



SO Crash Batch 2024 Based (MCQ) (Time and Work)

Part-1: CLASS DISCUSSION

GROUP 1: Unitary Method /Chain Rule

1. If 18 pumps can raise 2170 tons of water in 10 days, working 7 hours a day; in how many days will 16 pumps raise 1736 tons of water, working 9 hours a day?
(A) 6 (B) 7 (C) 8 (D) 934 (E) None of these
2. Mr. Jamal employed 50 workers to finish a work within 30 days. After 20 days he found out that only 50% work had been completed. How many additional workers did Mr. Jamal need to finish the work in time?
(A) 100 (B) 50 (C) 40 (D) 35 (E) None of these
3. If 17 workers can dig a ditch 26 meter long in 18 days, working 8 hours a day; how many more workers should be engaged to dig a similar ditch 39 meter long in 6 days, each worker working 9 hours a day?
(A) 68 (B) 51 (C) 40 (D) 35 (E) None of these
4. A certain number of men can finish a piece of work in 100 days. If, there were 10 men less, it would take 10 days more for the work to be finished. How many men were there originally?
(A) 75 (B) 82 (C) 110 (D) 100 (E) 150
5. A family had provision of food for 15 days. After 5 days 8 guests came and the provision lasted 6 days. How many are the members of the family?
(A) 10 (B) 11 (C) 12 (D) 13 (E) 15
6. A contractor employed 30 men to do a piece of work in 38 days. After 25 days, he employed 5 men more and the work was finished one day earlier. How many days he would have been behind, if he had not employed additional men?
(A) 1 (B) 1.5 (C) 2 (D) 5 (E) None of these
7. A contractor undertakes to do a piece of work in 40 days. He engages 100 men at the beginning and 100 more after 35 days and completes the work in stipulated time. If he had not engaged the additional men, how many days surpassed the schedule would it be finished?
(A) 10 (B) 5 (C) 45 (D) 20 (E) 35
8. A contract is to be completed in 46 days and 117 men were set to work, each working 8 hours a day. After 33 days, $\frac{4}{7}$ of the work is completed. How many additional men have to be employed so that the work may be completed in time, each man now working 9 hours a day?
(A) 81 (B) 78 (C) 66 (D) 60 (E) 42

GROUP 2: Work Done Problem

9. Two pipes A and B can fill a tank in 20 and 30 minutes respectively. If both the pipes are used together, then how long will it take to fill the tank?
(A) 12 min (B) 15 min (C) 25 min (D) 50 min (E) 16 min
10. Two workers A and B are engaged to do a work. A working alone takes 8 hours more to complete the job than if both worked together. If B worked alone, he would need 4.5 hours more to complete the job than they both working together. What time would they take to do the work together?
(A) 4 hours (B) 5 hours (C) 6 hours (D) 7 hours (E) None of these
11. One pipe can fill a pool 1.25 times faster than a second pipe. When both pipes are opened, they fill the pool in five hours. How long would it take to fill the pool if only the slower pipe is used?
(A) 9 hrs (B) 11.25 hrs (C) 11.5 hrs (D) 12 hrs (E) 11.75 hrs

12. A is 30% more efficient than B. How much time will they, working together, take to complete a job which A alone could have done in 23 days?
(A) 11 days (B) 13 days (C) 11.5 days (D) 21 days (E) 20 days
13. Pumping alone at their respective constant rates, one inlet pipe fills an empty tank to $\frac{1}{2}$ of capacity in 3 hours and a second inlet pipe fills the same empty tank to $\frac{2}{3}$ of capacity in 6 hours. How many hours will it take both pipes, pumping simultaneously at their respective constant rates, to fill the empty tank to capacity?
(A) 9 hrs (B) 3.25 hrs (C) 3.6 hrs (D) 12 hrs (E) 11.75 hrs
14. A man can do a piece of work in 5 days, but with the help of his son, he can do it in 3 days. In what time can the son do it alone?
(A) 6.5 days (B) 7 days (C) 7.5 days (D) 8 days (E) 8.5 days
15. A pump can fill a tank with water in 2 hours. Because of a leak, it took $2\frac{1}{3}$ hours to fill the tank. The leak can drain all water of the tank in :
(A) $4\frac{1}{3}$ hrs. (B) 7 hrs. (C) 8 hrs. (D) 14 hrs (E) 15 hrs.
16. Pipe A can fill a tank in 5 hours, pipe B in 10 hours and pipe C in 30 hours. If all the pipes are opened together, in how many hours will the tank be filled?
(A) 2 hrs (B) 3 hrs (C) 3.5 hrs (D) 2.5 hrs (E) 4 hrs
17. A and B can do a piece of work in 9 days, B and C in 12 days, A and C in 18 days. If all of them work together, then how much time will they take to finish the same work?
(A) 10 (B) 7 (C) 8 (D) 6 (E) 15

