Bank Job Lecture Sheet

Lecture 9

Lecture Contents

☑ **Work & Cistern**

Work & Cistern

❖ কাজের Math-এ সর্বদা ১ দিনের কাজের অংশ বের করব।
❖ ১ দিনের কাজের অংশকে উল্টা করলে মোট সময় পাওয়া যায়।

Rule-01: কাজ চলাকালীন কেউ যাবে না বা আসবে না।

$\frac{1}{A} + \frac{1}{B} + \ldots\ldots\ldots\ldots = \frac{1}{T}$;

A = ১ম ব্যক্তি, একা 1টি কাজ যত সময়ে করতে পারে।
B = ২য় ব্যক্তি, একা 1টি কাজ যত সময়ে করতে পারে।
T = একত্রে, 1টি কাজ যত সময়ে করতে পারে।

Rule-02: কাজ চলাকালীন কেউ যাবে বা আসবে।

$\frac{\text{১ম ব্যক্তি একা যত সময়ে করে}}{\text{১ম ব্যক্তি একা ১টি কাজ যত সময়ে করতে পারে}} + \ldots\ldots\ldots\ldots = 1$

eg→ A 1টি কাজ 10 দিনে করতে পারে। 3 দিন করে চলে গেল। তাহলে A এর অংশ = $\frac{3}{10}$

Sample Question: A 1টি কাজ 15 দিনে করে। B 1টি কাজ 10 দিনে করে। একত্রে কত দিনে কাজটি করতে পারে?

Solution: A can do 1 day $\frac{1}{15}$ part

B " " 1 " $\frac{1}{10}$ "

(A + B) " 1 " $\frac{1}{15} + \frac{1}{10}$

$= \frac{2+3}{30} = \frac{1}{6}$ = 6 days **(Ans.)**

Or, $\frac{1}{A} + \frac{1}{B} = \frac{1}{T} \Rightarrow \frac{1}{15} + \frac{1}{10} = \frac{1}{T}$

$\Rightarrow \frac{2+3}{30} = \frac{1}{T} \Rightarrow \frac{1}{6} = \frac{1}{T} \therefore T = 6$ **(Ans.)**

Or, $\frac{1}{6}$ part done by (A + B) in 1 day

∴ 1 " " " " " 6 days **(Ans.)**

Teacher's Discussion

1. A, B and C can complete a piece of work in 14, 6 and 12 days respectively. Working together, they will complete the work in----- [Combined 5 Banks Officer- 2022**]**

A. $\frac{19}{9}$ days B. $\frac{9}{28}$ days C. $\frac{28}{9}$ days D. $\frac{25}{8}$ days **Ans:** C

2. A certain machine produces 1000 units of product p per hour. Working continously at this constant rate, this machine will produce how many units of product p in 7 days? [Combined 9 Banks Officer- 2022**]**

A. 7000 B. 24000 C. 40000 D. 168000 **Ans:** D

3. A tap can fill a tank in 6 hours, after half the tank is filled, another similar tap is opened. What is the total time taken to fill the tank completely? [Combined 7 Banks Senior Officer- 2021**]**

A. 3 h 30 m B. 3 h 45 m C. 4 h 30 m D. 4 h **Ans:** C

4. A and B complete a work in 6 days. A alone can do it in 10 days. If both together, in how many days B can do the work?

(A) 75 days (B) 4 days (C) 15 days (D) 6 days **Ans:** C

5. A and B together can do a piece of work in 8 days. If A alone can do the same work in 12 days, then B alone can do the same work in?

(A) 20 days (B) 16 days (C) 24 days (D) 28 days **Ans:** C

6. A can do a piece of work in 40 days; B can do the same in 30 days. A started alone but left the work after 10 days, then B worked at it for 10 days. C finished the remaining work in 10 days. C alone can do the whole work in?

