CHAPTER : Time&Work

- Concept of Direct and indirect(inverse) proportion.
- Basic concept of Time and work (Resources vs time)
- Method to solve Simple problems of time and work
- Method to solve problems involving various efficiency.
- Method to solve problems involving scenarios when one or more resource joins/leaves work in between.
- Method to solve problems involving alternate day working.
- Method to solve problems involving group work (example 2Men, 3 Women, 4 children etc..)
- Method to solve problems involving distributing wages.
- Solving problems of pipes and cisterns.

1. Mohan can do a job in 20 days and Sohan can do the same job in 30 days. How long would they take to do it working together?

2. Raju, Rinku and Ram can do a work in 6, 12 and 24 days respectively. In what time will they altogether do it?

3. A can do a work in 7 days. If A does twice as much work as B in a given time, find how long A and B would take to do work?

4. A can do a work in 6 days. B takes 12 days. C takes as long as A and B would take working together. How long will it take B and C to complete the work together?

5. 8 children and 12 men complete a certain piece of work in 9 days. If each child takes twice the time taken by a man to finish the work, in how many days will 12 men finish the same work?

6. Pipes A and B can fill a tank in 10 hours and 15 hours respectively. Both together can fill it in _ hrs.

7. A tap can fill the cistern in 8 hours and another can empty it in 16 hours. If both the taps are opened simultaneously, the time (in hours) to fill the tank is_

8. A pipe can fill a tank in x hours and another can empty it in y hours. They can together fill it in _

9. Two pipes X and Y can fill a cistern in 24 min and 32 min. respectively. If both the pipes are opened together; then after how much time should Y be closed so that the tank is full in 18 minutes?

10. A leak in the bottom of a tank can empty the full tank in 6 hours. An inlet pipe fills water at the rate if 4 liters per minute. When the

tank is full, the inlet is opened and due to the leak the tank is emptied in 8 hours. The capacity of the tank is _liters.

11 P, Q and R work together for a particular time to do a certain amount of work. R needs one hour less than P to complete the work. Working together, they require 30 minutes to complete 50% of the job. The work also gets completed if P &Q start working together and P leaves after 1 hour and Q works for a further 3 hours. How much work does R do per hour?

a) 16.67% b) 50% c) 66.67% d) 25%

12 The total number of men, women & children working in a factory is 18. They earn Rs 4000 in a day. If the sum of the wages of all men, all women and all women and all children is in the ratio of 18:10:12 and if the wages of an individual man, woman and the child is in the ratio 6:5:3, then how much a woman earn in a day?

a) Rs 400 b) Rs 250 c) Rs 150 d) Rs 120

13 Two women Radhika &Usha are working together on an embroidery design. If Usha worked alone, she would need eight hours more to complete the design than if they both worked together. Now if Radhika worked alone, it would need 4.5 hours more to complete the design than they both working together. What time would it take Radhika alone to complete the design?

a) 10.5 hours b) 12.5 hours c) 14.5 hours d) 18.5 hours

14 A‘ takes 4 days to complete 1/3rd of a job. _B‘ takes 3 days to complete 1/6th of the same work and_C‘ takes 5 days to complete half of the job. If all of them work together for 3 days and _A‘ & _C‘ quit, how long will it take for _B‘ tocomplete the remaining work done.

a) 6 days b) 8.1 days c) 5.1 days d) 7 days

15 One tap can fill a cistern in 2 hours and another can empty the cistern in 3 hrs. How long will they take to fill the cistern if both the taps are opened?

a) 2 hours b) 4 hours c) 6 hours d) 8 hours

16 There are two taps A & B connected to a tank. Capacity of the tank is 40 L. Tap A can fill the tank in 10 hour. Tap B can empty the tank in 20 hour. How much time will both the taps take to fill the tank when both are open simultaneously? It is given that water evaporates at the rate of 2.5% of the total capacity of tank in an hour.

a) 20 hours b) 25 hours c) 40 hours d) 42 hours

17 Due to a hole at the bottom of the bucket, a tap takes 2 more minutes to completely fill the bucket. Due to the leakage of water through this hole, a bucket filled completely with water gets emptied in 4 minutes. In how much time can the tap fill the bucket, if there was no hole at the bottom of the bucket?

a) 8 minutes b) 2 minutes c) 4 minutes d) 6 minutes

18 Two pipes P & Q can fill up half full tank in 1.2 hours. The tank was initially empty. Pipe Q was kept open for half the time required by pipe P to fill the tank by itself. Then, Pipe Q was kept open for as much time as was required by pipe Q to fill up 1/3rd of the tank by itself. It was then found that the tank was $5/6^{th}$ full. The least time in which any of the pipes can fill up the tank fully is

a) 4.8 hours b) 4 hours c) 3.6 hours d) 6 hours

19. A is thrice as good a workman as B and takes 12 days less to do a piece of work than B takes. B alone can do the whole work in?

a)12 days b)15 days c) 18 days d) 30 days
e) none

20. A is thrice as good a workman as B and takes 40 days less to do a piece of work than B takes. In how many days A and B can do the whole work .If they start working together?