GROUP 3: Solving Work Problems by Equation

18. A and B individually can do a job in 20 min and 30 min respectively. They started working together, 4 min latter C joined with them and rest of the work was done by them within 6 min. If C works alone how many minutes are required to complete the work?
(A) 12 (B) 15 (C) 36 (D) 50 (E) None of these
19. A can complete a project in 20 days and B can complete the same project in 30 days. If A and B start working in the project together and A quits 10 days before the project is completed, in how many days will the project be completed?
(A) 14 days (B) 15 days (C) 18 days (D) 27 days (E) 23 days
20. A, B and C can complete a piece of work in 16, 32 and 48 days respectively. They started working together but C left after working 6 days and B left 2 days before the completion of the work. How many days it took in total to complete the work?
(A) 12 (B) 10 (C) 11 (D) 14 (E) None of these
21. Rafiq, Shafiq, and Arif can alone complete a project in 10 days, 20 days and 10 days, respectively. Rafiq started working on the project alone; Shafiq joined the project after 2 days. After working together for 4 days both Rafiq and Shafiq left the project and Arif got in. How many days it took to complete the entire project?
(A) 2 days (B) 5 days (C) 10 days (D) 8 days (E) 12 days
22. Two pipes A and B can separately fill a tank in 12 and 15 minutes respectively. A third pipe C can drain off 45 liters of water per minute. If all the pipes are opened, the tank can be filled in 15 minutes. What is the capacity of the tank?
(A) 490 liters (B) 540 liters (C) 420 liters (D) 480 liters (E) 350 liters

GROUP 4: Dealings with Different Efficiency

23. If 5 men or 9 women or 12 children can do a piece of work in 19 days, then in how many days will 3 men, 3 women and 4 children do the same work?
(A) 12 (B) 15 (C) 18 (D) 21 (E) 23
24. If 2 men or 3 women or 4 boys can do a piece of work in 52 days, then in how many days will 1 man and 1 woman and 1 boy do the same work?
(A) 12 (B) 48 (C) 36 (D) 45 (E) 50

25. If 20 men or 24 women or 40 boys can do a job in 12 days working for 8 hours a day, how many men working with 6 women and 2 boys take to do a job four times as big working for 5 hours a day for 12 days?
 (A) 140 (B) 132 (C) 122 (D) 116 (E) 96
26. 50 daily workers can complete a culvert in 40 days. If 30 of them work daily and the rest work in every alternative day, how many more days will be required to complete the project?
 (A) 50 days (B) 5 days (C) 10 days (D) 8 days (E) 12 days
27. 2 men and 7 boys can do a piece of work in 14 days; 3 men and 8 boys can do the same in 11 days. Then, 8 men and 6 boys can do three times the amount of this work in
 (A) 14 days (B) 16 days (C) 36 days (D) 21 days (E) 35 days

GROUP 5: Miscellaneous

28. If the ratio of speed of doing work of three persons is 1:3:5. What is the ratio of time taken by these people to do the same amount of work?
 (A) 15:5:3 (B) 15:5:7 (C) 3:15:5 (D) 15:3:5 (E) 1:3:5
29. A can do a piece of work in 10 days, while B alone can do it in 15 days. They work together for 5 days and the rest of the work is done by C in 2 days. If they get Tk. 4500 for the whole work, how much should C get?
 (A) 1500 (B) 750 (C) 2250 (D) 600 (E) 375
30. A water tank with 64 gallon capacity is filled by pipe A and emptied by pipe B, if the rate of flow through pipe A is 2 gallons per hour, how many gallons per hour should flow through pipe B so that when both pipes are open, the initially empty tank should be full in exactly 96 hours?
 (A) $\frac{3}{8}$ (B) $\frac{4}{3}$ (C) $\frac{2}{3}$ (D) $\frac{8}{3}$ (E) None of these