(A) 24 days (B) 30 days (C) 44 days (D) 17days **Ans:** A

7. A, B and C can do a piece of work in 24, 30 and 40 days respectively. They start the work together but C leaves 4 days before the completion of the work. In how many days is the work done?

(A) 15 days (B) 14 days (C) 13 days (D) 11 days **Ans:** D

8. A can do a piece of work in 15 days and B in 20 days. They began the work together but 5 days before the completion of the work, A leaves. The work was completed in?

(A) 8 days (B) 10 days (C) 15 days (D) $11\frac{3}{7}$ days **Ans:** D

9. Tanin and shahed individually complete a job in 40 min and 60 min. They started work together but after 12 min Tanin leave the job. How many min needs to complete the total work?

(A) 12 min (B) 15 min (C) 36 min (D) 42 min **Ans:** D

10. X and Y individually can finish a job in 20 and 30 days respectively. But Before 10 days of work Y leave the job. Find the total days to complete the job.

(A) 12 min (B) 16 min (C) 18 min (D) 24 min **Ans:** B

11. Ramesh can finish a work in 20 days and Sushil in 25 days. They both work together for 5 days and then Sushil goes away. In how many days will Ramesh complete the remaining work?

(A) 8 days (B) 9 days (C) 10 days (D) 11 days **Ans:** D

12. A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is:

(A) $\frac{1}{4}$ (B) $\frac{1}{10}$ (C) $\frac{7}{15}$ (D) $\frac{8}{15}$ **Ans:** D

13. A is thrice efficient as B and C is twice as efficient as B. what is the ratio of number of days taken by A, B and C, when they work individually?
(A) 2 : 6 : 3 (B) 2 : 3 : 6 (C) 1 : 2 : 3 (D) 3 : 1 : 2 **Ans:** A

14. A take twice as much time as B or thrice as much time as C to finish a piece of work. Working together, they can finish the work in 2 days. B can do the work alone in:
(A) 4 days (B) 6 days (C) 8 days (D) 12 days. **Ans:** B

15. Emon can do a piece of work in 20 days. Anam is 25% more efficient than Emon. The number of days taken by Anam to do the same piece of work is:
(A) 15 (B) 16 (C) 18 (D) 25 **Ans:** B

16. One pipe can fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 36 minutes, then the slower pipe alone will be able to fill the tank in:
(A) 81 min. (B) 108 min. (C) 144 min (D) 192 min. **Ans:** C

17. A works twice as fast as B. If B can complete a work in 12 days independently, the number of days in which A and B can together finish the work is
(A) 4 days (B) 6 days (C) 8 days (D) 18 days **Ans:** A

18. 12 buckets of water fill a tank when the capacity of each buckets is 13.5 liters. How many buckets will be needed to fill the same tank, if the capacity of each bucket is 9 liters?
(A) 8 (B) 15 (C) 16 (D) 18 **Ans:** D

19. A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely?
(A) 3 hrs 15 min (B) 3 hrs 45 min (C) 4 hrs 15 min (D) 4 hrs 1 min **Ans:** B

20. Two pipes A and B can fill a cistern in 4 minutes and 6 minutes respectively. If these pipes are turned on alternately for 1 minute each how long will it take to the cistern to fill?
(A) $\frac{1}{4}$ min. (B) $4\frac{2}{3}$ min. (C) $3\frac{2}{3}$ min. (D) 3 min. **Ans:** B

21. If machine A polishes x units in 12 minutes and machine B polishes 5x units in 40 minutes, in how many minutes will A and B, working together, polish 50x units? [Bangladesh Bank AD-2021**]**
A. 240 B. 300 C. 350 D. 120 **Ans:** A

22. Bill and Ben can clean the garage together in 6 hours. If it takes Bill 10 hours working alone, how long will it take Ben working alone? [Bangladesh Bank AD- 2021**]**
A. 11 hours B. 4 hours C. 16 hours D. 15 hours **Ans:** D

