WORKBOOK OF Advanced Analytical Skills- II

PEA-308

Department of Analytical Skills Centre for Professional Enhancement

PREFACE

Companies that hire students through campus placements have various rounds to shortlist suitable candidates; these rounds include aptitude tests, group discussions and then personal interview. Most, if not all the companies follow this recruitment pattern.

Almost 90% of the applied candidates do not clear the aptitude test. The aptitude test is used to test the candidate on Quantitative Aptitude, Verbal Ability, and Analytical Ability/Logical Reasoning.

Quantitative Aptitude and Reasoning is very important subject to test your problem-solving skills. So, in every competitive written exam they asked questions from this subject, not only in written they may ask some brain storming puzzles in interview also. It is the one of the key concepts to qualify written exam almost every student who know basic mathematics can solve most of the questions in the exam but the main problem is that the time management, the recruiters does not give enough time to solve the problems so one who has more practice the model questions before exam can easily solve in the exams.

This book is essential for aptitude exams as all the important topics are discussed in this book. This book explains all the concepts clearly and covers all the types of the questions.

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Time And Work

Work to be considered as one unit. It may be constructing a wall, filling a tank, or eating certain amount of food.

There are some basic assumptions that are made in the problems of time and work. They are taken for granted and are not specified in every problem.

1. If a person does some work in a certain no. of days, we assume that he does the work uniformly i.e. he does the same amount of work every day.

For example, if a man can do a work in 5 days, it means that he does 1/5 work in 1 day and same 1/5 work on second day and so on till the work complete.

2. If there is more than one person carrying out the work, it is assumed that each person unless otherwise specified, does the same amount of work each day. It means they share work equally.

For example, if 4 persons together completes a work in 2 days, it means that one person can do it in 8 days and this means that each person can do 1/8 of the work per day. So basic concept used in solving the problems related to time and work is that

- If a person completes a work in n days, then the work done by that person in one day will be 1/n.
- Similarly, if the work done by a person is one day is 1/k, then he will complete the work in k days.

If A can do a piece of work in p days and B can do it in q days then A and B together can complete the same in pq/p+q days

If A can do a piece of work in p days and B can do it in q days then A and B together can complete the same in LCM (p,q) /(lcm/p+lcm/q) days. This method may also use if the no. of men is more than two.

Examples:

Ex1. – A can do a work in 10 days. B can do the same work in 15 days. In how many days can the work be completed if A and B work together?

Sol: method 1: work done by A in 1 day = 1/10

Work done by B in 1 day = 1/15

Work done by A and B together in 1 day = 1/10 + 1/15= 1/6

They can complete it in 6 days.

Method 2: using formula A and B can do the work in

10x15 / 10+15 = 150/25 = 6 days.

Method 3: calculate LCM (10, 15) = 30

The answer in how days they will complete the work together will be

30/ (30/10 + 30/15) = 6 days.

By the method of LCM the problems in which there are more than 2 persons working can also be solved easily.

Ex2. – If A, B, C and D can complete a piece of work in 10, 15, 20 and 25 days respectively. Find in how many days they will complete the work working together?

Sol: by method third of previous example, we first find LCM (10, 15, 20, 25) i.e. = 300

Now divide this LCM with no. of days in which they complete the work individually

300/10 = 30, 300/15 = 20, 300/20 = 15 and 300/25 = 12

Hence the answer will be 300/(30+20+15+12) = 300/77 days.

Ex3. – A and B together can do a piece of work in 24 days and A alone can complete the work in 36 days. How long will B alone take to complete the work?

Work done by A alone in 1 day = 1/36

Work done by both in 1 day= 1/24

Hence work done by B alone in 1 day = 1/24- 1/36 = 1/72

And hence B will complete the work in 72 days.

Ex4. – A and B together complete a work in 36 days, B and C together completes in 48 days. And A and C completes in 72 days. How long would each take to do the job?

Sol: A+B work in 1 day = 1/36..... (1)

B+C work in 1 day= 1/48..... (2)

A+C work in 1 day = 1/72..... (3) Adding (1) + (2) + (3), we get

2(A+B+C)'s 1 day work = 1/36+1/48+1/72 = 9/144 = 1/16

And hence (A+B+C)'s 1 day work = 1/32

Now 1 day work of A = 1/32 – 1/48 = 1/96 therefore A completes the work in 96 days.

Now 1 day work of B = 1/32 – 1/72 = 5/288 therefore A completes the work in 288/5 days.

Now 1 day work of C = 1/32 – 1/36 = 1/288 therefore A completes the work in 288 days.

Ex5. – A can do in 18 days. When he had work for 2 days, B joined him. If they complete the **remaining work in 4 more days. In how many days B alone finish the whole work?**

Sol: Work done by A in 1 day= 1/18

Number of days A work = 2+4 = 6 therefore, total work done by A = 6x1/18 = 1/3

The remaining 2/3 work is done by B in 4 days and hence complete work done by B will be 4x(3/2) = 6 days.

Ex6. – Ram completes 60% of a task in 15 days and then takes the help of Rahim and Rachel. Rahim is 50% as efficient as Ram is and Rachel is 50% as efficient as Rahim is. In how many more days will they complete the work?

Ram completes 60% of the task in 15 days.

i.e., he completes 4% of the task in a day.

Rahim is 50% as efficient as Ram is.

Therefore, Rahim will complete 2% of the task in a day.

Rachel is 50% as efficient as Rahim is

Therefore, Rachel will complete 1% of the task in a day.

Together, Ram, Rahim and Rachel will complete 4+2+1 = 7% of the work in a day.

They have another 40% of the task to be completed.

Therefore, they will take 40/7 more days to complete the task.

Ex7. – X can do a piece of work in 20 days working 7 hours a day. The work is started by X and on the second day one man whose capacity to do the work is twice that of X, joined. On the third day another man whose capacity is thrice that of X, joined and the process continues till the work is completed. In how many days will the work be completed, if everyone works for four hours a day?

Sol: Since X takes 20 days working 7 hours a day to complete the work, the number of day-hours required to complete this work would be 140 day- hours. Like in the two problems above, this is going to be constant throughout. So, W = 140 day-hours.

Amount of work done in the 1st day by X = 1 day x 4 hours = 4 day-hours 2nd day, X does again 4 day-hours of work.

The second person is twice as efficient as X so he will do 8 day-hours of work. Total work done on second day =8+4= 12 day-hours. Amount of work completed after two days= 12+4 = 16 day-hours.

3rd day, X does 4 day- hours of work. Second person does 8 day-hours of work. Third person who is thrice as efficient as X does 12 day-hours of work. Total work done on 3rd day = 4+8+12 = 24 day-hours. Amount of work completed after 3 days = 16+ 24 = 40 day-hours. Similarly on 4th day the amount of work dome would be 4+8=12+16 = 40 day-hours. Work done on the 5th day = 4+12+16+20= 60 day-hours. Total work done after 5 days= 4+12+24+40+60 = 140 day-hours= W. So it takes 5 days to complete the work.

Ex8. – P, Q and R can do a work in 20, 30 and 60 days respectively. How many days does it need to complete the work if P does the work and he is assisted by Q and R on every third day?

Sol: Amount of work P can do in 1 day = 1/20

Amount of work Q can do in 1 day = 1/30

Amount of work R can do in 1 day = 1/60

P is working alone and every third day Q and R is helping him

Work completed in every three days = 2 x (1/20) + (1/20 + 1/30 + 1/60) = 1/5

So work completed in 15 days = 5 x 1/5 = 1

Hence, the work will be done in 15 days

Chain Rules

In order to understand the concept of chain rule first we should recollect the fundamentals on variation (direct and inverse) for example

- If the work increases the number of men required to complete the work in same number of days increases proportionately and vice versa and hence directly proportional.
- If the work remaining constant men and days are inversely proportional i.e., if the number of men increases, the number of days required to complete the same work decreases and vice versa and hence inversely proportional.

In general, we can use a formula in chain rule i.e.,

If M1 no. of men can complete a work in D1 days and M2 no. of en can complete a work in D2 day then M1 x D1 = M2 x D2

If M1 no. of men can complete a work in D1 days working H1 hours per day and M2 no. of men can complete a work in D2 days working H2 hours per day then M1 x D1 x H1 = M2 x D2 x H2

If M1 no. of men can complete a work W1 in D1 days working H1 hours per day and M2 no. of men can complete a work W2 in D2 days working H2 hours per day then

(M1 x D1 x H1)/W1 = (M2 x D2 x H2)/W2

Now we will clear the above concepts with the help of some examples.

Ex1. – 36 men can complete a piece of work in 18 days. In how many days will 27 men complete the same work?

Sol: less men, means more days (indirect proportion)

Let the number of days be x

Then, 27: 36:: 18: x

[Please pay attention, we have written 27:36 rather than 36:27, in indirect proportion, if you get it then chain rule is clear to you :)]

x = (36 x 18)/27

x = 24

So 24 days will be required to get work done by 27 men.

Ex2. – 39 persons can repair a road in 12 days, working 5 hours a day. In how many days will 30 persons, working 6 hours a day, complete the work?

Sol: Let the required number of days be x.

Less persons, more days (indirect proportion)

More working hours per day, less days (indirect proportion)

Person 30:39: : 12: x

Working hours/day 6:5

30 X 6 X x = 39 X 5 X 12

x = 39 x 5 x 12

30x 6

x = 13

Ex3. - An industrial loom weaves 0.128 meters of cloth every second. Approximately, how any seconds will it take for the loom to weave 25 meters of cloth?

Sol: Let the time required by x seconds.

Then, more cloth means more time (direct proportion)

So, 0.128: 1: : 25 : x

x = (25 x 1)/0.128

x = 195.31

So time will be approx. 195 seconds

Ex4. – A fort had provision of food for 150 men for 45 days. After 10 days, 25 men left the fort. The number of days

for which the remaining food will last, is:

Sol: After 10 days: 150 men had food for 35 days.

Suppose 125 men had food for x days.

Now, less men, more days (indirect proportion)

125 : 150 :: 35 : x

125 x x = 150 x 35

x = (150 x 35)/125

x = 42.

Ex5. – If 18 binders bind 900 books in 10 days, how many binders will be required to bind 660 books in 12 days?

Sol: Let the required no. of binders be x.

Less books, less binders (direct proportion)

More days, less binders (indirect proportion)

Books 900:600 :: 18 : x

Days 12:10

(900 x 12 x x) = (600 x 10 x 18)

x = 600 x 10 x 18

x = (600 x 10 x 18)/900 x 12

= 11.

Ex6. – 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 behind schedule would it be finished?

[(100 x 35) + (100 x 35) + (200 x 5)] men can finish the work in 1day

4500 me can finish the work in 1 day. 100 men can finish it in 4500/100 = 45 days.

This is 5 days behind schedule

All the above examples an also be solved by using formula

(M1 x D1 x H1)/W1 = (M2 x D2 x H2)/W2

The values which are in numerator are those who have indirect proportion with the unknown value and those who have direct proportion with unknown is kept in denominator.

Class Assignment

1) A, B, C together can do a work in 6 days. A alone can do it in 12 days while B alone can do it in 18 days, then time taken by C is?

A) 9 days B) 18 days C) 27 days D) 36 days

2) A & B working together can do a piece of work in 12 days. B & C working together can do a piece of work in 15 days. C & A working together can do a piece of work in 20 days. In how many days A can do the same work?

A) 20 B) 30 C) 40 D) 60

3) A and B can do a piece of work in 15 days. B and C can do the same work in 10 days, A and C can do the same work in 12 days. Time taken by A, B and C together to do the job is?

A) 4 days B) 9 days C) 8 days D) 5 days

4) A builder appoints three construction workers Akash, Sunil, and Rakesh on one of his sites. They take 20, 30 and 60 days respectively to do a piece of work. How many days will it take Akash to complete the entire work if he is assisted by Sunil and Rakesh every third day?

A) 10 days B) 15 days C) 25 days D) 30 days

5) A can do a piece of work in 12 days. B can do same piece of work in 15 days. After A had worked for 3 days B also join A to finish the remaining work. In how many days work will be finished?

A) 3 days B) 5 days C) 6 days D) 8 days

6) A can do a piece of work in 9 days. B can do same piece of work in 10 days. C can do same piece of work in 15 days. B and C start working and left after 2 days. In how many days remaining work will be finished by A?

A) 4 days B) 10 days C) 6 days D) 8 days

7) To complete a piece of work, Samir takes 6 days and Tanvir takes 8 days alone respectively. Samir and Tanvir took Rs.2400 to do this work. When Amir joined them, the work was done in 3 days. What amount was paid to Amir?

A) Rs. 300 B) Rs. 400 C) Rs. 800 D) Rs. 500

8) Dev completed the school project in 20 days. How many days will Arun take to complete the same work if he is 25% more efficient than Dev?

A) 10 days B) 12 days C) 16 days D) 15 days

9) Time taken by A to finish a piece of work is twice the time taken B and thrice the time taken by C. If all three of them work together, it takes them 2 days to complete the entire work. How much work was done by B alone?

A) 2 days B) 6 days C) 3 days D) 5 days

10) Sonal and Preeti started working on a project and they can complete the project in 30 days. Sonal worked for 16 days and Preeti completed the remaining work in 44 days. How many days would Preeti have taken to complete the entire project all by herself?