Part-2: Take-Home Assignment

1. 6 men can complete a work in 5 days if they work for 8 hours per day. How many days will 4 men take to do the same work if they work only 5 hours per day?
 A. 12 B. 16 C. 24 D. 32 E. None Ans: A
2. 2 men or 3 women can survive with some food for 10 days. 4 men and 3 women together can survive with the same food for how many days?
 A. $\frac{8}{3}$ B. $\frac{3}{10}$ C. 3 D. $\frac{10}{3}$ E. $\frac{11}{2}$ Ans: D
3. Two men and three women can repair a bridge in 10 days while three men and two women can do the same work in 8 days. If two men and one woman are used to finish this work, in how many days they will complete it?
 A. 15.0 days B. 13.5 days C. 11.0 days D. 12.5 days E. None Ans: D
4. P people can live on X kg of rice for D days. Then Q people can live on Y kg of rice for how many days?
 A. $\frac{DPY}{XQ}$ B. $\frac{DPX}{YQ}$ C. $\frac{DXY}{PQ}$ D. $\frac{DPQ}{XY}$ E. None Ans: A
5. 50 men can do a piece of work in 12 days working 6 hours a day. How many hours a day would 60 men have to work in order to do another piece of work twice as great in 16 days?
 A. 12 B. 10 C. 8 D. 7.5 E. 8.5 Ans: D
6. Pipe P can fill an empty tank in 4 hours but pipe Q can completely empty the same tank in 8 hours. Both the pipes were opened alternately after every two hours starting with pipe P then in how many hours, the tank was completely filled?
 A. 6 hours B. 5 hours C. 10 hours D. 12 hours E. None Ans: C

7. A 12-gallon tub has a faucet that lets water in at a rate of 3 gallons per minute, and has a drain that lets water out at a rate of 1.5 gallons per minute. If you start with 3 gallons of water in the tub, how long will it take to fill the tub completely?
A. 3 minutes B. 4 minutes C. 6 minutes D. 7.5 minutes E. 8 minutes Ans: c
8. Faucet A lets water flow into a 5-gallon tub at a rate of 1.5 gallons per minute. Faucet B lets water flow into the same tub at a rate of 1.0 gallons per minute. Faucet A runs alone for 100 seconds; then both of them together finish filling up the tub. How long (in seconds) does the whole operation take?
A. 120 B. 150 C. 160 D. 180 E. 190 Ans: C
9. A can do a piece of work in 10 days, while B alone can do it in 15 days. They work together for 5 days and the rest of the work is done by C in 2 days. If they get Tk. 400 for the whole work, what should be A's share?
A. 50 B. 75 C. 150 D. 175 E. 200 Ans: E
10. Machine A can produce 40 bolts per minute, while Machine B can produce only 30 per minute. Machine A begins alone to make bolts but it breaks down after 1.5 minutes and Machine B must complete the job. If the job requires 300 bolts, how long does the whole operation take?
A. 7.5 minutes B. 8 minutes C. 8.5 minutes D. 9 minutes E. 9.5 minutes Ans: E
11. Adnan can hammer 20 nails in 6 minutes. Ziad can do the same job in only 5 minutes. How long will it take them to hammer 22 nails if Adnan hammers the first 5 nails, then Ziad hammers for 3 minutes, and finally Adnan finishes the job?
A. 4.6 minutes B. 5.0 minutes C. 5.4 minutes D. 6.0 minutes E. 6.5 minutes Ans: C
12. X can do a piece of work in 20 days and Y can do the $\frac{1}{7}$ th of the same work in 5 days. In how days together they can complete the $\frac{11}{14}$ th of the total work?
A.) 15 days B. 20 days C. 10 days D. 12 days E. None Ans: C
13. A cistern is normally filled with water in 10 hours but takes 5 hours longer to fill because of a leak in its bottom. If the cistern is full, the leak will empty the cistern in
A. 20 hours B. 30 hours (C) 40 hours D. 50 hours E. 60 hours Ans: B
14. If 10 men can survive for 24 days on 15 cans of rations, how many cans will be needed for 8 men to survive for 36 days?
A. 15 cans B. 16 cans C. 17 cans D. 18 cans E. 19 cans Ans: D
15. If four men need tk. 24.00 worth of food for a three-day camping trip, how much will two men need for a two-week trip?
A. tk. 12.00 B. tk. 24.00 C. tk. 28.00 D. tk. 42 E. tk. 56 Ans: E
16. If a worker can pack $\frac{1}{6}$ of a carton of canned food in 15 minutes and there are 40 workers in a factory, how many cartons should be packed in the factory in 1.5 hours?
A. 16 B. 40 C. 45 D. 90 E. 200 Ans: B
17. If "x" men can do a work in 8 days and "x + 4" men can do it in 6 days, what is the value of "x"?
A. 4 B. 6 C. 8 D. 12 E. 16 Ans: D
18. A can do a piece of work in 25 days, which B alone can finish in 20 days. Both together work for 5 days and then A leaves. How many days will B take to finish the remaining work?
A. 11 B. 10 C. 9 D. 8 E. 7 Ans: A
19. A machine can cut some wood in 6 minutes, and a man using a hand-saw can do it in 18 minutes. After working alone for 4 minutes, the machine broke down. How many minutes must the man work alone to complete the remaining task?
A. 4 B. 6 C. 12 D. 14 E. 18 Ans: B
20. 2 men or 3 women or 4 boys can do a piece of work in 52 days. Then the same piece of work will be done by 1 man, 1 woman and 1 boy in –
A. 48 days B. 36 days C. 45 days D. 50 days E. 50 days Ans: A
21. Riyadh can complete an assignment in 2 hours while Omar can do the same assignment in 3 hours. They worked together for an hour, after which Riyadh left and Omar had to finish the rest of the work alone. How much time in minutes will Omar require to finish the rest of the work?
A. 15 B. 20 C. 25 D. 30 E. 22 Ans: D