23. 15 men take 21 days of 8 hours each to do a piece of work. How many days of 6 hours each would 21 women take, if 3 women do as much work as 2 men? [Bangladesh Bank AD- 2016**]**
A. 18 B. 20 C. 25 D. 30 **Ans:** D

24. 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? [Bangladesh Bank AD- 2016**]**
A. 11 days B. 13 days C. 21 days D. None of these **Ans:** B

25. One pipe can fill a tank three times as fast as another pipe. If together the two pipes can fill the tank in 36 minutes, then the slower pipe alone will be able to fill the tank in: [Bangladesh Bank AD- 2016**]**
A. 81 min B. 108 min C. 144 min D. 192 min **Ans:** C

26. **3 pumps, working 8 hours a day, can empty a tank in 2 days. How many hours a day must 4 pumps work to empty the tank in 1 day?** [Bangladesh Bank Officer- 2016; Uttara Bank AO- 2022]

A. 10 B. 11 C. 12 D. 9 **Ans:** C

27. **A takes twice as much time as B or thrice as much time as C to finish a piece of work. Working together, they can finish the work in 2 days. B can do the work alone in: [**Bangladesh Bank Officer- 2016**]**

A. 6 days B. 8 days C. 12 days D. 4 days **Ans:** A

28. **A is thrice as good as workman as B and therefore is able to finish a job 60 days less than B. Working together, they can do it in: [**Bangladesh Bank AD- 2011**]**

A. 20 days B. 22.5 days C. 25 days D. 30 days **Ans:** B

29. **A car-wash can wash 8 cars in 18 minutes. At this rate, how many cars can the car-wash in 3 hours? [**Bangladesh Bank Officer- 2011**]**

A. 13 B. 40.5 C. 80 D. 125 **Ans:** C

30. **Masum can do a job in 2 hours. Hashem can do the same job in 3 hours. If they work together, how many hours will it take to do the job? [**Bangladesh Bank Officer- 2011**]**

A. $1\frac{1}{5}$ B. 6 C. 3 D. $1\frac{2}{3}$ **Ans:** A

31. **Susan can type 10 pages in 5 minutes. Mary can type 5 pages in 10 minutes. Working together, how many pages can they type in 30 minutes? [**Bangladesh Bank AD- 2009**]**

A. 15 B. 20 C. 25 D. 75 **Ans:** D

32. **J can complete a job in 13.2 hours, and F can complete the same job in 11 hours. F starts the job at 6 AM and stops working at 12 PM of the saem day. If J starts working at 2 PM to complete the job, at what time is the job finished? [**UCB, PO- 2020**]**

A. 7.45 PM B. 8.00 PM C. 9.20 PM D. Can't be determined **Ans:** B

33. **Working 7 hour per day, 288 workers can build 2 bridges in 41 days. Working 9 hours per day, how many workers will be required to build 4 similar bridges in 82 days? [**UCB, PO- 2020**]**

A. 224 B. 242 C. 357 D. None **Ans:** A

34. **A tap can fill a tank in 42 minutes and nother tap can empty it is 56 minutes. If the tank is already $\frac{3}{7}$ th full and bothe the taps are opened together, the tank will be- [**UCB, PO- 2020**]**

A. filled in 69 minutes B. filled in 96 minutes
C. empty in 96 minutes D. filled in 168 minutes **Ans:** B

35. **A can do a piece of work in 15 days and B alone can do it in 10 days. B works at it for 5 days and then leaves. A alone can finish the remaining works in? [**IFIC Bank, TSO- 2019**]**

A. 2 B. 2.5 C. 3.5 D. 3 **Ans:** B

36. **P works twice as fast as Q. If Q can complete a work in 12 days independently, the number of days in which P and Q can together finish the work is: [**Islami Bank, PO- 2019**]**

A. 4 days B. 6 days C. 3 days D. 5 days **Ans:** A

37. **A, B and C an complete a piece of work in 14, 6 and 12 days respectively. Working together, they will complete the work in-** [NRBC Bank, TO- 2022]