A) 20 days B) 25 days C) 55 days D) 60 days

11) A can do a bit of work in 25 days which B can complete in 20 days. Both together labor for 5 days and afterward A leaves off. How long will B take to complete the remaining work?

A) 7 days B) 8 days C) 9 days D) 11 days

12) A can do a bit of work in 10 days while B alone can do it in 15 days. They cooperate for 5 days and whatever remains of the work is finished by C in 2 days. On the off chance that they get Rs. 4500 for the entire work, by what means if they partition the cash?

A) Rs 1250, Rs 1200, Rs 550 B) Rs 2250, Rs 1500, Rs 750

C) Rs 1050, Rs 1000, Rs 500 D) Rs 650, Rs 700, Rs 500

13) A and B together can finish a work in 3 days. They begin together. In any case, following 2 days, B left the work. If the work is finished following 2 more days, B alone could take every necessary step in

A) 5 days B) 6 days C) 9 days D) 10 days

14) A man and a kid finish a work together in 24 days. On the off chance that throughout the previous 6 days man alone takes every necessary step then it is finished in 26 days. To what extent the kid will take to complete the work done?

A) 72 days B) 20 days C) 24 days D) 36 days

15) 9 youngsters can finish a bit of work in 360 days. 18 men can finish the same work of piece in 72 days and 12 ladies can finish it in 162 days. In how long can 4 men, 12 ladies and 10 kids together finish the bit of work?

A) 68 days B) 81 days C) 96 days D) 124 days

16) If 1 man or 2 ladies or 3 kids can do a bit of work in 44 days, then the same bit of work will be finished by 1 man, 1 lady and 1 kid in

A) 21 days B) 24 days C) 26 days D) 33 days

17) If 12 man and 16 young men can do a bit of work in 5 days; 13 man and 24 young men can do it in 4 days, then the proportion of the everyday work done by a men to that of a kid is:

A) 2:1 B) 3:1 C) 3:2 D) 5:4

18) A can develop 2/fifth of the area in 6 days and B can develop 1/third of the area in 10 days. Cooperating A and B can develop 4/fifth of the area in

A) 4 days B) 5 days C) 8 days D) 10 days

19) A, B and C finished a bit of work costing Rs. 1800. A laboured for 6 days, B for 4 days and C for 9 days. On the off chance that their day-by-day wages are in the proportion 5:6:4, how much sum will be gotten by A?

A) 800 B) 600 C) 900 D) 750

20) A is thrice as efficient as B and is, therefore, able to finish a piece of work 10 days earlier than B. In how many days A and B will finish it together?

A) 3.75 days B) 4.75 days C) 5.50 days D) 6.20 days

21) 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 s 2 men?

A) 30 days B) 40 days C) 41 days D) none

22) If 80 lamps can be lighted 5 hours per day for 10 days for Rs. 21.25, then the number of lamps which can be lighted 4 hours daily for 30 days for Rs. 76.50 is?

A) 130 B) 120 C) 140 D) 160

23) A contractor undertook to do a certain piece of work in 6 days. He employed certain number of men, but 4 of them being absent from the very first day, the rest could finish the work in 10 days. The numbers of men originally employed were:

A) 9 B) 10 C) 11 D) 12

24) If 9 engines consume 24 metric tonnes of coal, when each is working 8 hours a day, how much coal will be required for 8 engines, each running 13 hours a day, it is being given that 3 engines of former type consume as much as 4 engines of latter type?

A) 25 tons B) 36 tons C) 26 tons D) 28 tons

25) A building is to be completed in 48 days. To meet the deadline 54 men were employed and were made to work for 10 hours a day. After 30 days 5/9th of the work was completed. How many more workers should be employed to meet the deadline if each worker are now made to work 8 hours a day?

A) 90 B) 54 C) 48 D) 36

26) In a camp, there is a meal for 90 men or 180 children. If 150 children have taken the meal, how many men will be catered to with the remaining meal?

A) 10 B) 15 C) 18 D) 12

27) A contractor undertook to do a certain piece of work in 9 days. He employed certain number of men, but 6 of them being absent from the very first day, the rest could finish the work in 15 days. The numbers of men originally employed were:

A) 15 B) 9 C) 44 D) 12

28) 12 men and 18 boys, working 9 hours a day, can do a piece of work in 60 days. If a man works equal to 2boys, then how many boys will be required to help 21 men to do twice the work in 40 days, working 7hours a day?

A) 60 B) 110 C) 120 D) none

29) If 3 men or 6 boys can do a piece of work in 10 days, working 7 hours a day; how many days will it take to compete a piece of work twice as large with 6 men and 2 boys working together for 8 hours a day?

A) 15 days B) 15/2 days C) 13/2 days D) none

30) 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 behind schedule would it be finished?

A) 3 days B) 5 days C) 6 days D) 9 days

31) Three pipes A, B and C fill a tank in 6 hours. After working together for 2 hours, C is closed and A and B can fill remaining part in 7 hours. The number of hours taken by C alone to fill the tank is:

A) 10 hours B) 12 hours C) 14 hours D) 16 hours

32) Pipe A and B can fill a cistern in 10 hours and 15 hours respectively. When a third pipe C which work as an outlet pipe is also open then the cistern can be filled in 18 hours. The outlet pipe can empty a full cistern in–

A) 12 hours B) 8 hours C) 9 hours D) 14 hours

33) Tap A can fill a tank in 20 hours, tap B in 25 hours and tap C can empty a full tank in 30 hours. Starting with A, followed by B and C each tap opens alternatively for one hour period, all the tank gets filled up completely. In how many hours the tank will be filled by completely?

A) 51(11/15) hours B) 52(2/3) hours C) 24(4/11) hours D) 51(15/11) hours

34) If one pipe A can fill a tank in 20 minutes then 5 pipes, each of 20% efficiency of A, can fill the tank in:

A) 80 minutes B) 100 minutes C) 20 minutes D) 25 minutes

35) A, B and C three taps can fill a tank in 40 minutes, 60 minutes, and 30 minutes respectively. A is opened first and at every 3rd minute B and C is opened. In how much time, tank can be filled.

A) 18 minutes B) 32 minutes C) 26 minutes D) 24 minutes

36) There are two taps in a tank A and B, which can fill the tank in 12 hours and 10 hours respectively and a third tap C, can empty the full tank in 15 hours. If tap A is opened at 7:00 am, tap B is opened at 9:00 am and tap C is opened at 10:00 am. On which time the tank will be filled?

A) 4:15 pm B) 2:20 pm C) 3:35 pm D) 1:00 pm

37) Two pipes can fill a cistern separately in 24 minutes and 40 minutes respectively. A waste pipe can drain off 30 litres per minute. If all three pipes are opened, the cistern fills in one hour. The capacity (in litres) of the cistern is–

A) 800 L B) 400 L C) 600 L D) 500 L

38) A pipe can fill a cistern in 9 hours. Due to a leak in its bottom, the cistern fills up in 10 hours. If the cistern is full, in how much time will it be emptied by the leak?

A) 70 hours B) 80 hours C) 90 hours D) 100 hours

39) A water tank can be filled by a tap in 30 minutes and another tap can fill it in 60 minutes. If both the tap is kept open for 5 minutes and then the first tap is closed, how long will it take for the tank to be filled?

A) 20 minutes B) 25 minutes C) 30 minutes D) 45 minutes

40) A water tank is two-fifth full. Pipe A can fill a tank in 10 minutes and pipe B can empty it in 6 minutes. If both the pipes are open, how long will it take to empty or fill the tank completely?

A) 6 min to empty B) 6 min to fill C) 8min to empty D) 8 min to fill

Home Assignment

1) A and B can do a piece of work in 15 days. B and C can do the same work in 10 days and A and C can do the same work in 12 days. Time taken by A, B and C together to do the job is?

A) 4 days B) 9 days C) 8 days D) 5 days

2) A, B and C can complete a work in 10, 12 and 15 days respectively. A left the work 5 days before the work was completed and B left 2 days after A had left. The number of days required to complete the whole work is?

A) 8⅔ days B) 6⅔ days C) 7 days D) 6 days

3) 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 two days and then A was replaced by B. In how many days, altogether, the work was completed?

A) 12 days B) 10 days C) 6 days D) 8 days

4) 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

5) A can do a piece of work in 20 days and B in 30 days. They work together for 7 days and then both leave the work. Then C alone finishes the remaining work in 10 days. In how many days will C finish the full work?

A) 25 days B) 30 days C) 24 days D) 20 days

6) X can do a piece of work in 24 days. When he had worked for 4 days, Y joined him. If complete work was finished in 16 days, Y can alone finish that work in how many days?

A) 18 days B) 27 days C) 36 days D) 42 days

7) If 6 men and 8 boys can do a piece of work in 10 days and, 26 men and 48 boys can do the same in 2 days. Then, the time taken by 15 men and 20 boys to do the same type of work will be?

A) 5 days B) 4 days C) 6 days D) 7 days

8) If 10 men or 20 women or 40 children can do a piece of work in 7 months. Then, 5 men, 5 women, and 5 children together can-do half of the work in?

A) 6 months B) 4 months C) 5 months D) 8 months

9) A company employed 200 workers to complete a certain work in 150 days. If only one-fourth of the work has been done in 50 days, then in order to complete the whole work in time, the number of additional workers to be employed was?

A) 100 B) 300 C) 600 D) 200

10) A contractor was engaged to construct a road in 16 days. After working for 12 days with 20 workers it was found that only 5/8th of the road had been constructed. To complete the work in stipulated time the number of extra workers required is?

A) 18 B) 10 C) 12 D) 16

11) A can do a piece of work in 20 days and B in 30 days. They work together for 7 days and then both leave the work. Then C alone finishes the remaining work in 10 days. In how many days will C finish the full work?

A) 25 days B) 30 days C) 24 days D) 27 days

12) A, B and C can do a job in 6 days, 12 days and 15 days respectively. After 1/8 of the work is completed, C leaves the job. Rest of the work is done by A and B together. Time taken to finish the rest of the work is.

A) 5(5/6) days B) 5(1/4) days C) 3(1/2) days D) 3(3/4) days

13) A, B and C can do a piece of work individually in 8, 10 and 15 days, respectively. A and B start working but A quits after working for 2 days. After this, C joins B till the completion of work. In how many days will work be completed?

A) 53/9 days B) 34/7 days C) 85/13 days D) 53/10 days

14) A can do a piece of work in ‘x’ days and B can do the same work 3x days. To finish the work together they take 12 days. What is the value of ‘x’?

A) 8 B) 10 C) 12 D) 16

15) P can do a work in 24 days. Q can do the same work in 9 days and R can do the same in 12 days. Q and R start the work and leave after 3 days. P finishes the remaining work in-----days.

A) 7 B) 8 C) 9 D) 10

16) P takes twice as much as Q or thrice as much time as R to finish a piece of work. They can finish the work in 2 days if work together. How much time will Q take to do the work alone?

A) 4 B) 5 C) 6 D) 7

17) Anil and Suresh are working on a special assignment. Anil needs 6 hours to type 32 pages on a computer and Suresh needs 5 hours to type 40 pages. If both work together on the two different computers, how much time is needed to type an assignment of 110 pages?

A) 7 hours 15 minutes B) 7 hours 30 minutes C) 8 hour 15 minutes D) 8 hour 30 minutes

18) P is 30% more efficient than Q. P can complete a work in 23 days. If P and Q work together, how much time will it take to complete the same work?

A) 9 B) 11 C) 13 D) 15

19) A, B and C can individually complete a piece of work in 30, 50 and 75 days respectively. They worked on 1 day each with A starting the work followed by B the next day and C the next day. They continued working in this way till the 30th day after which the remaining work is completed by B and C working on alternate days starting with B on 31st day. In how many days was the work completed?

A) 35 B) 40 C) 45 D) 50

20) A contractor employed 30 men to do a piece of work in 38 days. After 25 days, he employed 5 more 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 days B) 5/4 days C) 7/4 days D) 3/2 days

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

A) 648 B) 1800 C) 2700 D) 10800

22) Some persons can do a piece of work in 12 days. Two times the number of such persons will do half of that work in:

A) 3 days B) 9 days C) 12 days D) 2 days

23) 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) 100 D) 110

24) If a certain number of workmen can do a piece of work in 25 hours, in how many hours will another set of an equal number of men, do a piece of work, twice as great, supposing that 2 men of the first set can do as much work in a hour, as 3 men of the second set do in an hour?

A) 70 B) 60 C) 30 D) 75

25) 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, 4/7 of the work is completed. How many additional men may be employed so that the work may be completed in time, each man now working 9 hours a day?

A) 80 B) 100 C) 81 D) 120

26) 2 men and 3 boys can do a piece of work in 10 days, while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy can complete, double of the earlier work in?

A) 12 days B) 20 days C) 24 days D) 25 days

27) Assume that 20 cows and 40 goats can be kept for 10 days for Rs. 460. If the cost of keeping 5 goats is the same as the cost of keeping 1 cow, what will be the cost for keeping 50 cows and 30 goats for 12 days?

A) Rs. 1104 B) Rs. 1000 C) Rs. 934 D) Rs. 1210

28) If 5 men or 10 women or 20 children can do a piece of work in 12 days. In how many days will 3men and 6 women and 80 children can do the same work?

A) 30/13 B) 12 C) 5 D) none

29) If daily wages of a man is double to that of a woman, how many men should work for 25 days to earn Rs. 14400? Given that wages for 40 women for 30 days are Rs. 21600.