22. If A and B together can complete a work in 18 days, A and C together in 12 days, and B and C together in 9 days., then B alone can do the work in –
 A. 24 days B. 15 days C. 30 days D. 40 days E. None Ans: A
23. A tank with capacity T gallons is empty. If water flows into the tank from a pipe at the rate of X gallons per minute, and water is pumped out by another pipe at the rate of Y gallons per minute, and X is greater than Y, in how many minutes will the tank be filled?
 A. $\frac{T}{Y-X}$ B. $\frac{T}{X-Y}$ C. $\frac{T-X}{Y}$ D. $\frac{X-Y}{60T}$ E. $\frac{60T}{XY}$ Ans: B
24. If 20 men or 24 women or 40 boys can do a job in 12 days working for 8 hours a day, how many men working with 6 women and 2 boys take to do a job four times as big working for 5 hours a day for 12 days?
 A. 140 B. 132 C. 122 D. 116 E. 96 Ans: C
25. A and B together can complete a piece of work in 12 days, B and C can do it in 20 days and C and A can do it in 15 days. A, B and C together can complete it in
 A. 12 days B. 6 days C. 8 days D. 10 days E. 18 days Ans: D
26. If A can do $\frac{1}{4}$ of a work in 3 days and B can do $\frac{1}{6}$ of the same work in 4 days, how much will A get if both work together and are paid Tk. 180 in all?
 A. Tk. 60 B. Tk. 120 C. Tk. 90 D. Tk. 180 E. Tk. 150 Ans: B
27. 8 males and 6 females can do a piece of work in 5 days. 5 males and 6 females can complete the same work in 7 days. How many days will a female take to do the job, if she works alone?
 (A) 135 days (B) 142 days (C) 110 days (D) 126 days (E) 128 days Ans: D
28. If 2 pipes function simultaneously, the cistern will be filled in 8 minutes. Both pipes are opened for 4 minutes in the beginning, then first pipe is closed and it takes 6 more minutes to fill the remaining part of the cistern. In how much time will the pipes fill the cistern separately?
 A. 18 and 12 minutes B. 15 and 12 minutes
 C. 24 and 12 minutes D. 10 and 15 minutes E. None of these Ans: C
29. Worker A takes 8 hours to do a job. Worker B takes 10 hours to do the same job. How long should it take both A and B, working together but independently, to do the same job?
 a. $4\frac{4}{9}$ b. $4\frac{4}{7}$ c. $4\frac{3}{8}$ d. None of these (E) $4\frac{3}{7}$ Ans: A
30. A does a work in 10 days and B does the same work in 15 days. In how many days they together will do the same work?
 a. 5 days b. 6 days c. 8 days d. 9 days E. None Ans: B