A. $\frac{19}{9}$ days B. 27 days C. $\frac{28}{9}$ days D. $\frac{25}{8}$ days **Ans:** C

Student's Drill

1. **A, B and C can do a piece of work in 11 days, 20 days and 55 days respectively, working alone. How soon can the work be done if A is assisted by B and C on alternate days?**

(A) 7 (B) 8 (C) 9 (D) 10 **Ans:** B

2. **A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?**

(A) 12 days (B) 15 days (C) 16 days (D) 18 days **Ans:** B

3. **Babor can do a piece of work in 8 days, which Tipu can finish in 12 days. If they work at it on alternate days with Babor beginning, in how many days will the work be finished?**

(A) $9\frac{1}{3}$ (B) $9\frac{1}{2}$ (C) $9\frac{1}{24}$ (D) $10\frac{1}{3}$ **Ans:** B

4. **A and B working separately can do a piece of work in 9 and 12 days respectively. If they work for a day alternately, A beginning, in how many days, the work will be completed?**

(A) $10\frac{1}{4}$ days (B) $11\frac{1}{4}$ days (C) $10\frac{1}{5}$ days (D) $10\frac{1}{7}$ days **Ans:** A

5. **A is thrice as good workman as B and therefore is able to finish a job in 60 days less than B. Working together, they can do it in:**

(A) 20 days (B) $22.\frac{1}{2}$ days (C) 25 days (D) 30 days **Ans:** B

6. **A is twice as good a workman as B. If they work together, they can complete a job in 18 days. If A alone does the job, in how many days he will complete the job?**

(A) 27 days (B) 36 days (C) 40 days (D) 54 days **Ans:** A

7. **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) $20\frac{3}{17}$ days (D) 15 days **Ans:** B

8. **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 hours (B) 11.25 hours (C) 11.5 hours (D) 12 hours **Ans:** B

9. **A man and a boy together can do a certain amount of digging in 40 days. Their speeds in digging are in the ratio of 8 : 5. How many days will the boy take to complete the work if engaged alone?**

(A) 52 days (B) 68 days (C) 80 days (D) 104 days **Ans:** D

10. **In a factory, one worker can produce one piece of m in 15 minutes and one piece of n in 20 minutes. How many workers are needed to produce 200 units of m and 300 units of n in exactly 10 hours?**

(A) 12 (B) 15 (C) 18 (D) 20 **Ans:** B

11. **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 the water of the tank in-**

(A) $4\frac{1}{3}$ hours (B) 7 hours (C) 8 hours (D) 14 hours **Ans:** D

12. **A pipe can fill a tank in x hours and another pipe can empty it in y (y > x) hours. If both the pipes are open, in how many hours will the tank be filled?**

(A) $(x - y)$ hours (B) $(y - x)$ hours (C) $\frac{xy}{x-y}$ hours (D) $\frac{xy}{y-x}$ hours **Ans:** D

Solution of Student's Drill

1. Solution:

. . . . . .
A A A A A A A A A A A A
B C B C B C B C B C B C

2 days work = $2A + B + C = 2 \times \frac{1}{11} + \frac{1}{20} + \frac{1}{55}$

$= \frac{40 + 11 + 4}{220} = \frac{55}{220} = \frac{1}{4}$ part

$\frac{1}{4}$ part done by A.B.C in 2 days

$\therefore$ 1 " " " " " $2 \times 4 = 8$ days

Or, Total work = 220 units

In 1 day, A can do $\frac{220}{11} = 20$ units

B " " $\frac{220}{20} = 20$ "

C " " $\frac{220}{55} = 4$ "

2 days work = $2A + B + C$

$= 2 \times 20 + 11 + 4 = 55$ units

55 units done by A.B.C in 2 days

1 " " " " " $\frac{2}{55}$ "