A) 12 B) 14 C) 16 D) 18

30) A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. The time required by the first pipe is:

A) 80 hours B) 12 hours C) 15 hours D) 16 hours

31) There are two pumps to fill a tank with water. First pump can fill the empty tank in 8 hours, while the second in 10 hours. If both the pumps are opened at the same time and kept open for 4 hours, the part of tank that will be filled up is :

A) 2/5 B) 9/10 C) 1/54 D) 1/10

32) Pipes P and Q can fill a tank in 10 and 12 hours respectively and C can empty it in 6 hours. If all the three are opened at 7 a.m., at what time will one-fourth of the tank be filled?

A) 11 p.m. B) 10 a.m. C) 11 a.m. D) 10 p.m.

33) Two pipes A and B can separately fill a cistern in 60 minutes and 75 minutes respectively. There is a third pipe in the bottom of the cistern to empty it. If all the tree pipes are simultaneously opened, then the cistern is full in 50 minutes. In how much time the third pipe alone can empty the cistern?

A) 80 minutes B) 100 minutes C) 20 minutes D) 25 minutes

34) Three pipes A, B and C can fill a tank in 6 hours, 9 hours and 12 hours respectively. B and C are opened for half an hour, then A is also opened. The time taken by the three pipes together to fill the remaining part of the tank is

A) 2(1/2) hours B) 3 hours C) 3(1/2) hours D) 2 hours

35) A tap can fill an empty tank in 12 hours and another tap can empty half the tank in 10 hours. It both the taps are opened simultaneously, how long would it take for the empty tank to be filled to half its capacity?

A) 15 hours B) 30 hours C) 12 hours D) 20 hours

36) A cistern has two pipes. One can fill it with water in 8 hours and other can empty it in 5 hours. In how many hours will the cistern be emptied if both the pipes are opened together when 3/4 of the cistern is already full of water?

A) 6 hours B) 13(1/3) hours C) 3(1/3) hours D) 10 hours

37) Two pipes A and B together can fill a cistern in 4 hours. Had they been opened separately, then B would have taken 6 hours more than A to fill the cistern. How much time will be taken by A to fill the cistern separately?

A) 10 hr B) 4 hrs C) 6 hrs D) 8 hrs.

38) If two pipes can fill a tank in 24 and 20 minutes respectively and another pipe can empty 3 gallons of water per minute from that tank. When all the three pipes are working together, it takes 15 minutes to fill the tank. What is the capacity of the tank?

A) 100 gallons B) 150 gallons C) 125 gallons D) 120 gallons

39) Pipe A can fill the tank 3 times faster in comparison to pipe B. It takes 36 minutes for pipe A and B to fill the tank together. How much time will pipe B alone take to fill the tank?

A) 100 minutes B) 124 minutes C) 134 minutes D) 144 minutes

40) It takes 6 hours for three pipes, X, Y and Z to fill a tank. When the three worked together for 2 hours, Z was closed and, X and Y filled the remaining tank in 7 hours. How many hours would it take Z alone to fill the tank?

A) 15 hours B) 23 hours C) 12 hours D) 14 hours

Competitive Assignment

1) A work was completed by three persons of equal ability, first one doing m hours for m days, second one doing n hours for n days (m and n being integers) and third one doing 16 hours for 16 days. The work could have been completed in 29 days by third person alone with his respective working hours. If all of them do the work together with their respective working hours, then they can complete it in about

A) 12 days B) 13 days C) 14 days D) 15 days

2) Three labourers worked together for 30 days, in the course of work, all of them remained absent for few days. One of them was absent for 10 days more than the second labourer and the third labourer did one-third of the total work. How many days more than the third labourer was the first one absent?

A) 4 B) 5 C) 6 D) None

3) A and B do a work in exactly 16 days, B and C do the same work in exactly 12 days while C and A do the same work in about 10 days. If A, B and C can together do the work in integral number of days, then C does the work alone in

A) 15 days B) 16 days C) 18 days D) none of these

4) Two persons A and B can do a work alone in 29 days. A takes the rest of one day after every 4 days and B takes the rest of one day after every 5 days. If A and B starts working together, then the work will be completed on

A) 15th day B) 16th day C) 17th day D) 18th day

5) 12 men and 16 boys can do a piece of work in 5 days and 13 men and 24 boys can do it in 4 days. Compare the daily work done by a man with that done by a boy.

A) 3 : 2 B) 2 : 1 C) 4 : 7 D) 3 : 1

6) If 5 men and 3 boys can reap 23 hectares in 4 days and if 3 men and 2 boys can reap 7 hectares in 2 days, then how many boys must assist 7 men in order that they may reap 45 hectares in 6 days?

A) 1 B) 2 C) 3 D) 4

7) 10 men and 12 children complete a certain piece of work in 10 days. Each child takes thrice the time taken by a man to complete the work. The time taken by 12 men to finish the same work is

A) 11.66 days B)10 days C) 10.33 days D) 12.16 days

8) To do a certain piece of work, B would take three times as long as A and C together and C twice as long as A and B together. The three men working together can complete the work in 10 days. How long would B take by himself to complete the same piece of work?

A) 24 days B) 30 days C) 40 days D) 36 days

9) Ram can do a piece of work in 20 days which Shyam can do in 30 days. They begin together with the condition that Ram shall leave the job 3 days before the actual completion of work. What is the total number of days required to complete the work?

A) 14 days B) 19 days C) 27 days D) 9 days

10) 25 days of Ram's wages can be paid by a certain sum of money. The same amount of money is sufficient to pay Badri prasad’s wages for 20 days. The number of days for which the money will be sufficient to pay the wages of both if they work together is

A) 10 days B) 11 days C) 100/9 days D) 110/9 days

11) Two coal loading machines each working 12 hours per day for 8 days handles 9 tons of coal with an efficiency of 90%. While 3 other coal loading machines at an efficiency of 80% set to handle 12 tons of coal In 6 days. Find how many hours per day each should work?

A) 12 hrs/day B) 16 hrs/day C) 20 hrs /day D) 18 hrs/day

12) A drain pipe can drain a tank in 12 hours, and a fill pipe can fill the same tank in 6 hours. A total of n pipes – which include a few fill pipes and the remaining drain pipes – can fill the entire tank in 2 hours. How many of the following values could ‘n’ take?

a) 24 b) 16 c) 33 d) 13 e) 9 f) 8

13) Pipe A, B and C are kept open and together fill a tank in t minutes. Pipe A is kept open throughout, pipe B is kept open for the first 10 minutes and then closed. Two minutes after pipe B is closed, pipe C is opened and is kept open

till the tank is full. Each pipe fills an equal share of the tank. Furthermore, it is known that if pipe A and B are kept open continuously, the tank would be filled completely in t minutes. How long will it take C alone to fill the tank ?

A) 18 B) 36 C) 27 D) 24

14) Pipes A, B and C can fill a tank in 30, 60 and 120 minutes respectively. Pipes B and C are kept open for 10 minutes, and then Pipe B is shut while Pipe A is opened. Pipe C is closed 10 minutes before the tank overflows. How long does it take to fill the tank?

A) 40 minutes B) 28 minutes C) 30 minutes D) 36 minutes

15) A cistern of capacity 40 litres has an inlet and an outlet pipe. When both the pipes are opened at once, it takes 8 minutes to fill the cistern. However, if the outflow rate is increased 1.5 times, the cistern never gets filled. Which of the following can be the outflow rate?

A) 8 litres/minute B) 6 litres/minute C) 12 litres/minute D) 9 litres/minute

16) A cistern of 475 litres is completely filled using pipes A and B, with Pipe A being open for 5 more hours than pipe B. If we are to interchange the operating hours of the two pipes than pipe A would have pumped half the water as much as pipe B, then find the time for which pipe B was open. Also, given that if the two pipes were open simultaneously the tank would fill in 19 hours.

A) 10 hrs B) 14 hrs C) 16 hrs D) 20 hrs

17) Two pipes A and B are attached to an empty water tank. Pipe A fills the tank while pipe B drains it. If pipe A is opened at 2 pm and pipe B is opened at 3 pm, then the tank becomes full at 10 pm. Instead, if pipe A is opened at 2 pm and pipe B is opened at 4 pm, then the tank becomes full at 6 pm. If pipe B is not opened at all, then the time, in minutes, taken to fill the tank is

A) 140 B) 120 C) 144 D) 264

18) A tank is emptied everyday at a fixed time point. Immediately thereafter, either pump A or pump B or both start working until the tank is full. On Monday, A alone completed filling the tank at 8 pm. On Tuesday, B alone completed filling the tank at 6 pm. On Wednesday, A alone worked till 5 pm, and then B worked alone from 5 pm to 7 pm, to fill the tank. At what time was the tank filled on Thursday if both pumps were used simultaneously all along?

A) 4 : 12 PM B) 4 : 24 PM C) 4 : 48 PM D) 4 : 36 PM

19) A water tank has inlets of two types A and B. All inlets of type A when open, bring in water at the same rate. All inlets of type B, when open, bring in water at the same rate. The empty tank is filled in 30 minutes if 10 inlets of type A and 45 inlets of type B are open, and in 1 hour if 8 inlets of type A and 18 inlets of type B are open. In how many minutes will the empty tank get filled if 7 inlets of type A and 27 inlets of type B are open?

A) 40 minutes B) 48 minutes C) 30 minutes D) 36 minutes

20) A tank is fitted with pipes, some filling it and the rest draining it. All filling pipes fill at the same rate, and all draining pipes drain at the same rate. The empty tank gets filled in 6 hours when 6 filling and 5 draining pipes are on, but this time becomes 60 hours when 5 filling and 6 draining pipes are on. In how many hours will the empty tank get filled when one draining and two filling pipes are on?

A) 10 B) 12 C) 14 D) 26

Answer Key

Class Assignment

1. D	2. B	3. C	4. B	5. B	6. C
7. A	8. C	9. B	10. D	11. D	12. B
13. B	14. D	15. B	16. B	17. A	18. C
19. B	20. A	21. C	22. C	23. A	24. C
25. D	26. C	27. C	28. C	29. D	30. A
31. A	32. B	33. B	34. C	35. D	36. B
37. A	38. C	39. B	40. B		

Home Assignment

1. C	2. C	3. D	4. C	5. C	6. C
7. B	8. B	9. A	10. D	11. C	12. C
13. D	14. D	15.D	16. C	17. C	18. C
19. D	20. C	21. B	22. D	23. B	24. A
25. B	26. D	27. C	28. D	29. D	30. D
31. A	32. B	33. A	34. D	35. D	36. C
37. D	38. A	39. C	40. C		

Competitive Level

1. B	2. B	3. B	4. C	5. B
6. B	7. A	8. C	9. A	10. C
11. B	12. A	13. D	14. D	15. C
16. C	17. C	18. B	19. B	20. A

Time Speed & Distance

Speed

Speed basically tells us how fast or slow an object moves.

It is described as the distance travelled by an object divided with the time taken to cover that distance.

Speed = Distance/Time

This shows that Speed is directly proportional to distance but inversely proportional to time.

Distance = Speed * Time and,

Time = Distance/Speed

Example: What is the distance covered by a car travelling at a speed of 40 kmph in 15 minutes?

Solution:

Distance= speed* time= 40*15/60=10 km.

Average Speed

Case 1: When Time is Constant

The average speed of travelling at two different speeds for the same time span is just the simple average of two speeds.

Let Speed 1 be x km/hr. Let Speed 2 be y km/hr

Therefore,

Average Speed when time is same = (x+y)/2

Example: A car is travelling at an average speed of 45kmph for the 1st hour and at 65 kmph for the next 1 hour. Calculate his average speed.

Solution: As the time is same, i.e. 1 hour,

Average speed= (45+65)/2= 55 kmph.

Case 2: Average Speed When Distance is Constant

Average Speed = 2ab/(a+b) (where a and b are two speeds)

Example: On his way to office, Big Bull was travelling at 30 kmph and on the return journey, he was travelling at 45kmph. What is Big Bull's average speed?

Solution: 37.5 kmph is incorrect as the time travelled is different in both the cases and only the distances are same.

Let distance = x km

Therefore, Time taken on Big Bull's onward journey =x/30 hours and

Time taken on his return journey=x/45 hours

Therefore, total time = (x/30)+ (x/45) hours.

Total distance = 2x km

Average speed= 36kmph

Problems on Trains

Speed of the Train = Total distance covered by the train / Time taken

If the length of two trains is given, say a and b, and the trains are moving in opposite directions with speeds of x and y respectively, then the time taken by trains to cross each other = {(a+b) / (x+y)}

If the length of two trains is given, say a and b, and they are moving in the same direction, with speeds x and y respectively, then the time is taken to cross each other = {(a+b) / (x-y)}

When the starting time of two trains is the same from x and y towards each other and after crossing each other, they took t1 and t2 time in reaching y and x respectively, then the ratio between the speed of two trains = √t2 : √t1

If two trains leave x and y stations at time t1 and t2 respectively and travel with speed L and M respectively, then distanced from x, where two trains meet is = (t2 – t1) × {(product of speed) / (difference in speed)}

The average speed of a train without any stoppage is x, and with the stoppage, it covers the same distance at an average speed of y, then Rest Time per hour = (Difference in average speed) / (Speed without stoppage)

If two trains of equal lengths and different speeds take t1 and t2 time to cross a pole, then the time taken by them to cross each other if the train is moving in opposite direction = (2×t1×t2) / (t2+t1)

If two trains of equal lengths and different speeds take t1 and t2 time to cross a pole, then the time taken by them to cross each other if the train is moving in the same direction = (2×t1×t2) / (t2-t1)

Boat And Stream

Stream – The moving water in a river is called a stream.