a)20 days b)22.5 days c) 15 days d) 30 days e) none

21. A can do 1/3 of the work in 4 days and B can do 2/5 of the work in 8 days. In how many days both A and B together can do the work?

a)7 days b)7.5 days c) 8 days d) 8.5 days e) none

22. A can do a work in 7 days. If B is 40% more efficient to A, then in how many days can B do the same work?

a)6 days b)6.5 days c) 5 days d) 5.5 days e) none

23. A can do 50% more work as B can do in the same time. B alone can do a piece of work in 20h. A, with the help of B. can finish the same work in how many hours?

a)12 hours b) 8 hours c) 13.33 hours d5.5 hours e) none

24. A can do a job in 20 days, B in 30 days and C in 60 days. If A is helped by B and C every 3rd day. How long will it take for them to complete the job?

a)12 days b)4 days c) 15 days d) 18 days e) none

25. A can do a piece of work in 14 days and B alone can do it in 8 days. B works at it 4 days and then leaves. A alone can finish the remaining work in?

a)7 days b)7.5 days c) 6.5 days d) 9 days e) none

26 A can do a piece of work in 16 days which B can do I 24 days. They begin together but 4 days before the completion of the work. A leaves off. The total number of days to complete the work is?

a)6.6 days b)8.5 days c) 12 days d) 13.5 days e) none

27. In a day C does half as much work as A and B together. If C alone can finish the work in 60 days. Then together all will finish the work in 60 days. Then together all will finish the work in?

a)13.33 days b)15 days c) 20 days d) 30 days e) none

28. A supervisor undertook to do a piece of work In 12days. He employed certain number of workers but 5 of them being absent from the first day, and rest could finish the work in 18days. Find the number of men originally employed?

a)15 b)6 c)13
d)9 e)none

29. A certain number of men complete a piece of work in 40 days. If there were 6men more, the work could be finished in 10 days less. How many men were originally there?

a)20 b)30 c)18
d)28 e)none

30. A piece of work can be done by 6men and 5 women in 6 days or 3men and 4 women in 10 days. It can be done by 6men and 10 women in?

a)1 day b)2 day c)3.5 day
d)4.5 day e)none

31. A group of 16men and 14 women can do a work in 16days. A women takes twice as much time as a man to do the work. How many days will 4 men take to finish the same work?

a)86 day b)82 day c)92 day
d)23 day e)none

32. A piece of work can be done by 12men in 36 days and 18 women in 60 days. If 8men and 20women work together for 2 day. If only women to complete the remaining work 4 days. Then how many women would be required?

a)40 day b)50 day c)70 day
d)95 day e)none

33. A group of 3men and 2women can do a work in 4days. While 2men and 3women can do same work in 5days Rs 44 is given to a women for her per day work. Find the total amount paid to 3men and 5 women to complete the same work?

a)1000 day b)2200 day c)2400 day
d)550 day e)none

34. A work done by three persons A, B and C. if A alone takes 10 hour to complete the work and But B and C working together takes 4 hour, for the completion of the same work. If all of them work together and completed 14 times of the work, the many hours they have worked?

a)40 h b)20 h c)70 h
d)15 h e)none

35. Two pipe can fill a tank in 10h and 20h respectively. While the third can empty it in 12h. If all the pipe are opened together, then the tank will be filled in?

a)7.5 h b)10 h c)8 h
d)15 h e)none

36. A water tank normally takes 6 hour to be filled by a tap but because of the leak, it takes another 1h. in how many hours will the leak empty a full water tank?

a)42 h b)36 h c)35 h
d)15 h e)none

37. A water tank normally takes 3 hour to be filled by a tap but because of the leak, it takes 3.5h. In how many hours will the leak empty a full water tank?

a)6.5 h b)10 h c)12 h
d)15 h e)21h

38. There pipe A, B and C can fill a tank in 12h, 15h and 20h respectively. If A open all the time and B and C open Alternately. Then the tank fill in?

a)7.5 h b)7 h c)8 h
d)6.5 h e)none

39. A cistern can be filled separately by two pipes P and Q in 20min and 15min respectively. A tap R at the bottom can empty the full cistern in 10min. if the tap R is opened 3 min after the two pipes P and Q are opened the after what time from the opening of pipe P and Q the cistern becomes full?

a)4.25min b)6.30min c)6min
d)5min e)none

40.Taps A and C can fill a tank in 5h and 7h respectively. Tap B and D can drain a full tank in 6h and 8h respectively Tap A and B are opened 6 am and 6.30am respectively till 65% of the tank is filled. Then C and D are also opened. At what time tank will fill?

a)$\frac{1025}{43}$ h b) $\frac{1134}{43}$ h c) $\frac{1249}{43}$ h
d) $\frac{1312}{43}$ h e)none

41.Taps A and C can fill a tank in 5 and 20h respectively. Taps B and D can drain a full tank in 10 and 40h respectively. If A, B , C and D are opened in a gap of 2h in that order the tank gets full in?

a)$\frac{28}{5}$ h b$\frac{36}{5}$ h c) $\frac{34}{5}$ h d) $\frac{38}{5}$ h e)none