220 " " " " " $\frac{2 \times 220}{55}$

= 8 days **(Ans.)**

2. Solution:

. . . . . .
A A A A A A A A A A A A
B B B B
C C C C

3 days work = $3A + B + C = 3 \times \frac{1}{20} + \frac{1}{30} + \frac{1}{60}$

$= \frac{2 + 2 + 1}{60} = \frac{12}{60} = \frac{1}{5}$ part

$\frac{1}{5}$ part done by A.B.C in 3 days

1 " " " " " 3×5

= 15 days **(Ans.)**

3. Solution:

. . . . . .
B T B T B T B T B T B T

2 days work = B + T = $\frac{1}{8} + \frac{1}{12} = \frac{3 + 2}{24} = \frac{5}{24}$ part

9 " " $= \frac{5}{24} + \frac{5}{24} + \frac{5}{24} + \frac{5}{24} + \frac{1}{8}$

$= \frac{5 + 5 + 5 + 5 + 3}{24} = \frac{23}{24}$ part

$\therefore$ Left = $\frac{1}{24}$ part

$\frac{1}{12}$ part done by T in 1 day

$\therefore$ 1 " " " T " 12 "

$\therefore \frac{1}{24}$ " " " T " $12 \times \frac{1}{24} = \frac{1}{2}$

$\therefore$ Total Time = $9 + \frac{1}{2} = 9\frac{1}{2}$ days **(Ans.)**

4. Solution:

. . . . . .
A A A A A A A A A A A A

2 days work = A + B = $\frac{1}{9} + \frac{1}{12} = \frac{4 + 3}{36} = \frac{7}{36}$ part

10 " " $= \frac{7}{36} + \frac{7}{36} + \frac{7}{36} + \frac{7}{36} + \frac{7}{36} = \frac{35}{36}$ part

$\therefore$ Left = $\frac{1}{36}$ part

$\frac{1}{9}$ part done by A in 1 day

1 " " " A " 9 "

$\frac{1}{36}$ " " " A " 9 "

$\therefore$ Total Time = $10\frac{1}{4}$ **(Ans.)**

5. Solution:

	A	B
SP	3x	x
Ti	x	3x
	day	days

$\therefore 3x - x = 60$

$\Rightarrow 2x = 60$

$\Rightarrow x = 30$

$\therefore \frac{1}{x} + \frac{1}{3x} = \frac{1}{T}$

$\Rightarrow \frac{1}{30} + \frac{1}{90} = \frac{1}{T}$

$\Rightarrow \frac{3 + 1}{90} = \frac{1}{T} \Rightarrow \frac{1}{T} = \frac{4}{90}$

$\therefore T = \frac{90}{4} = \frac{45}{2}$

$= 22\frac{1}{2}$ **(Ans.)**

6. **Solution:**

	A	B
SP	2x	x
Ti	x	2x

$\frac{1}{x} + \frac{1}{2x} = \frac{1}{18}$

$\Rightarrow \frac{2+1}{2x} = \frac{1}{18}$

$\Rightarrow 2x = 18 \times 3$

$\Rightarrow x = 27$ days **(Ans.)**

7. **Solution:**

	A	B
SP	130x	100x
Ti	100x	130x

$\therefore 100x = 23$

$\Rightarrow x = \frac{23}{100}$

$\therefore B = 130x$

$= 130 \times \frac{23}{100}$

$= \frac{13 \times 23}{10}$

$\therefore \frac{1}{23} + \frac{1}{\frac{13 \times 23}{10}} = \frac{1}{T}$

$\Rightarrow \frac{1}{23} + \frac{10}{13 \times 23} = \frac{1}{T}$

$\Rightarrow \frac{13+10}{13 \times 23} = \frac{1}{T}$

$\Rightarrow T = \frac{13 \times 23}{23} = 13$ days **(Ans.)**

8. **Solution:**

	1st	2nd
SP	1.25x	X
Ti	x hrs.	1.25x hrs.