Upstream – If the boat is flowing in the opposite direction to the stream, it is called upstream. In this case, the net speed of the boat is called the upstream speed

Downstream – If the boat is flowing along the direction of the stream, it is called downstream. In this case, the net speed of the boat is called downstream speed

Still Water – Under this circumstance the water is considered to be stationary and the speed of the water is zero

Upstream = (u−v) km/hr, where “u” is the speed of the boat in still water and “v” is the speed of the stream

Downstream = (u+v) Km/hr, where “u” is the speed of the boat in still water and “v” is the speed of the stream

Speed of Boat in Still Water = ½ (Downstream Speed + Upstream Speed)

Speed of Stream = ½ (Downstream Speed – Upstream Speed)

Average Speed of Boat = {(Upstream Speed × Downstream Speed) / Boat’s Speed in Still Water}

Class Assignment

1) A car takes half of the time taken by truck to go from Lucknow to Bombay. A truck takes 20 hours to go for the same journey. What is the speed of the truck, if the speed of the car is 120 km/hr?

A) 40 B) 20 B) 60 D) 30

2) Shweta when increasing her speed from 24 km/hr to 30 km/hr she takes one hour less than the usual time to cover a certain distance. What is the distance usually covered by Shweta?

A) 140 B) 120 B)160 D) 130

3) Kriplani goes to school at 20 km/hr and reaches the school 4 minutes late. Next time, she goes at 25 km/hr and reaches the school 2 minutes earlier than the scheduled time. What is the distance of her school?

A) 40 B) 10 B) 60 D) 30

4) Walking at 4/5 of his normal speed, Dewang is 15 minutes late in reaching his club. What is the usual time taken by him to cover the distance?

A) 40 B) 10 C) 60 D) 30

5) A man walks 6 km at a speed of 1 1/2 kmph, runs 8 km at a speed of 2 kmph and goes by bus another 32 km. Speed of the bus is 8 kmph. Find the average speed of the man.

A) 4 (5/6) kmph B) 3 (5/6) kmph C) 5 (7/6) kmph D) None of these

6) A car starts from A for B travelling 20 km an hour.1 1/2 hours later another car starts from A and travelling at the rate of 30 km an hour reaches B 2 1/2 hours before the first car. Find the distance from A to B.

A) 280 km B) 260km C) 240km D) None of these

7) Two men start together to walk a certain distance, one at 4 kmph and another at 3 kmph. The former arrives half an hour before the latter. Find the distance.

A) 6 km B) 9 km C) 8 km D) None of these

8) A train does a journey without stopping in 8 hours. If it had travelled 5 km an hour faster, it would have done the journey in 6 hours 40 min. What is its slower speed?

A) 35 kmph B) 25 kmph C) 40kmph D) None of these

9) A train starts from Delhi at 6:00 a.m. and reaches Meerut at 10 a.m. The other train starts from Meerut at 8 a.m. and reaches Delhi at 11:30 a.m. If the distance between Delhi and Meerut is 200 km, then at what time did the two trains meet each other?

A) 8:56 a.m. B) 8:46 a.m. C) 7:56 a.m. D) 8:30 a.m.

10) A man by motorcycle goes from Delhi to Bharatpur , a distance of 192 km, at an average speed of 32 kmph. Another man starts from Delhi by car 2.5 h after the motorcyclist starts and reaches Bharatpur half an hour late. What is the ratio of person on the motorcycle to the person going by car ?

A) 1:2 B) 2:3 C) 10:27 D) 5:4

11) A Train T1 starts from Ahmedabad to Mumbai at 7 am and reaches at 12 noon. A second train T2 starts at 7 am from Mumbai reaches Ahmedabad at 1 pm. When did the two train cross each other?

A) 10.13 am B) 10.00 am C) 9.43 am D) 9.35 am

12) A car during its journey travels 30 minutes at a speed of 40 kmph, another 45 minutes at a speed of 60 kmph, and 2 hours at a speed of 70 kmph. The average speed of the car is

A) 63.07 kmph B) 64 kmph C) 62.02 kmph D) None of these

13) A tiger is 50 of its own leaps behind a deer. The tiger takes 5 leaps per minutes to deer's 4. If the tiger and the deer cover 8 m and 5 m per leap respectively, what distance will the tiger have to run before it catches the deer?

A) 600 m B) 700 m C) 800 m D) 1000 m

14) The Delhi Express runs @ 144 kilometers per hours and it reaches destination 20 minute ahead of schedule. If it averages 100 km/hour, it reaches 24 minute behind schedule. What is the average speed it should maintain in order to reach the destination on schedule?

A) 250 B) 240 C) 230 D) 245

15) Two stations P and Q are 110 km apart on a straight track. One train starts from P at 7 a.m. and travels towards Q at 20 kmph. Another train starts from Q at 8 a.m. and travels towards P at a speed of 25 kmph. At what time will they meet?

A) 10:30 a.m. B) 10 a.m. C) 9 a.m. D) 11 a.m.

Problems On Train

1) A train 150 m long is running with a speed of 54 km per hour. In what time will it pass a telegraph post?

A) 11 s B) 10 s C) 7 s D) 6 s

2) A train passes through a telegraph post in 9 seconds moving with a speed of 54 km per hour. The length of the train is

A) 135 metres B) 145 metres C) 125 metres D) None of these

3) Two trains travelling in the same direction at 40 kmph and 22 kmph completely pass each other in 1 minutes. If the length of first train is 125 m, what is the length of second train?

A) 125 m B) 150m C) 175 m D) 200m

4) Two trains, each 100 m long are moving in opposite directions. They cross each other in 8 seconds. If one is moving twice as fast the other, the speed of the faster train is

A) 75 km/hr B) 60 km/hr C) 35 km/hr D) 70 km/hr

5) A train is running at a uniform speed of 80 kmph. It passes a railway platform in 15 seconds. If the length of the platform is 130 m, then the length of the train is

A) 160 m B) 203.33 m C) 140.5 m D) None of these

6) A train overtakes two persons walking along a railway track. The first person walks at 4.5 km/hr and the other walks at 5.4 km/hr. The train needs 8.4 and 8.5 seconds respectively to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train?

A) 81 km/hr B) 88 km/hr C) 62 km/hr D) 46 km/hr

7) A train moves past a post and a platform 264 m long in 8 seconds and 20 seconds respectively. What is the speed of the train?

A) 79.2 km/hr B) 69 km/hr C) 74 km/hr D) 61 km/hr

8) A train 360 m long runs with a speed of 45 km/hr. What time will it take to pass a platform of 140 m long?

A) 38 sec B) 35 sec C) 44 sec D) 40 sec

9) A train moves past a post and a platform 264 m long in 8 seconds and 20 seconds respectively. What is the speed of the train?

A) 18 sec B) 15 sec C) 14 sec D) 10 sec

10) Two trains start at the same time from Pune and Delhi and proceed towards each other at 80 kmph and 95 kmph respectively. When they meet, it is found that one train has travelled 180 km more than the other. Find the distance between Delhi and Pune.

A) 2100km B) 2000 km C) 1500km D) 1800km

Problems on Boat and Stream

1) A man can row 30 km upstream in 6 hours. If the speed of the man in still water is 6 km/hr, find how much he can row downstream in 10 hours.

A) 70 km B) 140 km C) 200 km D) 250 km

2) A motorboat can travel at 5 km/hr in still water. It travelled 90 km downstream in a river and then returned, taking altogether 100 hours. Find the rate of flow of the river.

A) 3 km/hr B) 3.5 km/hr C) 2 km/hr D) 4 km/hr

3) A man rows 24 km upstream in 6 hours and a distance of 35 km downstream in 7 hours. Then the speed of the man in still water is

A) 4.5 km/hr B) 4 km/hr C) 5 km/hr D) 5.5 km/hr

4) A man rows 'k' km upstream and back again downstream to the same point in H hours. The speed of rowing in still water is s km/hr and the rate of stream is r km/hr. Then

A) (s2-r2) =2sk /H B) (r + s) = kH / (r -s) C) rs = kH D) None of the above

5) A boat travels from point A to B, a distance of 12 km. From A it travels 4 km downstream in 15 minutes and the remaining 8 km upstream to reach B. If the downstream speed is twice as high as the upstream speed, what is the average speed of the boat for the journey from A to B?

A) 10(2/3)km/hr B) 9.6 km/hr C) 11.16 km/hr D) 10.44 km/hr

6) A boat makes a return journey from point A to point B and back in 5 hours 36 minutes. One way it travels with the stream and on the return it travels against the stream. If the speed of the stream increases by 2 km/hr, the return journey takes 9 hours 20 minutes. What is the speed of the boat in still water? (The distance between A and B is 16 km.)

A) 5 km/hr B) 3 km/hr C) 7 km/hr D) 9 km/hr

7) How long will it take to row 20 km upstream if one can row 10 km in 10 minutes in still water and the same distance in 8 minutes with the stream?

A) 12 min B) 13.33 min C) 24 min D) 26.67 min

8) . A man takes 20 minutes to row 12 km upstream which is a third more than the time he takes on his way downstream. What is his speed in still water?

A) 41 km/hr B) 36 km/hr C) 42 km/hr D) 45 km/hr

9) If the upstream speed of a boat is 50% less than the downstream speed of the boat and if a object is thrown in the river it covers 100m in 50 sec, then how much distance boat can cover in still water in 5 hours?

A) 900 km B) 100 km C) 120 km D) 108 km

10) Ratio between speed of boat in still water to speed of stream is 5 : 2. If 224 km is travelled by downstream in 4 hours then find the difference between speed of boat in still water and speed of stream?

A) 24 km/hr B) 22 km/hr C) 28 km/hr D) 26 km/hr

Home Assignment

1) A person travels from one place to another at 30 km/hr and returns at 120 km/hr. If the total time taken is 5 hours, then find the Distance?

A) 900 km B) 100 km C) 120 km D) 108 km

2) Traveling at 3/4th of the original Speed a train is 10 minutes late. Find the usual Time taken by the train to complete the journey?

A) 1800 sec B) 1500 sec C) 1400 sec D) 1000 sec

3) A man travels from his home to office at 4km/hr and reaches his office 20 min late. If the Speed had been 6 km/hr he would have reached 10 min early. Find the distance from his home to office.

A) 8 km B) 12 km C) 6 km D) 9 km

4) Ram and Shyam are standing at two ends of a room with a width of 30 m. They start walking towards each other along the width of the room with a Speed of 2 m/s and 1 m/s, respectively. Find the total distance travelled by Ram when he meets Shyam for the third time.

A) 110 m B) 112 m C) 120 m D) 100 m

5) A man decided to cover a distance of 6 km in 84 minutes. He decided to cover two thirds of the distance at 4 km / hr and the remaining at some different speed. Find the speed after the two third distance has been covered.

A) 5 kmph B) 7 kmph C) 9 kmph D) 3 kmph

6) While going to office, Ramesh travels at a speed of 30 kmph and on his way back, he travels at a speed of 45 kmph. What is his average speed of the whole journey?

A) 45 kmph B) 36 kmph C)32 kmph D) 42 kmph

7) Raju hikes up a hill at 4 mph and comes down at 6 mph. If the total time taken for the total journey is 3.5 hours, what was the distance between the hilltop and the foothills?

A) 9.4 miles. B) 8.4 miles. C) 84 miles D) None

8) A man travelled a distance of 61 km in 9 hours. He travelled partly on foot at 4 km/hr and partly on bicycle at 9 km/hr. What is the distance travelled on foot?

A) 14 km B) 16 km C) 18 km D) 12 km

9) The speed of a car increases by 2 kms after every one hour. If the distance travelling in the first one hour was 35 kms. what was the total distance travelled in 12 hours?

A) 456 kms B) 552 kms C) 482 kms D) 556 kms

10) A thief is noticed by a policeman from a distance of 200 m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 10 km and 11 km per hour respectively. What is the distance between them after 6 minutes?

A) 100 m B) 150 m C) 190 m D) 200

11) Two trains A and B start simultaneously in the opposite direction from two points P and Q and arrive at their destinations 16 and 9 hours respectively after their meeting each other. At what speed does the second train B travel if the first train travels at 120 km/h

A) 90 km/h B) 160 km/h C) 67.5 km/h D) None of these

12) Amy has to visit towns B and C in any order. The roads connecting these towns with her home are shown on the diagram. How many different routes can she take starting from A and returning to A, going through both B and C (but not more than once through each) and not travelling any road twice on the same trip?

A) 10 B) 6 C) 4 D) 8

13) A truck covers a distance of 376 km at a certain speed in 8 hours. How much time would a car take at an average speed which is 18 kmph more than that of the speed of the truck to cover a distance which is 14 km more than that travelled by the truck?

