor was given a contract of completing a task in 60 days. He hired 40 men for completing the task. At the end of 36 days, he realized that only 50% task has been completed. So, in order to complete the task in the contracted time he hired more men. How many more men are hired by contractor to complete the task in contracted time?

(a) 20 men

(b) 18 men

(c) 25 men

(d) 12 men

(e) 16 men

Q12. A road is built by P, Q & R, who are able to build the road in 8 days, 12 days and 10 days respectively when working alone. They worked in a manner that P works for full-day while Q for half day and R works for $\frac{2}{3}$ rd of the day. If after four days P & R stopped working, then find the time taken by Q to build the remaining road while working full day?

(a) $\frac{2}{3}$ days

(b) $\frac{4}{5}$ days

(c) $\frac{1}{5}$ days

(d) 1 days

(e) $\frac{1}{1.5}$ days

Solutions

S1. Ans. (c)
Sol.
Let total work be 168 units. (LCM)
So, efficiency of pipe A and B are 7 units/hr and 4 units/hr respectively.
Efficiency of pipe C = $7 \times \frac{500}{700} = 5 \; units/hr$
Total work after 3 hours = $(7 + 4 - 5)$
 = $6 \; units$
3 days .... 6 units
$3 \times 27 = 81 \; days$.................$6 \times 27 =162$ units
Rest work (6 units) done by A in $\frac{6}{7} \; day$
So, total time to fill the tank = $81\frac{6}{7} \; days$.

S2. Ans. (a)
Sol.
Let total work be 24 units (LCM)
So, efficiency of A + C = $\frac{24}{12} = 2 \; units/day$
And, efficiency of A + B + C = $\frac{24}{8} = 3 \; units/day$
So, efficiency of B = $1 \; unit/day$
Efficiency of A = $\frac{4}{3} \; units/day$
Work done by A = $\frac{4}{3} \times 8 = \frac{32}{3} units/day$
Require wage = $\frac{32}{3 \times 24} \times 2340$
 = $Rs.1040$

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S3. Ans. (d)

Sol.
Let total work be 120 units (LCM)
So, efficiency of Shivam, Gaurav and manish are 6, 5 and 4 units/day respectively.
ATQ
Work done in 3 days = (5 + 4) + (4 + 6) + (6 + 5) = 30 $units$
So, require time = $\frac{120}{30} \times 3 = 12\ days$

S4. Ans. (e)
Sol.
Let total capacity of tank be 630 units.
So, efficiency of A, B and C is 42, 35 and 30 units/hr respectively.
Let total time taken be T hours.
Therefore, C opened for T hours, B opened for (T – 1) hours and A opened for (T – 2) hours.
ATQ
$30 \times T + 35 \times (T - 1) + 42 \times (T - 2) = 630$
$30T + 35T + 42T - 35 - 84 = 630$
$107T = 749$
$T = 7$
So, required time = 7 hours

S5. Ans. (c)
Sol.
Let total work be 480 units (LCM)
So, efficiency of A and B are 4 units/day and 3 units/day respectively.
Let efficiency of C be x units/day.
ATQ
$(4 + 3) \times 15 + 3 \times 21 + (3 + x) \times 52 = 480$
$105 + 63 + (3 + x) \times 52 = 480$
$3 + x = \frac{312}{52}$
$x = 6 - 3 = 3$
So, required time = $\frac{480}{3} = 160\ days$

S6. Ans. (d)
Sol.
Let total work be 144 units. (LCM)
So, efficiency of Shivam and Maanik are 3 units/day and 2 units/day respectively.
Time taken when both working together = $\frac{144}{5}\ days$
Time taken by Amit to finish work alone = $\frac{144}{5} \times \frac{5}{6} = 24\ days$
So, efficiency of Amit = $\frac{144}{24} = 6\ units/day$
Let Maanik worked for T days.
ATQ
$5 \times T + 9 \times 6 = 144$

$T = \frac{90}{5} = 18 \ days$

Total work done by Maanik $= 18 \times 2 = 36 \ units$

So, required part of work $= \frac{36}{144} = \frac{1}{4}$

S7. Ans. (b)
Sol.
Let the labourer present for x days.
ATQ
$170 \times x - 40 \times (35 - x) = 3640$
$170x - 1400 + 40x = 3640$
$210x = 5040$
$x = 24$
So, required no. of days $= 35 - 24 = 11 \ days$

S8. Ans. (e)
Sol.