$\frac{1}{x} + \frac{1}{1.25x} = \frac{1}{5} \Rightarrow \frac{1.25+1}{1.25x} = \frac{1}{5}$

$\Rightarrow 1.25x = 5 \times 2.25$

$\Rightarrow x = \frac{5 \times 2.25}{1.25} = \frac{5 \times 225}{125} = 9$

$\therefore 2^{nd}$ pipe takes 1.25x hrs.

$= 1.25 \times 9 = 11.25$ hrs. **(Ans.)**

9. **Solution:**

	Mon	Boy
SP	8x	5x
Ti	5x days	8x days

$\frac{1}{5x} + \frac{1}{8x} = \frac{1}{40} \Rightarrow \frac{8+5}{40x} = \frac{1}{40}$

$\Rightarrow 40x = 13 \times 40 \Rightarrow x = 13$

$\therefore$ Boy takes 8x days

$= (8 \times 13) = 104$ days **(Ans.)**

10. **Solution:**

1 worker can do 15 mins 1 units of m

1 " " " 1 " $\frac{1}{15}$ " " "

1 " " " 10×60 " $\frac{10 \times 60}{15}$

$= 40$ units of m

No. of workers needed $= \frac{200}{40} = 5$

Again, 1 worker can do 20 mins 1 units of n

1 " " " 1 min $\frac{1}{20}$ " "

1 " " " 10×60 " $\frac{10 \times 60}{20}$

$= 30$ units of m

No. of workers needed $= \frac{300}{30} = 10$

$\therefore$ Total workers needed $= 5 + 10 = 15$ **(Ans.)**

11. **Solution:**

$\frac{1}{2} - \frac{1}{B} = \frac{1}{\frac{7}{3}}$

$\Rightarrow \frac{1}{2} - \frac{1}{B} = \frac{3}{7}$

$\Rightarrow -\frac{1}{B} = \frac{3}{7} - \frac{1}{2} = \frac{6-7}{14}$

$\Rightarrow -\frac{1}{B} = -\frac{1}{14} \quad \therefore B = 14$ **(Ans.)**

12. **Solution:**

$\therefore y > x \quad \therefore \frac{1}{x} - \frac{1}{y} = \frac{1}{T}$

$\Rightarrow \frac{y-x}{xy} = \frac{1}{T} \Rightarrow T = \frac{xy}{y-x}$ **(Ans.)**