A) 6 hours B) 9 hours C) 8 hours D) 5 hours

14) In covering a distance of 30 km, Abhay takes 2 hours more than Sameer. If Abhay doubles his speed, then he would take 1 hour less than Sameer. Abhay's speed is:

A) 5 kmph B) 6 kmph C) 7.5 kmph D) 6.25 kmph

15) A truck covers a certain distance in 15 hours at the speed of 60 km./ hr. What is the average speed of a car which travels a distance of 150 kms more than the track in the same time?

A) 70 km/ hr B) 56 km/ hr C) 80 km/ hr D) 85 km/ hr

Problems on train

1) A train 150 m long passes a pole in 15 seconds and crosses another train of the same length travelling in opposite direction in 12 seconds. The speed of the second train in (km/h) is

A) 60 km/hr B) 54 km/hr C) 72 km/hr D) 99 km/hr

2) A man sitting in a train which is traveling at 50 kmph observes that a goods train, traveling in opposite direction, takes 9 seconds to pass him. If the goods train is 280 m long, find its speed.?

A) 60 B) 62 C) 64 D) 65

3) A train 125 m long passes a man, running at 5 km/hr in the same direction in which the train is going, in 10 seconds. The speed of the train is ?

A) 45 kmph B) 25 kmph C) 30 kmph D) 50 kmph

4) A goods train runs at the speed of 72 kmph and crosses a 250 m long platform in 26 seconds. What is the length of the goods train?

A) 230 m B) 240 m C) 260 m D) 270 m

5) Two trains are running in opposite directions in the same speed. The length of each train is 120 meter. If they cross each other in 12 seconds, the speed of each train (in km/hr) is

A) 42 B) 36 C) 28 D) 20

6) A train of length 110 meter is running at a speed of 60 kmph. In what time, it will pass a man who is running at 6 kmph in the direction opposite to that in which the train is going?

A) 10 B) 8 C) 6 D) 4

7) Two trains 140 m and 160 m long run at the speed of 60 km/hr and 40 km/hr respectively in opposite directions on parallel tracks. The time (in seconds) which they take to cross each other, is:

A) 9 B) 9.6 C) 10 D) 10.8

8) Two trains are moving in opposite directions at 60 km/hr and 90 km/hr. Their lengths are 1.10 km and 0.9 km respectively. The time taken by the slower train to cross the faster train in seconds is ?

A) 42 sec B) 44 sec C) 46 sec D) 48 sec

9) Two trains of equal length, running with the speeds of 60 and 40 kmph, take 50 seconds to cross each other while they are running in the same direction. What time will they take to cross each other if they are running in opposite directions?

A) 10 sec B) 11 sec C) 12 sec D) 8 sec

10) A train covers a distance between station A and station B in 45 min. If the speed of the train is reduced by 5 km/hr, then the same distance is covered in 48 min. what is the distance between the stations A and B ?

A) 80 kms B) 60 kms C) 45 kms D) 32 kms

Problems on Boat & Stream

1) A person can swim in water with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, what will be the time taken by the person to go 68 km downstream?

A) 2.5 hours B) 3 hours C) 4 hours D) 3.5 hours

2) In one hour, a boat goes 13 km/hr in the direction of the stream and 7 km/hr against the direction of the stream. What will be the speed of the boat in still water?

A) 8 km/hr B) 10 km/hr C) 14 km/hr D) 6 km/hr

3) A speedboat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in a total of 4 hours 30 minutes. What is the speed of the stream in km/hr?

A) 2.5 km/hr B) 3.5 km/hr C) 4 km/hr D) 5 km/hr

4) A boat is moving 2 km against the current of the stream in 1 hour and moves 1 km in the direction of the current in 10 minutes. How long will it take the boat to go 5 km in stationary water?

A) 1 hr 20 minutes B) 1 hr 30 minutes C) 1 hr 15 minutes D) 30 minutes

5) A man takes 20 minutes to row 12 km upstream which is a third more than the time he takes on his way downstream. What is his speed in still water?

A) 41 km/hr B) 36 km/hr C) 42 km/hr D) 45 km/hr

6) A boat takes 28 hours for travelling downstream from point A to point B and coming back to point C midway between A and B. If the velocity of the stream is 6km/hr and the speed of the boat in still water is 9 km/hr, what is the distance between A and B?

A) 115 kms B) 120 kms C) 140 kms D) 165 kms

7) Speed of a man in still water is 5 km/hr and the river is running at 3km/hr. The total time taken to go to a place and come back is 10 hours. What is the distance travelled?

A) 10 kms B) 16 kms C) 24 kms D) 32 kms

8) A boat can travel 20 km downstream in 24 min. The ratio of the speed of the boat in still water to the speed of the stream is 4 : 1. How much time will the boat take to cover 15 km upstream?

A) 20 mins B) 22 mins C) 25 mins D) 30 mins

9) A man rows to a place 40 km distant and come back in 9 hours. He finds that he can row 5 km with the stream in the same time as 4 km against the stream. The rate of the stream is:

A) 1 km/hr B) 1.5 km/hr C) 2 km/hr D) 2.5 km/hr

10) A boat whose speed in 20 km/hr in still water goes 40 km downstream and comes back in a total of 5 hours. The approx. speed of the stream (in km/hr) is:

A) 6 km/hr B) 9 km/hr C) 12 km/hr D) 16 km/hr

Competitive Exam:

1) A train overtakes two persons who are walking in the same direction in which the train is going, at the rate of 2 kmph and 4 kmph and passes them completely in 9 seconds and 10 seconds respectively. The length of the train (in metres) is))

A) 45 B) 54 C) 50 D) 72

2) A boat can travel 30 km downstream in 1 hour, if speed of the current is 1/5th of the speed of the boat. Then find how much time will boat take to travel 40 km in upstream?

A) 2 hours B) 4 hours C) 6 hours D) 3 hours

3) Two trains of different length can cross a pole in 10 seconds and when both the trains are running in same direction. First train crosses second train in 20 seconds. If sum of the length of both trains is 840 meters, then find length of both the trains?

A) 650 meters, 190 meters B) 630 meters, 210 meters

C) 630 meters, 310 meters D) 600 meters, 240 meters

4) A train crosses a bridge in 30 seconds and crosses a platform in 45 seconds respectively. If the sum of the length of train and platform is 600 meters, then find the length of the platform and length of the train?

A) 200 meter, 400 meter B) 300 meter, 300 meter

C) 180 meter, 420 meter D) 250 meter, 350 meter

5) Two trains A and B starts their journey from Goa and Shimla respectively towards each other. The speed of train A is 60 km/hr and speed of train B is 50 km/hr. After crossing each other train B takes 16 hours to reach their destination. Find the time taken by train A to reach their destination after crossing the train B?

A) 26/5 hours B) 25/8 hours C) 23/3 hours D) 25/9 hours

6) The total distance between Madurai to Chennai is 960 km. A train starts running with an average speed of 80 km/hr from Madurai to Chennai while another train starts its journey after 2 hour of first train and reaches Chennai one hour before first train. If the first train stops for 6 minutes on each station and second train covers the distance without any stoppage. If the total number of station between Madurai and Chennai are 10. Then find the speed of second train-

A) 80 km/hr B) 85 km/hr C) 96 km/hr D) 90 km/hr

7) The speed of train A is 60% more than the speed of train B. If train B covers 6120 meter in 36 seconds. Then find in how much time train A can cover 8160 meter distance?

A) 40 seconds B) 35 seconds C) 30 seconds D) 25 seconds

8) The distance between Chenai and Rameshwaram is 1580 km. Ashwin starts from Rameshwaram with a certain speed towards Chennai at and Kartik starts travelling from Chennai towards Rameshwaram with a speed of 60 km/hr, 5 hours later than the Ashwin. If Kartik meets Ashwin in 3 hours after starts the journey. Find the speed of Ashwin and also find the distance travelled by Ashwin in 5 hours.

A) 90 km/hr, 450 km B) 80 km/hr, 500 km

C) 75 km/hr, 450 km D) 100 km/hr, 550 km

9) A train passes a man standing on the station with a speed of 90 km/hr in y time and an another train passes the station. The length of the station is 120 meter. The time taken by second train in passing the station is 4 times the time taken by first train in passing the man. The speed of the second train is 126 km/hr. If the length of second train is 3 times the length of the first train. Find the sum of the length of the both trains. (upto two point of for decimal).

A) 188.88 meter B) 190 meter C) 184.61 meter D) 175.61 meter

10) Two trains starts from two different cities. The speed of the first train is 45 km/hr and the speed of the second train is 60 km/hr. And both the train are running in the same direction. First train crosses the second train in 120 seconds. The ratio between the length of the first to the length of the second train is 3:2. Then find the length of the first train.

A) 300 meter B) 200 meter C) 150 meter D) 250 meter

11) Three cars leave A for B in equal time intervals. They reach B simultaneously and then leave for Point C which is 240 km away from B. The first car arrives at C an hour after the second car. The third car, having reached C, immediately turns back and heads towards B. The first and the third car meet a point that is 80 km away from C. What is the difference between the speed of the first and the third car?

A) 60 kmph B) 20 kmph C) 40 kmph D) 80 kmph

12) Mr. X decides to travel from Delhi to Gurgaon at a uniform speed and decides to reach Gurgaon after T hr. After 30 km, there is some engine malfunction and the speed of the car becomes (4/5)th of the original speed. So, he travels the rest of the distance at a constant speed (4/5)th of the original speed and reaches Gurgaon 45 minutes late. Had the same thing happened after he travelled 48 km, he would have reached only 36 minutes late. What is the distance between Delhi and Gurgaon?

A) 90 km B) 120 km C) 20 km D) 40 km

13) Two friends A and B leave City P and City Q simultaneously and travel towards Q and P at constant speeds. They meet at a point in between the two cities and then proceed to their respective destinations in 54 minutes and 24 minutes respectively. How long did B take to cover the entire journey between City Q and City P?

A) 60 B) 36 C) 24 D) 48

14) Car A trails car B by 50 meters. Car B travels at 45km/hr. Car C travels from the opposite direction at 54km/hr. Car C is at a distance of 220 meters from Car B. If car A decides to overtake Car B before cars B and C cross each other, what is the minimum speed at which car A must travel?

A) 36 km/hr B) 45 km/hr C) 67.5 km/hr D) 18 km/hr

15) Train A travelling at 63 kmph takes 27 to sec to cross Train B when travelling in opposite direction whereas it takes 162 seconds to overtake it when travelling in the same direction. If the length of train B is 500 meters, find the length of Train A.

A) 400 m B) 810 m C) 500 m D) 310 m

16) Tom, Jerry and Bill start from point A at the same time in their cars to go to B. Tom reaches point B first and turns back and meets Jerry at a distance of 9 miles from B. When Jerry reaches B, he too turns back and meets Bill at a distance of 7 miles from B. If 3 times the speed with which Tom drives his car is equal to 5 times Bill's speed, what could be the distance between the points A and B?

A) 40 miles B) 24 miles C) 31 miles D) 63 miles

17) Distance between the office and the home of Alok is 100 Km. One day, he was late by an hour than the normal time to leave for the office, so he increased his speed by 5 Km/hr and reached office at the normal time. What is the changed speed of Alok?

A) 25 Km/hr B) 20 Km/hr C) 16 Km/hr D) 50 Km/hr

18) Raj was travelling to his hometown from Mumbai. He met with a small accident 80 Km away from Mumbai and continued the remaining journey at 4/5 of his original speed and reached his hometown 1 hour and 24 minutes late. If he had met with the accident 40 Km further, he would have been an hour late. What is Raj's normal speed?

A) 20 Km/hr B) 15 Km/hr C) 30 Km/hr D) 25 Km/hr

19) Raj was travelling to his hometown from Mumbai. He met with a small accident 80 Km away from Mumbai and continued the remaining journey at 4/5 of his original speed and reached his hometown 1 hour and 24 minutes late. If he had met with the accident 40 Km further, he would have been an hour late. What is the distance between Mumbai and Raj's hometown?

A) 140 Km B) 200 Km C) 220 Km D) 250 Km

20) Two persons A and B start moving at each other from point P and Q respectively which are 1400 Km apart. Speed of A is 50 Km/hr and that of B is 20 Km/hr. How far is A from Q when he meets B for the 22nd time?

A) 1000 km B) 400 km C) 800 km D) 1400 km

Answer Key

Class Assignment

1. A	2. B	3. B	4. C	5. AB	6. C
7. A	8. B	9. A	10. B	11. C	12. A
13. C	14. B	15. A	16. B	17. A	18. C
19. B	20. B	21. A	22. D	23. D	24. B
25. B	26. A	27. D	28. A	29. A	30. B
31. C	32. D	33. C	34. D	35. A	

Home Assignment

1. C	2. A	3. C	4. D	5. A	6. B
7. B	8. B	9. B	10. A	11. B	12. A
13. A	14. A	15. A	16. B	17. B	18. D
19. D	20. B	21. C	22. D	23. D	24. A
25. B	26. C	27. B	28. D	29. C	30. C
31. B	32. D	33. D	34. A	35. B	

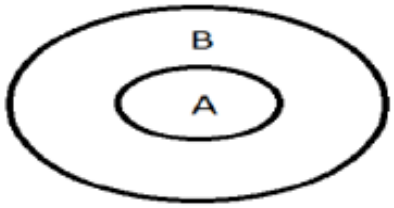
Competitive Level

1. C	2. A	3. B	4. A	5. D
6. C	7. C	8. A	9. C	10. A
11. A	12. B	13. A	14. C	15. D
16. D	17. A	18. D	19. C	20. C

Syllogism

The term syllogism means inference or conclusion drawn from the statements In syllogism, a statement of certain relation between two or more terms is analogous to a sentence is grammar. The proposition consists of three parts, namely subject, predicate and copula. 1. Subject: The subject is about which something is said. 2. Predicate: The predicate is the part of the proposition denoting which is affirmed or denied about the subject. 3. Copula: The copula is that part of the proposition which denotes the relation between the subject and the predicate. 4. Example: Consider the proposition 'Man is intelligent'. Here the information is given about the man. So 'Man' is the subject. 'Intelligent' is the quality affirmed for this subject. So it is the predicate. 'Is' denotes the relation between the subject and the predicate. So, it is the copula.