One day work of Veer $= \frac{1}{30}$

Remaining work 8 days after $= 1 - \frac{8}{30} = \frac{11}{15}$

Time taken by Mohit to complete the work $= 20 \times \frac{15}{11} = \frac{300}{11} \ days$
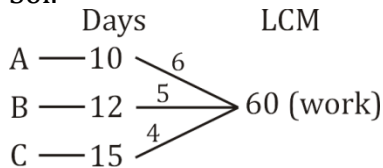
Let required time be D days.
ATQ
$D\left[\frac{1}{30} + \frac{11}{300}\right] = 1$

$D\left[\frac{21}{300}\right] = 1$

$D = \frac{300}{7} = \frac{100}{7} \ days$

S9. Ans.(e)
Sol.

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          Days          LCM
A ——— 10  ╲ 6
          5
B ——— 12 ———╲> 60 (work)
          4
C ——— 15  ╱
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There are three possibilities.
(I) |A + B| |C| |A + B| |C| ....soon

(II) |A + C| |B| A + C   B ....soon

(III) |B + C| |A| |B + C| |A| ....soon

To find minimum number of days
A+B   C   A+B   C

 11   4   11   4

Days $= 4 + \frac{10}{11} = 4\frac{10}{11}$ days

Required minimum days $= 4 + 4\frac{10}{11} = 8\frac{10}{11}$ days

S10. Ans.(d)
Sol.
Given,
$(A + B) = \frac{72}{5}$ days
$B + C = \frac{72}{7}$ days
ATQ,
$(A + B)8$ days $+ (B + C)4$ days $+ (C)1$ days $=$ Total work
$\frac{8 \times 5}{72} + \frac{4 \times 7}{72} + \frac{1}{C} = 1$
$\frac{5}{9} + \frac{7}{18} + \frac{1}{C} = 1$
$\frac{17}{18} + \frac{1}{c} = 1$
$\frac{1}{c} = 1 - \frac{17}{18}$
$\frac{1}{c} = \frac{1}{18}$
C = 18 days
$B = \frac{7}{72} - \frac{1}{18}$
$B = \frac{7-4}{72}$
B = 24 days
$A = \frac{5}{72} - \frac{1}{24}$
A = 36 days
Total work = 72 units (LCM of days taken by A, B & C)
Efficiency of A = 2 unit/day
Efficiency of B = 3 units/day
Efficiency of C = 4 units/day
New efficiency of C $= \frac{4}{2} = 2$ units/day
Required days $= \frac{72}{(2+3+2)} = 10\frac{2}{7}$ days

S11. Ans.(a)
Sol. Let total work be 'W' and additionally hired men be 'M'.
Efficiency of 1 Man $= \frac{W \times \frac{50}{100}}{36 \times 40}$
$= \frac{W \times 50}{36 \times 40 \times 100}$
$= \frac{W}{36 \times 80}$
Total work done by 40 men in remaining 24 days $= \frac{W}{36 \times 80} \times 24 \times 40 = \frac{w}{3}$
Total work done by M men in 24 days $=$ W$-\frac{W}{2} - \frac{W}{3} = \frac{W}{6}$
Required Men = M $\times \frac{W}{36 \times 80} \times 24 = \frac{W}{6}$
$M = \frac{W}{6} \times \frac{1}{24} \times \frac{36 \times 80}{W}$

M = 20

S12. Ans.(b)
Sol. Let the total work be 1 unit.
In one day work done by P, Q & R

$$= \frac{1}{8} + \frac{1}{12 \times 2} + \frac{2}{10 \times 3}$$

$$= \frac{15 + 5 + 8}{120}$$

$$= \frac{28}{120}$$

$$= \frac{7}{30} \text{ unit}$$

Total part of road built by P, Q & R in 4 days

$$= 4 \times \frac{7}{30}$$

$$= \frac{14}{15}$$

Remaining part of road $= 1 - \frac{14}{15}$

$$= \frac{1}{15}$$

Let Q will take 'd' days to build the remaining road
So,

$$\frac{1}{12} \times d = \frac{1}{15}$$

$$d = \frac{12}{15}$$

$$d = \frac{4}{5} \text{ day}$$

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