Home Practice

1. **A can do a piece of work in 4 days. B can do it in 5 days. with the assistance of C they completed the work in 2 days. Find in how many days can C alone do it?**
   (A)10 days (B) 20 days (C) 5 days (D) 4 days **Ans:** B
2. **A can do a piece of work in 10 days. He works at it for 4 days and then B finishes it in 9 days. In how many days can A and B together finish the work?**
   (A) 6 days (B) 8 days (C) 8 ½ days (D) $7\frac{1}{2}$ day **Ans:** A
3. **X alone can do a piece of work in 15 days and Y alone can do it in 10 days. X and Y undertook the work and with the help of Z they finished it in 5 days. How many days will it take Z to finish the work alone?**
   (A) 30 (B) 25 (C) 20 (D) 15 **Ans:** A
4. **A can do a work in 10 days, B can do the same work in 15 days. If they work together, how long will it take them to finish the work?**
   (A) 4 (B) 8 (C) 6 (D) 10 **Ans:** C
5. **Anwar can do a job in 90 minutes while Rajib can do it in 2 hours and Zahir can do it in 3 hours. How long will it take to finish the job if all of them work together?**
   (A) 25 minutes (B) 30 minutes (C) 40 minutes (D) 1 hour **Ans:** C
6. **A and B can do a work in 12 days, B and C can do it is 15 days and A and C can do it in 20 days. If all of them work together, in how many days can they finish the work?**
   (A) 25 (B) 9 (C) 12 (D) 10 **Ans:** D
7. **A and B can together finish a work 30 days. They worked together for 20 days and then B left. After another 20 days, A finished the remaining work. In how many days can A alone finish the work?**
   (A) 40 (B) 50 (C) 54 (D) 60 **Ans:** D
8. **Arman and Anika individually can finish a job in 20 min and 30 min respectively. 4 min later Matin joined with them and rest of the work done within 6 min. If Matin works alone, how many days are required to complete the work?**
   (A) 12 min (B) 15 min (C) 36 min (D) 50 min **Ans:** C
9. **Monjur, Anjan and Faisal together finished a certain job in 20 minutes. Anjan works twice as slower as both Monjur and Faisal. If Anjan works alone how many days need him to finish that job?**
   (A) 24 Min (B) 100 Min (C) 48 Min (D) 50 Min **Ans:** B
10. **A tub can be filed in 20 minutes but there is a leakage in it which can empty the full tub in 60 minutes. In how many minutes it can be filled?**
    (A) 40 (B) 35 (C) 30 (D) 25 **Ans:** C
11. **Three taps A, B and C can fill a tank in 12, 15 and 20 hours respectively. If A is open all the time and B, C are open for one hour each alternatively, the tank will be full in:**
    (A) 6 hrs (B) $\frac{20}{3}$ hrs (C) 7 hrs (D) $\frac{15}{2}$ hrs **Ans:** C
12. **Working independently, x takes 12 hours to finish a certain work. He finishes 2/3rd of the work. The rest is finished by y whose rate is 1/10th of x. In how many hours does y finish the work?**
    (A) 40 (B) 50 (C) 60 (D) 70 **Ans:** A
13. **In a factory, one worker can produce one piece of m in 15 minutes and one piece of n in 20 minutes. How many workers are needed to produce 200 units of m and 300 units of n in exactly 10 hours?**
    (A) 12 (B) 15 (C) 18 (D) 20 **Ans:** B

14. Fifteen men take 21 days of 8 hours each to do a piece of work. How many days of 6 hours each would 21 women take, if 3 women do as much work as 2 men do?
(A) 25 (B) 28 (C) 30 (D) 36 **Ans:** C

15. An empty pool is being filled with water at a constant rate. It takes 6 hours to fill $\frac{2}{5}$ th of the pool. How much more time will it take to completely fill the pool?
(A) 15 (B) 9 (C) 10 (D) 12 **Ans:** B

16. A does 80% of a work in 20 days. He then calls in B and they together finish the remaining work in 3 days. How long B alone would take to do the whole work?
(A) $35\frac{1}{2}$ days (B) $33\frac{1}{2}$ days (C) $30\frac{1}{2}$ days (D) $37\frac{1}{2}$ days **Ans:** D

17. Three mechanics A, B & C can each manufacture 120 units in 12, 20 & 30 hours respectively. What is the ratio of the time it takes A alone to manufacture the units to the time all three of them working together to manufacture the same?
(A) 2 : 2 (B) 2 : 1 (C) 2 : 3 (D) 1 : 3 **Ans:** B

18. 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 the water of the tank in-
(A) $4\frac{1}{3}$ hours (B) 7 hours (C) 8 hours (D) 14 hours **Ans:** D

19. A pipe can fill a tank in x hours and another pipe can empty it in y (y > x) hours. If both the pipes are open, in how many hours will the tank be filled?
(A) $(x - y)$ hours (B) $(y - x)$ hours (C) $\frac{xy}{x-y}$ hours (D) $\frac{xy}{y-x}$ hours **Ans:** D

20. A can do a certain job in 12 days. B is 60% more efficient than A. How many days does B alone take to do the same job?
(A) $5\frac{1}{2}$ (B) $7\frac{1}{2}$ days (C) $6\frac{1}{2}$ (D) $7\frac{1}{3}$ **Ans:** B