Part-3: Question Bank with Explanation

1. Three workers can do a job in 12 days. Two of the workers twice as fast as the third. How long would it take one of the faster workers to do the job himself?
 A. 24 B. 30 C. 32 D. NONE OF THESE
- Solution:**
 Let, faster worker took x days and slower worker took 2x days.
 As per question,
 $\frac{1}{x} + \frac{1}{x} + \frac{1}{2x} = \frac{1}{12} \Rightarrow \frac{2+2+1}{2x} = \frac{1}{12} \Rightarrow \frac{5}{2x} = \frac{1}{12} \Rightarrow 2x = 60 \therefore x = 30$
 $\therefore$ The faster workers took 30 days to do the job. Ans. b
2. A and B can do a work in 12 days, B and C can do it in 15 days, and A and C can do it in 20 days. If all of them work together, in how many days they can finish the work?
 A. 25 B. 9 C. 12 D. 10 E. NONE

Solution:

In 1 day (A + B) work = $\frac{1}{12}$ part of the work

In 1 day (B + C) work = $\frac{1}{15}$ part of the work

In 1 day (A + C) work = $\frac{1}{20}$ part of the work

By adding, we get:

In 1 day, 2(A + B + C) work = $\left(\frac{1}{12} + \frac{1}{15} + \frac{1}{20}\right) = \frac{5+4+3}{60} = \frac{12}{60} = \frac{1}{5}$ part

∴ In 1 day (A + B + C) work = $\frac{1}{10}$ part of the work

∴ A, B and C together can finish the work in 10 days. Ans. d

3. A takes twice as much time as B or thrice as much time as C to finish a piece of work. Work together, they can finish the work in 2 days. B can do the work alone in:

A. 6 DAYS B. 8 DAYS C. 12 DAYS D. 4 DAYS (E) NONE

Solution:

Let, B can do the work alone in 3x days.

A can do the work alone in = $2 \times 3x = 6x$ days and C can do the work alone in = 2x days.

As per question, $\frac{1}{6x} + \frac{1}{3x} + \frac{1}{2x} = \frac{1}{2} \Rightarrow \frac{1+2+3}{6x} = \frac{1}{2} \Rightarrow \frac{1}{x} = \frac{1}{2} \Rightarrow x = 2$

∴ Required days = $3 \times 2 = 6$ days

4. There is provision of food in fort for 1200 soldiers for 60 days. After 15 days 200 soldiers leave the fort. Remaining food will last for how many days?

A. 56 days B. 50 days C. 48 days D. 54 days (E) none

Solution:

Remaining time = (60 – 15) days = 45 days and remaining soldiers = 1200 – 200 = 1000

As per question,

Man1 × Time1 = Man2 × Time2

⇒ $1200 \times 45 = 1000 \times \text{Time2}$

∴ Time2 = $\frac{1200 \times 45}{1000} = 54$ days. Ans. d

5. A and B together can do a piece of work in 40 days. A having worked for 20 days, B finishes the remaining work alone in 60 days. In how many days shall B finish the whole work alone?

a. 60 days b. 70 days c. 80 days d. 90 days (E) None

Solution:

Let, B will finish the whole work in x days

A and B together finish in 40 days

In 1 day, Only A can finish = $\frac{1}{40} - \frac{1}{x}$ part

As per question, $20 \left(\frac{1}{40} - \frac{1}{x} \right) + \frac{60}{x} = 1 \Rightarrow \frac{1}{2} - \frac{20}{x} + \frac{60}{x} = 1 \Rightarrow \frac{60}{x} - \frac{20}{x} = 1 - \frac{1}{2} \Rightarrow \frac{60-20}{x} = \frac{1}{2} \Rightarrow x = 80$

∴ B will finish the whole work alone in 80 days. Ans. c

6. A man's regular pay is Tk. 30 per hour up to 40 hours. Overtime is twice the regular payment. If he was paid Tk. 1,680, how many hours overtime did he work?

a. 7 b. 16 c. 9 d. 8 (E) None

Solution:

Let, overtime be x hours.