CONCEPT 1 – All A is B

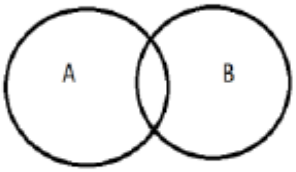


The Possible conclusions are:

1) All A is B.
2) Some A is B.
3) Some B is A.

CONCEPT 2 - Some A is B.

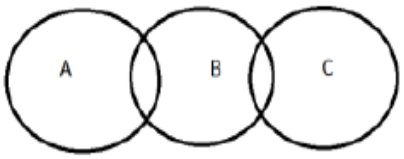
The Diagram for Some A is B is



The possible conclusions are:

1) Some A is B
2) Some B is A

CONCEPT 3 – Some A is B and Some B is C



Now the Possible Conclusions are:

Between A and B	Between B and C
Some A is B	Some B is C
Some B is A	Some C is B

There is no DIRECT CONNECTION between A and C.

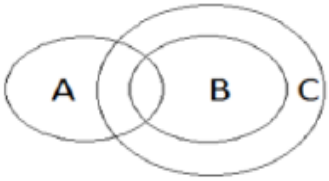
So it is not possible to derive any conclusion between

CONCEPT 4 – All A is B and All B is C

The Conclusions are:

Between A & B	Between B & C	Between A & C
All A is B.	All B is C.	All A is C.
Some A is B.	Some B is C.	Some A is C.
Some B is A.	Some C is B.	Some C is A.

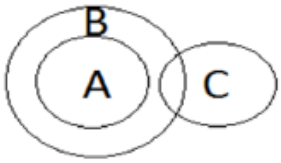
Concept 5 – Some A is B, All B is C.



The possible conclusions are:

Between A&B	Between B&C	Between A&C
Some A is B	All B is C	Some A is C
Some B is A	Some B is C	Some C is A
	Some C is B	

Concept 6 – All A is B and Some B is C

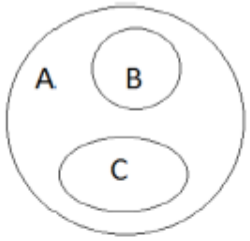


The possible conclusions are:

Between A and B	Between B and C
All A is B	Some B is C
Some A is B	Some C is B
Some B is A	

There is no DIRECT CONNECTION between A and C. So it is not possible to derive any conclusion between A and C.

Concept 7 – All B is A and All C is A



The Possible Conclusions are:

Between A and B	Between A and C
All B is A	All C is A
Some B is A	Some C is A
Some A is B	Some A is C

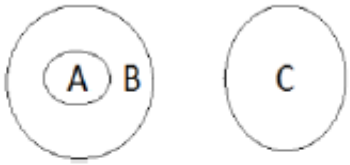
There is no DIRECT CONNECTION between B and C. So it is not possible to derive any conclusion between B and C.

Concept 8 – No A is B

The Possible Conclusions are:

- No A is B
- No B is A
- Some A is not B
- Some B is not A

Concept 9 – All A is B and No B is C



The Possible Conclusions are:

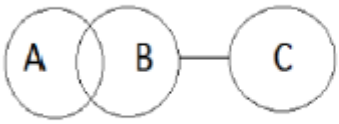
Between A & B	Between B & C	Between A & C
All A is B	No B is C	No A is C
Some A is B	No C is B	Some A is Not C
Some B is A	Some B is not C	

Concept 10 – All A is B and No A is C

The Possible Conclusions are:

Between A&B	Between A & C	Between B & C
All A is B	No A is C	Some B is not C
Some A is B	No C is A	
Some B is A	Some A is not C	

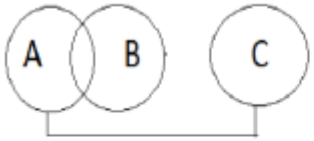
Concept 11 – Some A is B; No B is C



The Possible Conclusions are:

Between A & B	Between B & C	Between A & C
Some A is B	No B is C	Some A is not C
Some B is A	No C is B	
	Some B is not C	
	Some C is not B	

Concept 12 – Some A is B; No A is C



The Possible Conclusions are:

Between A & B	Between A & C	Between B & C
Some A is B	No A is C	Some B is not C
Some B is A	No C is A	
	Some A is not C	
	Some C is not A	

Class Assignment

Directions for Q1 to Q8: In each question below are two statements followed by conclusions numbered 1 and 2. Read all the conclusions and then decide which of the given conclusions logically follows from the statements**.**

Give answer: A. if only (A) conclusion follows

B. if only (B) conclusion follows

C. if either (A) or (B) follows

D. if neither (A) nor (B) follows

E. if both (A) and (B) follow.

Q1. Statements: All apples are oranges. All oranges are mangoes.

Conclusions: A. All apples are mangoes. B. All mangoes are apple

Q2. Statements: All pens are pencils. Some pencils are papers.

Conclusions: A. Some papers are pens. B. Some pens are not papers.

Q3. Statements: Some dogs are cats. Some cats are sparrows.

Conclusions: A. Some cats are not dogs. B. Some dogs are sparrows.

Q4. Statements: Some shops are markets. Some markets are huts.

Conclusions: A. Some shops are huts. B. All markets are huts

Q5. Statements: All students are nerds. All teachers are nerds.

Conclusions: A. Some teachers are not students B. No students are teachers

Q6. Statements: Some cows are crows. Some crows are elephants.

Conclusions: A. Some cows are elephants. B. All crows are elephants.

Q7. Statements: Some spades are diamonds. All clubs are diamonds.

Conclusions: A. Some clubs are spades. B. Some diamonds are spades

Q8. Statements: Some messages are WhatsApp. All Hikes are WhatsApp. All WhatsApp are Facebook.

Conclusion:

I. Some Facebook are messages II. All hikes are Facebook

III. Some messages are hikes IV. Some messages are Facebook

1. All follow 2. Only I, II and III follow

3. Only I, II and IV follow 4. Only III and IV follow

Q9. Statements: No watch is cycle. No cycle is Motorbike. Some auto are motorbike

Conclusion:

I. No Motorbike is watch II. No motor bike is cycle

III. Some cycles are watches IV. All Motorbikes are watches

1. None follows 2. Only I follows

3. Only I and III follow 4. None of these

Q10. Statements: Some Cats are Rats. All bats are tables. All Rats are Bats.

Conclusion:

I. Some Cats are bats II. All bats are rats

III. All tables are cats IV. All bats are cats

1. Only I & II follow 2. Only II follows

3. Only I & IV follow 4. None of these

Q11. Statements: Some ants are parrots. All the parrots are apples.

Conclusions: (1) All the apples are parrots. (2) Some ants are apples.

A. Only (1) conclusion follows B. Only (2) conclusion follows
C. Either (1) or (2) follows D. Neither (1) nor (2) follows
E. Both (1) and (2) follow

Q12. Statements: Some papers are pens. All the pencils are pens.

Conclusions: (1) Some pens are pencils. **(2)** Some pens are papers.

A. Only (1) conclusion follows
B. Only (2) conclusion follows
C. Either (1) or (2) follows
D. Neither (1) nor (2) follows
E. Both (1) and (2) follow

Q13. Statements: 1. All nibs are tips 2. Many nibs are ribs

Conclusions: I. Some nibs are tips II. Some tips are nibs

III. All nibs are ribs IV. Some nibs are not ribs

A. Only I follow B. Only II follows C. Either II or IV follows

D. I and II follows E .I and II and either III or IV follow

Q14. Statements: 1. All hunters are punters 2. Some punters are tigers

Conclusions: I. Some hunters are tigers II. All tigers are punters

III. Some punters are hunters IV. No punters are hunters

A. I and II follow B. II and III follow C. I and III follow

D. II and IV follow (E) None of these

Q15. Statements: 1. Some boxes are dogs 2. All dogs are pens

Conclusions: I. Some boxes are pens II. Some pens are boxes

III. Some pens are dogs IV. All pens are dogs

A. I, II and III follow B. II, III and IV follows C. I, III and IV follow
D. I, II and IV follow (E) All follow

Q16. Statements: 1. Some gardens are wardens 2. All gardens are locks

Conclusions: I. Some locks are not wardens II. Some locks are wardens

III. No lock is a warden IV. Some locks are gardens

A. Only I follow B. Only II and IV follow C. Either I or II follows

D. Either I or II and IV follow E. Either I or II and III follow

Directions for Q17 and Q18: A question consists of 6 statements followed by options consisting of 3 statements in a specific order. Choose the option, where the 3rd statement is the conclusion drawn from preceding 2 statements.

Q17. A. Some pots are not vases.

B. Some table is pots.

C. No table is a vase

D. All vases are tables.

E. Some vases are pots

F. No cup is a jug.

A.ACE B. ACF C. DEB D. FDA

Q18. A. No window is a door.

B. All poles are doors.

C. No pole is a window.

D. Some poles are not windows.

E. Some windows are poles

F. some doors are not windows.

A.ACB B. BDA C. DFA D. ABC

Q19. Statements: All the harmoniums are instruments. All the instruments are flutes.

Conclusions: (1) All the flutes are instruments. **(2)** All the harmoniums are flutes.

A. Only (1) conclusion follows
B. Only (2) conclusion follows
C. Either (1) or (2) follows

D. Neither (1) nor (2) follows
E. Both (1) and (2) follow

Q20. Statements: All teachers are students. Some students are girls.

Conclusions: I. All teachers are girls. II. Some girls are teachers.

III. Some girls are students. IV. All students are teachers.

A. Only I follow

B. Only I, II and III follow

C. Only III follows

D. Only II and III follow

Home Assignment

Q21. Statements: Some bags are pockets. No pocket is a pouch.

Conclusions: I. No bag is a pouch. II. Some bags are not pouches

III. Some pockets are bags. IV. No pocket is a bag.

A. Only either I or IV follows

B. Only II and III follow

C. Only I and III follow

D. All follow

Q22. Statements: Some thorns are jackets. Some jackets are boat.

Conclusions: I. No thorns are boats. II. All jackets are boats.

III. Some boats are thorns. IV. No jackets are thorns.

A. Either conclusions I or IV follow

B. Either conclusions I or II follow

C. Either conclusions I or III follow

D. No conclusion is correct.

Q23. Statements: No fruit is tree. All trees are stones.

Conclusions: I. No stone is fruit. II. No tree is fruit.

III. Some stones are trees. IV. Some stones are fruits.

A. Only II and III follow

B. Only either I or IV and II and III follows

C. Only either I or III follow

D. Only I or III follows

Q24. Statements: Some shirts are tables. No table is chair.

Conclusions: I. No shirt is chair. II. Some tables are shirts.

III. No chair is shirt. IV. Some chairs are shirts.

A. All follow

B. Only II follow

C. Only II and IV follow

D. Only III follow

Q25. Statements: All cows are hens. All cats are hens.

Conclusions: I. All hens are cows. II. All hens are cats.

III. Some hens are cows. IV. Some hens are cats.

A. Only I and II follow

B. Only III follow

C. Only IV follows

D. Only III and IV follow

Q26. Statements: All arrows are bows. All bows are swords.

Some swords are daggers. All daggers are knives.

Conclusions: I. All knives are bows. II. Some swords are knives

III. All bows are arrows. IV. All arrows are swords.

A. Only II follows

B. Only II and IV follow

C. Only III and IV follow

D. Only I and III follow

Q27. Statements: Some airplane is helicopters. All helicopters are gliders.

All gliders are kites. All kites are balloons.

Conclusions: I. Some helicopters are balloons. II. All kites are airplanes

III. All balloons are gliders. IV. All helicopters are kites.

A. Only IV follows

B. Only either II or III follow

C. Only III follows

D. Only I and IV follows

Q28. Statements: All kings are warriors. All soldiers are warriors.

All sentries are warriors. Some sentries are soldiers.

Conclusions: I. some sentries are kings. II. All warriors are soldiers.

III. Some warriors are sentries. IV. Some soldiers are kings.

A. Only I follows

B. Only II follows

C. Only II and III follow

D. None of these

Q29. Statements : All clouds are storms. Some storms are cyclones.

All cyclones are thunders. Some thunders are lightening.

Conclusions: I. Some lightening are cyclones. II. No lightening is cyclone.

III. Some cyclones are clouds.

A. Only I follows

B. Only II follows

C. Only III follows

D. Only either I or II follows

Q30. Statements : Some pins are needles. Some needles are handles.

Some handles are locks. Some locks are keys.

Conclusions: I. Some keys are handles. II. Some handles are pins. III. Some pins are keys.

A. None follows

B. Only I and II follows

C. Only II and III follow

D. Only I and II follow

Q31. Statements: All hills are mountains. All mountains are dams.