21. A can do a piece of work in 15 days, which B can do in 10 days. B worked at it for 8 days. A can finish the remaining work in
(A) 2 days (B) 3 days (C) 5 days (D) 10 days **Ans:** B

22. A and B can complete a work in 18 days and 15 days respectively. They started doing the work together but after 3 days A had to leave and B alone completed the remaining work. The whole work was completed in-
(A) $9\frac{3}{4}$ days (B) $10\frac{1}{4}$ days (C) $12\frac{1}{2}$ days (D) $12\frac{3}{4}$ days **Ans:** C

23. A can complete a piece of work in 18 days, B in 20 days and C in 30 days. B and C together start the work and are forced to leave after 2 days. The time taken by A alone to complete the remaining work is-
(A) 10 days (B) 12 days (C) 15 days (D) 16 days **Ans:** C

24. A can complete a piece of work in 10 days, B in 15 days and C in 20 days. A and C worked together for 2 days and then A was replaced by B. In how many days, altogether, was the work completed?
(A) 6 (B) 8 (C) 10 (D) 12 **Ans:** B

38. 20 Workers can finish a task in 30 days. How many additional workers are needed to finish the same task in 25 days?
A. 6 B. 8 C. 10 D. None of these **Ans:** D

39. **Six men can complete a work in 5 days if they work for 8 hours per day. How many days 4 men will take to do the same work only 5 hours per day?**

A. 12 B. 16 C. 24 D. 32 **Ans:** A

40. **Running at the same constant rate, 6 identical machines can produce a total of 270 bottles per minute. At this rate how many bottles could 10 such machines produce in 4 minutes?**

A. 648 B. 1800 C. 2700 D. 2400 **Ans:** B

41. **A parking garage rents parking spaces for Tk. 100 per week or Tk. 300 per month. How much does a person save in a year by renting by the month rather than by the week?**

A. Tk. 14000 B. Tk. 1600 C. Tk. 2200 D. Tk. 2400 **Ans:** B

42. **Three workers can do a job in 12 days. Two of the workers work twice as fast as the third. How long would it take one of the fastest workers to do the job himself?**

A. 24 B. 30 C. 32 D. 36 **Ans:** B

43. **Jim can fill a pool carrying buckets of water in 30 minutes. Sue can do the same job in 45 minutes. Tony can do the same job in $1\frac{1}{2}$ hours. How quickly can three till the pool together?**

A. 12 minutes B. 15 minutes C. 21 minutes D. 23 minutes **Ans:** B

44. **Lee worked 22 hours this week and made $132. If she works 15 hours next week at the same pay rate, how much will she make?**

A. $57 B. $90 C. $104 D. $116 **Ans:** B

45. **A certain machine can make 3 widgets every 2 seconds. At this rate, how many widgets will be made in 1 minute?**

A. 100 B. 110 C. 90 D. 120 **Ans:** C

46. **If an apple costs c cent, how many apples can be bought for d dollars?**

A. 100acd B. 100d/ac C. ad/100c D. 100ad/c **Ans:** D

47. **If three apples cost 50 cents, how many apples can you buy for $20?**

A. 100 B. 110 C. 120 D. 140 **Ans:** C

48. **If a copier makes 3 copies every 4 seconds, then continues this rate, how many minutes will it take to make 9000 copies?** [BUP (FBS): 2021-22]

A. 60 B. 100 C. 200 D. 3000 **Ans:** C

49. **A piece of ribbon 8 years long is used to make bows requiring 15 inches of ribbon for each. What is the maximum number of bows that can be made?** [BUP (FBS): 2021-22]

A. 8 B. 9 C. 19 D. 20 **Ans:** C

50. **Rahim takes 20 minutes to inspect a car. Karim needs only 18 minutes to do the same. If they both start inspecting cars at 8 m. What would be the first time when they will finish inspecting a car at the same time?** [BUP (FBS): 2020-21]

A. 10 am B. 11 am C. 12 am D. 1 pm **Ans:** B