As per question,

$(30 \times 40) + (60 \times x) = 1680 \Rightarrow 60x = 1680 - 1200 = 480 \Rightarrow x = \frac{480}{60} = 8$ hours. Ans. d

7. A worker is hired for 7 days. Each day, he is paid 10 Tk. more than what he is paid for the preceding day one work. The total amount he was paid in the first 4 days of work equaled the total amount he was paid in the last 3 days. What was his starting pay?

a. Tk. 90 b. Tk. 138 c. Tk. 150 d. Tk. 160 (E) None

Solution:

Let, starting pay be Tk. x

As per question,

$x + x + 10 + x + 20 + x + 30 = x + 40 + x + 50 + x + 60 \Rightarrow 4x + 60 = 3x + 150 \Rightarrow 4x - 3x = 150 - 60$

∴ x = 90

∴ Starting pay = Tk. 90 Ans. A

8. Salam earns Taka 8.50 per hour on days other than Sundays and twice that rate on Sundays. Last week he worked a total of 50 hours, including 8 hours on Sunday. What were her earnings for the week?

a. Tk. 340 b. Tk. 398 c. Tk. 408 d. Tk. 493 (E) None

Solution:

Sunday = 8 hours and others day = $50 - 8 = 42$ hours.

∴ Total earnings = $(42 \times 8.5) + 8 \times (8.5 \times 2) = 357 + 136 = \text{Tk. } 493$ Ans. D

9. A and B together can do a piece of work in 30 days. A having worked for 16 days, B finishes the remaining work alone in 44 days. In how many days shall B finish the whole work alone?

a. 30 days b. 40 days c. 60 days d. 70 days (E) None

Solution:

Let A's 1 day's work = x and B's 1 day's work = y .

Then, $x + y = \frac{1}{30}$ and $16x + 44y = 1$

Solving these two equations,

We get $x = \frac{1}{60}$ and $y = \frac{1}{60}$

∴ B's 1 day's work = $\frac{1}{60}$

Hence, B alone shall finish the whole work in 60 days. Ans. C

10. A can finish a work in 24 days, B in 9 days and C in 12 days. B and C start the work but are forced to leave after 3 days. The remaining work was done by A in:

a. 5 days b. 6 days c. 10 days d. 12 days (E) None

Solution:

Let, The remaining work was done by A in x days

So, $\frac{x}{24} + \frac{3}{9} + \frac{3}{12} = 1 \Rightarrow \frac{x}{24} + \frac{1}{3} + \frac{1}{4} = 1$

$\Rightarrow \frac{x+8+6}{24} = 1 \Rightarrow x = 24 - 14 \therefore x = 10$

∴ The remaining work was done by A in 10 days Ans. c

11. 12 students working for 5 hours a day can solve a certain number of problems in 8 days. How many students are needed to solve five times the original number of problems, if they work at 4 hours a day for 15 days?

(A) 90 (B) 45 (C) 95 (D) 40 (E) None

Solution:

Let, required number of students = x

A.T.Q.

$\frac{1}{12 \times 5 \times 8} = \frac{5}{x \times 4 \times 15} \Rightarrow x = \frac{12 \times 5 \times 8 \times 5}{4 \times 15} \Rightarrow x = 60$

12. Painter A can paint a house in 16 days, and painter B can do the same work in 20 days. With the help of painter C, they paint the house in 8 days only. The painter C alone can do this in:

(A) 12 days (B) 50 days (C) 60 days (D) 80 days (E) None

Solution:

Let, C alone can Paint in x days

A.T.Q.

$\frac{8}{16} + \frac{8}{20} + \frac{8}{x} = 1 \Rightarrow \frac{8}{x} = 1 - \frac{8}{16} - \frac{8}{20} \Rightarrow \frac{8}{x} = 1 - \frac{1}{2} - \frac{2}{5} \Rightarrow \frac{8}{x} = \frac{1}{10} \Rightarrow x = 80$

13. A cistern is normally filled in 8 hours but takes two hours longer to fill because of a leak in its bottom. If the cistern is full, the leak will empty it in?

(A) 28 hrs (B) 20 hrs (C) 40 hrs (D) 36 hrs (E) None

Solution:

Let, Leak can empty the cistern in ' x ' hours.

A.T.Q.

$\frac{1}{8} - \frac{1}{x} = \frac{1}{8+2} \Rightarrow \frac{1}{8} - \frac{1}{x} = \frac{1}{10} \Rightarrow x = 40$

14. A can complete a piece of work in 12 days, A, B and C can complete the work in 6 days. Efficiency of B is 0.5 times the efficiency of A. In how many days C can complete the work alone?