Some dams are rivers. All rivers are lakes.

Conclusions: I. Some hills are lakes. II. Some dams are lakes. III. Some dams are hills.

A. Only I and II follow

B. Only II and III follow

C. Only I and III follow

D. All follow

Q32. Statements: Some receipts are challans. Some challans are papers.

Some papers are books. All books are files.

Conclusions: I. some papers are files. II. Some books are receipts. III. No book is receipt.

A. Only I follow

B. Only I and II follow

C. Only I & either II or III follow

D. Only I and III follow

Q33. **Statements:** All bottles are jars. All jars are containers.

All containers are lids. All lids are caps.

Conclusions: I. All bottles are lids. II. All containers are jars. III. Some lids are jars.

A. Only I and II follow

B. Only II and III follow

C. Only I and III follow

D. None follow

Q34. Statements: Some ships are boats. All boats are submarines. Some submarines are yachts.

Conclusion:

I. Some yachts are boats. II. Some submarines are boats.

III. Some submarines are ships. IV. Some yachts are ships

A. All follow B. Only II and III follow

C. Only III follows D. Only IV follows

Q35. Statements: All Carrots are birds. Some telephones are Carrots. All bedsheets are telephone.

Conclusion:

I. All bedsheet are birds. II. Some bedsheets are birds

III. Some birds are telephone IV. All telephone are birds

A. Only I follows B. Only II follows

C. Only I and III follow D. Only III follows

Q36. Statements: Most CPUs are keyboards. No keyboard is a Mouse. All Mouses are CPU.

Conclusion:

I. Some keyboards are CPU II. All CPU's are Mouse

III. No Mouse is a keyboard IV. Some Mouse are keyboard

A. Only I follows B. Only II and III follow

C. Only I and III follow D. Only II follows

Q37. Statements: Samosas are Jalebi. All Jalebis are Tikki. All Tikkis are Barfi

Conclusion:

I. All Jalebis are Barfi II. All Tikkis are Samosas

III. All Samosas are Barfi IV. All Barfi are Jalebi

A. Only I and II follow B. Only I and III follow

C. Only II and III follow D. All follow

Q38. Statements: Some eyes are ears. Some ears are lungs. All lungs are hands

Conclusion:

I. Some hands are eyes. II. Some hands are ears

III. Some lungs are eyes IV. No hand is eye

A. None follow B. Only IV follows

C. Only II follows D. Only III follows

Q39. Statements: All liquids are solids. Some solids are gases. All gases are clouds

Conclusion:

I. Some clouds are solids

II. Some clouds are liquids

III. Some gases are liquids

IV. Some solids are clouds

A. None follows

B. Only I and II follow

C. Only III and IV follow

D. Only I and IV follow

Q40. Statements: All Gold are Platinum. No Platinum is silver. Some Diamonds are silver.

Conclusion:

I. Some Diamonds are Gold

II. Some Diamonds are Platinum

III. Some Gold are Silver

IV. No Silver is Gold

A. Only I follows

B. Only III follows

C. Only IV follows

D. Only II and IV follow

Answer-Key

1. A	2. D	3. D	4. D	5. D	6. D	7. B	8. C
9. D	10. D	11. B	12. E	13. D	14. E	15. A	16.B
17. C	18. D	19. B	20. C	21. B	22. D	23. A	24. B
25. D	26. B	27. D	28. D	29. D	30. A	31. B	32. A
33. C	34. B	35. D	36. C	37. B	38.C	39. D	40. C

Number Ranking Test

Q1. In a row of trees, one tree is fifth from either end of the row. How many trees are there in the row?
A. 8 **B.** 9 **C.** 10 **D.** 11

Q2. In a queue Amrita is 10th from the front while Mukul is 25th from behind and Mamta is just in the middle of the two If there be 50 persons in queue. What position does Mamta occupy from the front?
A. 20th **B.** 19th **C.** 18th **D.** 17^{th}

Q3.Raman ranks sixteenth from the top and forty ninth from the bottom in a class. How many students are there in the class?
A. 64 **B.** 65 **C.** 66 **D.** Can't be determined **E.** None of these

Q4. Sanjeev ranks seventh from the top and twenty eight from the bottom in a class. How many students are there in the class ?
A. 37 **B. 36** **C. 35** **D. 34**

Q5. If Atul finds that he is twelfth from the right in a line of boys and fourth from the left, how many boys should be added to the line such that there are 28 boys in the line ?
A. 12 **B.** 13 **C.** 14 **D.** 20 **E.** None of these

Q6. Aruna ranks twelfth in a class of forty-six. What will be her rank from the last?
A. 33 **B.** 34 **C.** 35 **D.** 37 **E.** None of these

Q7. Ravi is 7 ranks ahead of Sumit in a class of 39. If Sumit`s rank is seventeenth from the last, what is Ravi`s rank from the start ?
A. 14th **B.** 15th **C.** 16th **D.** 17^{th}

Q8. Kailash remembers that his brother Deepak`s birthday falls after 20th May but before 28th May, while Geeta remembers that Deepak`s birthday falls before 22nd May but after 12th May. On what date Deepak`s birthday falls?
A. 20th May **B.** 21st May **C.** 22nd May **D.** Cannot be determined **E.** None of these

Q9. Standing on a platform, Amit told Sunita that Aligarh was more than ten kilometers but less than fifteen kilometers from there. Sunita knew that it was more than twelve but less then fourteen kilometers from there. If both of them were correct, which of the following could be the distance of Aligarh from the platform?
A. 11 km **B.** 12 km **C.** 13 km **D.** 14 km **E.** 15km

Q10. Ashish leaves his house at 20 minutes to seven in the morning, reaches Kunal`s house in 25 minutes, if finish their breakfast in another 15 minute and leave for their office which takes another 35 minutes, At what time do they leave Kunal house to reach their office ?
A. 7.40 a.m. **B.** 7.20 a.m. **C.** 7.45 a.m. **D.** 8.15 a.m. **E.** 7.55 a.m.

Q11. Reaching the place of meeting on Tuesday 15 minutes before 08.30 hours, Anuj found himself half an hour earlier than the man who was 40 minutes late. What was the scheduled time of the meeting ?
A. 8.00 hrs B. 8.05 hrs C. 8.15 hrs D. 8.45 hrs

Q12. The priest told the devotee, "The temple bell is rung at regular intervals of 45 minutes. The last bell was rung five minutes ago. The next bell is due to be rung at 7.45 a.m." At what time did the priest give this information to the devotee ?
A. 7.40 a.m. B. 7.05 a.m. C. 7.00 a.m. D. 6.55 a.m. E. None of these

Q13. Which is the third number to left of the number which is exactly in the middle of the following sequence of numbers?
1 2 3 4 5 6 7 8 9 2 4 6 8 9 7 5 3 1 9 8 7 6 5 4 3 2 1
A. 3 B. 4 C. 5 D. 6 E. 7

Q14. How many 3's are there in the following sequence which are neither preceded by 6 nor immediately followed by 9? 9 3 6 6 3 9 5 9 3 7 8 9 1 6 3 9 6 3 9

A. One B. Two C. Three D. Four E. None of these

Q15. Count each 7 which is not immediately preceded by 5 but is immediately followed by either 2 or 3. How many such 7's are there?
5 7 2 6 5 7 3 8 3 7 3 2 5 7 2 7 3 4 8 2 6 7 8
A. 2 B. 3 C. 4 D. 5

Q16. In the following list of numerals, how many 2's are followed by 1's but not proceeded by 4? 4 2 1 2 1 4 2 1 1 2 4 4 4 1 2 2 1 2 1 4 4 2 1 4 2 1 2 1 2 4 1 4 2 1 2 4 1 4 6
A. Two B. Three C. Four D. Five

Q17. Series : 5 1 4 7 3 9 8 5 7 2 6 3 1 5 8 6 3 8 5 2 2 4 3 4 9 6 How many odd numbers are there in the sequence which are immediately followed by an odd number ?
A. 1 B. 2 C. 3 D. 4 E. More than 4

Q18. In the following series, how many such odd numbers are there which are divisible by 3 or 5, then followed by odd numbers and then also followed by even numbers? 12, 19, 21, 3, 25, 18, 35, 20, 22, 21, 45, 46, 47, 48, 9, 50, 52, 54, 55, 56
A. Nil B. One C. Two D. Three E. None of these

Q19. Nitin was counting down from 32. Sumit was counting upwards the numbers starting from 1 and he was calling out only the odd numbers. What common number will they call out at the same time if they were calling out at the same speed?
A. 19 **B.** 21 **C.** 22 **D.** They will not call out the same number **E.** None of these

Q20. If the position of the first and the sixth digits of the sequence of numbers 8 9 0 3 2 1 4 6 7 5 are interchanged, the second and the seventh and so on. Which number would be seventh from the right end ?
A. 2 **B.** 6 **C.** 7 **D.** 8 **E.** 9

Q21.How many numbers from 1 to 100 are there each of which is not exactly divisible by 4 but also has 4 as a digit ?
A. 7 **B.** 10 **C.** 20 **D.** 21 **E.** More than 21

Q22. Three persons A, B and C are standing in queue. There are five persons between A and B and eight persons between B and C. If there ne three persons ahead of C and 21 persons behind A, what could be the minimum number of persons in the queue?
A. 41 B. 40 C. 28 D. 27

Q23. Mohini went to the movies nine day ago, She goes to the movies only on Thursday. What day of the week is today ?
A. Thursday **B.** Saturday **C.** Sunday **D.** Tuesday

Answer Key

Q.No	Ans	Q.No	Ans	Q.No	Ans	Q.No	Ans	Q.No	Ans
1	**b**	**2**	**c**	**3**	**a**	**4**	**d**	**5**	**b**
6	**c**	**7**	**c**	**8**	**b**	**9**	**c**	**10**	**b**
11	**b**	**12**	**b**	**13**	**b**	**14**	**b**	**15**	**a**
16	**c**	**17**	**e**	**18**	**c**	**19**	**d**	**20**	**c**
21	**a**	**22**	**c**	**23**	**b**				

Logarithms

Q.1 Express $7^3 = 343$ in logarithm form.

A) $Log_7 343 = 3$ B) $Log_3 343 = 7$ C) $Log_{343} 7 = 3$ D) None of these

Q.2 Find the log of 64 to the base 8.

A) 2 B) 4 C) 64 D) 8

Q.3 Find x if $\log_7(x-11)=1$.

A) 18 B) 7 C) 121 D) 4

Q.4 If $\log_y a=b$, express y^{b-1} in terms of y and a.

A) a/y B) y/b C) y*a D) y+a

Q.5 Find the value of x, if $\log(x+7)+\log(x-7)=4\log 2+2\log 3$

A) $191^{1/2}$ B)96 C) 14 D) None of these

Q.6 Solve for x, if (log 900/log30) = log x

A) 100 B)30 C) 900 D) None of these

Q.7 Which of the following statements is not correct?
A) log (2 + 3) = log (2 x 3) B) $\log_{30} 1 = 0$ C) log (1 + 2 + 3) = log 1 + log 2 + log 3 D) None of these

Q.8 If log 2 = 0.3010 and log 3 = 0.4771, the value of $\log_5 512$ is:

A) 3.876 B)2.874 C) 3.954 D) None of these

Q.9

$$\frac{\log \text{root}9}{\log 9}$$ is equal to:

A) 1/2 B)1 C) 2 D) None of these

Q.10 If log 81 = 1.730, then the value of log 9 is:

A) 0.865 B)3.460 C) 1.730 D) None of these

Q.11 If $\log_{10} 5 + \log_{10} (5x + 1) = \log_{10} (x + 5) + 1$, then x is equal to:

A) 3 B)4 C) 5 D) 2

Q.12 the value of$(1/\log_4 40 + 1/\log_2 40 + 1/\log_5 40)$

A) 1 B)40 C) 2 D) 4

Q.13 $m^a = n^b$ in form of log

A) log n/log m =a/b B)log a/log b = m/n C) log m/log n = a/b

D) None of these

Q. 14 If $\log_a b = 100$ and $\log_2 a = 10$, then the value of b is:

A) $\mathbf{2^{1000}}$ B)2^{100} C) 2^{10} D) None of these

Q. 15 the value of $\log_5 625$

A) 4 B)1 C) 5 D) 625

Q. 16 The characteristic of the log 0.002 is

A) -3 B)2 C) -2 D)3

Q.17 $Log_x(ab)$ equals to

A) $\log_x a + \log_x b$ B) $\log_x a - \log_x b$ **C)** $\log_x a * \log_x b$ D)None of these

Q.18 The number whose logarithm is given is called

A) Anti-log B) Geo-log C) Nat-log D) None of these

Q.19 The logarithms of numbers having the same sequence of significant digits have the same

A)Mantissa B) Anti-log C) Nat-log D) None of these

Q.20 $Log_x(a/b)$ equals to

A) $\log_x a - \log_x b$ B) $\log_x a + \log_x b$ **C)** $\log_x a / \log_x b$ D)None of these

Write the following expressions in terms of logs of x, y and z

Q.21 log xyz

A) log x + log y + log z B) xyz C) log x * log y * log z D) None of these

Q.22 $\log x^2y$

A) 2 log x + log y B) 2 log x * log y C) log x + log y *+log z

D) None of these

Solve the following equations.