(A) 24 days (B) 10 days (C) 16 days (D) 12 days (E) None

Solution:

B alone can complete the work in = $\frac{12}{0.5} = 24$ days

Let, C alone can complete in x days

A.T.Q.

$\frac{1}{12} + \frac{1}{14} + \frac{1}{x} = \frac{1}{6} \Rightarrow \frac{1}{x} = \frac{1}{6} - \frac{1}{12} - \frac{1}{24} \Rightarrow \frac{1}{x} = \frac{1}{24} \Rightarrow x = 24$

15. A tank is filled in 5 hours by three pipes A, B and C. The pipe C is twice as fast as B and B is twice as fast as A. How much time will pipe A alone take to fill the tank?

(A) 20 hours (B) 25 hours (C) 35 hours (D) 40 hours (E) None of these

Solution:

Let, C takes x hours alone to fill the tank.

∴ B takes 2x hours alone to fill the tank.

∴ A takes 4x hours alone to fill the tank.

A.T.Q.

$$\frac{5}{x} + \frac{5}{2x} + \frac{5}{4x} = 1 \Rightarrow \frac{35}{4x} = 1 \Rightarrow x = \frac{35}{4}$$

∴ A takes $\frac{35}{4} \times 4 = 35$ hours alone to fill the tank.

16. A computer can perform 30 identical tasks in 6 hour. At that rate, what is the minimum number of computers that should be assigned to complete 80 of the tasks within 3 hours?

(A) 12 (B) 7 (C) 6 (D) 16 (E) None

Solution:

Let required number of computer = x

A.T.Q.

$$\frac{30}{1 \times 6} = \frac{80}{x \times 3} \Rightarrow x = \frac{80 \times 6}{30 \times 3} \Rightarrow x = \frac{16}{3} \Rightarrow x = 5 \frac{1}{3}$$

But, Number of computer cannot be in fraction. So it should be assigned more than 5 in numbers that means, it should be assigned 6 computers.

17. X, Y and Z can do a piece of work in 6 hours. X and Y can do the work in 8 hours and Y and Z can do the same work in 12 hours. In how many time will X and Z do the work?

(A) 6 hours (B) 8 hours (C) 10 hours (D) 12 hours (E) None

Solution:

Let, x and Z do the work in 'd' days

A.T.Q.

$$\frac{1}{8} + \frac{1}{12} + \frac{1}{d} = \frac{1}{6} \times 2 \Rightarrow \frac{1}{d} = \frac{1}{3} - \frac{1}{8} - \frac{1}{12} \Rightarrow \frac{1}{d} = \frac{8-3-2}{24} \Rightarrow \frac{1}{d} = \frac{3}{24} \Rightarrow d = 8$$

18. A and B can do a work in 12 days. B can do the same work in 18 days. In how many days A can complete the 2/3 of the same work?

(A) 36 days (B) 24 days (C) 16 days (D) 27 days (E) None

Solution:

A can do the work in $\frac{18 \times 12}{18-12} = 36$ days

A can complete $\frac{2}{3}$ of work in $36 \times \frac{2}{3} = 24$ days

19. A is twice as good as B and together they finish a piece of work in 16 days. The number of days taken by A alone to finish the work is :

(A) 20 days (B) 21 days (C) 22 days (D) 24 days (E) None

Solution:

Let, A needs x days to finish the work alone.

∴ B need 2x day to finish the work alone.

A.T.Q.

$$\frac{16}{x} + \frac{16}{2x} = 1 \Rightarrow \frac{48}{2x} = 1 \Rightarrow x = 24$$

20. A water tank has two taps (Tap-1 and Tap-2). Tap-1 can fill a tank in 8 hours and Tap-2 can empty the tank in 16 hours. How long will they take to fill the tank if both taps are opened simultaneously but Tap-2 is closed after 8 hours?

(a) 10 (b) 12 (c) 14 (d) 16 (E) None

Solution:

Let, it takes x hours to fill the tank. So, Tap- 1 will work for x hours.

A.T.Q.

$$\frac{x}{8} - \frac{8}{16} = 1 \Rightarrow \frac{x}{8} = 1 + \frac{8}{16} \Rightarrow \frac{x}{8} = \frac{24}{16} \Rightarrow x = 12 \text{ hours.}$$