Q.23 $3^x - 2 = 12$

A) 2.402 B)7 C) 7.402 D) 2

Q.24 $3^{1-x} = 2$

A) 0.369 B)0.654 C) 0.354 D) 0.125

Q.25 find the value of x ln x = −3

A) e^{-3} B)e^3 C) 1000D) 27

Q.26 If log M = log N what is relation between M and N

A) M = N B)10^{MN} C) M>N D) None of these

Q.27 find the value of x log (12x + 4) = log (7x + 9).

A) 1 B)12 C) 4 D) 81

Q.28 Find the value of x $\log_3(7x + 9) = 3$

A)18/7 B)18 C) 7 D) 3/7

Q.29 Solve $\log_4 x + \log_4 (x - 12) = 3$

A)16 B)18 C) 12 D) 3

Q.30 Solve log (2x +1) = log (x + 2) - log 3

A)-1/5 B)1/5 C) 2 D) 3

Answer Key

1. A	2. A	3. A	4. A	5. A	6. A	7. A	8. A
9. A	10. A	11. A	12. A	13. A	14. A	15. A	16. A
17. A	18. A	19. A	20. A	21. A	22. A	23. A	24. A
25. A	26. A	27. A	28. A	29. A	30. A		

Mensuration

Mensuration is defined as the study of the measurement of various 2D and 3D geometric shapes involving their surface areas, volumes, etc.

Difference between mensuration and geometry

Mensuration refers to the calculation of various parameters of shapes like the perimeter, area, volume, etc. whereas; geometry deals with the study of properties and relations of points and lines of various shapes.

2D mensuration deals with the calculation of various parameters like the area and perimeter of 2-dimensional shapes like squares, rectangles, circles, triangles, etc.

3D mensuration is concerned with the study and calculation of surface area, lateral surface area, and volume of 3-dimensional figures like a cube, sphere, cuboid, cone, cylinder, etc.

Important Formulas

Formula for 2D Mensuration

1) Rectangle

Perimeter of a Rectangle = 2(Length + Breadth)

Area of a Rectangle = Length × Breadth

2) Square

Area of a Square= $Side^2$

Perimeter of a Square= 4(Side)

3) Circle

Diameter of a Circle = 2 × Radius

Circumference of a Circle = $\pi \times$ Diameter or $2 \times \pi \times$ Radius

Area of a Circle = $\pi \times Radius^2$

4) Triangle

Area of a Triangle = $\frac{1}{2} \times b \times h$

5) Parallelogram

Perimeter of a Parallelogram = 2 (a+b)

Area of a Parallelogram = $b \times h$

Formula for 3D Mensuration

1) Cube

Volume of a Cube = $Side^3$ cubic units.

Lateral Surface Area of a Cube= $4 \times side^2$ sq.units.

Total Surface Area of a Cube= $6\times side^2$ sq. units.

2) Cuboid

Volume of a Cuboid = (length * width * height) cubic units.

Lateral Surface Area of a Cuboid = 2×height (length + width) sq. units.

Total Surface Area of a Cuboid = 2(length × width + length × height + height × width) sq. Units.

Diagonal length of a Cuboid = Square root ($length^2 + breadth^2 + height^2$) units.

3) Cone

Volume of a Cone = $1/3 \times \pi \times radius^2 \times height$ cubic units.

Total Surface Area of the Cone = πr (slant height + radius)

4) Sphere

Volume of a Sphere = $4/3 \times \pi \times radius^3$ cubic units.

Surface Area of a Sphere = $4 \times \pi \times radius^2$ sq. units.

4) Hemi-Sphere

Volume of a Hemi-Sphere = $2/3 \times \pi \times radius^3$ cubic units.

Surface Area of a Hemi-Sphere = $3 \times \pi \times radius^2$ sq. units.

Height And Distance

To calculate the angle of elevation or depression we can use the following formula:

$\sin\theta$=Perpendicular/Hypotenuse.

$\cos\theta$=Base/Hypotenuse

$\tan\theta$=Perpendicular/Base

Here, θ is either the angle of elevation or depression.

Terms Related to Height and Distance

1) Line of Sight: It is the straight line that is drawn from the eye of an observer to the point of an object which is to be viewed.

2) Horizontal Level: It is the horizontal line drawn from the eye of the viewer.

3) The angle of elevation: It is the angle formed between the line of sight and horizontal level if the object is above the horizontal level.

4) The Angle of Depression: It is the angle formed between the line of sight and the horizontal level if the object is below the horizontal level.

5) Pythagorean Theorem

Since height and distance involve a right-angled triangle so Pythagoras theorem can be used to find the length of the sides. Pythagoras theorem states that the square of the hypotenuse of a right-angled triangle is equal to the sum of the square of its base and height.

$(Hypotenuse)^2=(Base)^2 + (Perpendicular)^2$

If the length of the base, perpendicular and hypotenuse of a right-angle triangle is a, b and c respectively.

Then, $a^2+ b^2= c^2$.

Thus, if the length of any two sides is known then the length of the third side can be found by using the Pythagoras theorem which is also called the Pythagorean triple.

Class Assignment

1) 1) what is the area of the rectangle whose two adjacent side are 12 and 16 cm?

A) 192 cm B) 194 Cm C) 172 Cm D) 174 Cm

2) What is the Perimeter of the circle whose area is equal to the sum of the areas of two circles whose radii are 10 cm and 14 cm?

A) 50pi m B) 28pi m C) 29pi m D) 30pi m

3) A hollow cylindrical tube is made of plastic is 3 cm thick. If the external Radius is 7 cm and length of the tube is 42 cm, then find the volume of the plastic?

A) 1038 cm^3 B) 4356 cm^3 C) 4403 cm^3 D) 4445 cm^3

4) If the length of the diagonal QS of a square PQRS is 8 cm, then the area of the square is:

A) 32 sq.cm B) 42 sq.cm C) 52 sq.cm D) 62 sq.cm.

5) The perimeter of a rectangular table is 68 cm. If the legs of the table are removed and its upper flat surface is cut in to two parts parallel to its breadth such that first part is rectangular in shape with length and breadth ratio as 7:5 and second part is a square in shape. Find the area of rectangular table.

A) 236 cm^2 B) 196 cm^2 C) 180 cm^2 D) 240 cm^2

6) A goldsmith has golden necklaces which contains 70 spherical beads of 12 mm diameter. He melted the necklace and formed N identical cuboid shape biscuits of dimensions 20mm x 6mm x 3mm. Find N.

A) 176 B) 132 C) 147 D) 154

7) A circular pipe of diameter 90 mm is discharging oil at the rate of 20 cm/sec. This oil is filled in cylindrical container of diameter 60 cm. If the container is filled in 160 seconds what is the height of container?

A) 90 cm B) 72 cm C) 77 cm D) 56 cm

8) To manufacture an insulated circular cylindrical shaped bottle 198 cm^3 of material is used. The difference between its outer and inner surface area is 72 cm^2 and height of the bottle is thrice of its outer diameter. Find the sum of inner and outer radius of bottle.

A) 4.5 cm B) 5.5 cm C) 6 cm D) 9 cm

9) Nilimp has spent 5440 Rs in fencing his rhombus shaped cashew garden along its perimeter and 2400 Rs in fencing along its longest diagonal. If the rate of fencing is 80 Rs/meter, then find area of his cashew garden.

A) 240 Sq. meter B) 260 Sq. meter C) 272 Sq. meter D) 320 Sq. meter

10) Arun has ordered a rectangular pizza having length PQ 64 cm, and breadth QR 42 cm having negligible thickness. He cuts two semi-circular pieces taking PS and QR as diameter from the two ends and distributed. The perimeter of leftover pizza has increased by:

A) 12 cm B) 26 cm C) 38 cm D) 48 cm

11) Let r be the area of a square A and s be the area of the square formed on the diagonal of the square B. What is the value of r/s?

A) 1/6 B) 1/4 C) 1/5 D) ½

12) The length and breadth of a room are 16 m and 10 m respectively. If the length of the longest rod that can be placed in the room is 26 m, then what is the height of the room?

A) 17.88 m B) 11.22 m C) 12.54 m D) 13.45 m

13) A hemispherical bowl of internal radius 16 cm contains vanaspati ghee. The vanaspati ghee is filled in small cylindrical vessels of internal radius 4 cm and internal height 8 cm. What is the number of vessels used to empty the bowl?

A) 22 B) 23 C) 34 D) 35

14) A hollow spherical Rod is made of a metal of density 4.8 g/cm^3. If its internal and external radii are 10 cm and 12 cm respectively, then what is the mass of the shell?

A) 1772 g B) 1322 g C) 1464 g D) 1544 g

15) What is the Area of the triangle if its sides are 20cm, 24cm and 28 cm?

A) 169 cm2 B) 196 cm2 C) 145 cm2 D) 142 cm2

16) The ratio of the area of a square to that of the square drawn on its diagonal is:

A) 1 : 1 B) 1 : 2 C) 1 : 3 D) 1 : 4

17) The length of a rectangular garden is 16 meters and its breadth is 9 meters. Find the length of the diagonal of a square garden having the same area as that of the rectangular garden:

A) 16.97 m B) 13.53 m c) 13.54 m D) 12.15 m

18) The perimeter of a rectangular table is 68 cm. If the legs of the table are removed and its upper flat surface is cut in to two parts parallel to its breadth such that the first part is rectangular in shape with length and breadth in the ratio of 7:5 and the second part is a square in shape. Find the difference of area of two parts formed.

A) 36 cm^2 B) 96 cm^2 C) 80 cm^2 D) 40 cm^2

19) A square, whose one side is given 60 cm and a rectangle, whose length is 80 cm have the same perimeter who has the bigger area?

A) Square B) Rectangle C) Both have same area. D) None of these

20) Suraj has a square plot with the side 40m. He wants to construct a house in the middle of the plot whose dimension is 20m x 30m. A garden is developed around the house. Find the total cost of developing a garden around the house at the rate of Rs. 35 per m2.

A) 35,000 Rs B) 35,575 Rs C) 35,875 Rs D) 36,875 Rs

21) What can be the length of the longest Iron Rod that can be kept in a room who has the dimension 11m X 10m X 8m.

A) 16.88 m B) 17.88 m C) 18.88 m D) 19.88 m

22) The area of an equilateral triangle is 16 √3 cm^2. The length of each side of the triangle is:

A) 8 √3 cm B) 2 √3 cm C) 2 √3 cm D) 4 cm

23) What is the area of the triangle whose sides are 8cm, 10cm and 12cm?

A) 15 √7cm^2 B) 20 √7cm^2 C) 30 √7 cm^2 D) 60 √7cm^2

24) A quadrilateral having a diagonal of length 10 cm, which divides the quadrilateral into two triangles and the heights of triangles with diagonals as the base, are 4 cm and 6 cm. Find the area of the quadrilateral.

A) 40 Sq. cm B) 50 Sq.cm C) 22 Sq. cm D) 30 Sq. cm

25) A rhombus having diagonals of length 10 cm and 16 cm, respectively. Find its area?

A) 40 Sq. cm B) 80 Sq.cm C) 22 Sq. cm D) 30 Sq. cm

26) The area of a trapezium shaped field is 480 m2, the distance between two parallel sides is 15 m and one of the parallel sides is 20 m. Find the other parallel side?

A) 44m B) 33m C) 28m D) 34m

27) A rectangular piece of paper 11 cm × 4 cm is folded without overlapping to make a cylinder of height 4 cm. Find the volume of the cylinder?

A) 38.5 cm^3 B) 43. 56 cm^3 C) 44. 03 cm^3 D) 44.45 cm^3

28) The base radius and slant height of a conical vessel is 3 cm and 6 cm respectively. Find the volume of sufficient water in the vessel such that when a sphere of radius 1 cm is placed into it, water just immersed it

A) 5/4 pie B) 7/3 pie C) 5/3 pie D) 3/2 pie

29) Initially the diameter of a balloon is 28cm. it can explode when the diameter becomes 5/2 times of the initially diameter Air is blown at 156cc/sec. is known that shape of a balloon remains spherical. In how many seconds the balloon will explode

A) 1078 s B) 1368 s C)1087 s D) none of these

30) Anil grows tomatoes in his backyard which is in the shape of a square. Each tomato takes 1 cm2 in his backyard. This year, he has been able to grow 131 more tomatoes than last year. The shape of the backyard remained a square. How many tomatoes did Anil produce this year?

A) 4225 B) 4096 C)4356 D)Insufficient Data

Height & Distance

31) An observer 1.5m tall is 28.5 m away from a chimney. The angle of elevation of the top of the chimney from her eyes is 45 degrees. What is the height of the chimney?

A) 40m B) 30m C) 28m D) 34m

32) From a point P on the ground, the angle of elevation of the top of a 10m tall building is 30degree. A flag is hoisted at the top of the building and the angle of elevation of the top of flagstaff from P is 45 degrees. Find the length of the flagstaff and the distance of the building from point P?

A) 8.40m B) 7.32m C) 6.28m D)9.34m

33) On the level ground, the angle of elevation of the top of a tower is 30°.on moving 20 meters nearer, the angle of elevation is 45°.Then the height of the tower is

A) 10 B) $\sqrt{3}$ C) $10\sqrt{3}$ D) $20\sqrt{3}$

34) The angles of elevation of the tops of two vertical towers as seen from the middle point of the lines joining the foot of the towers are 45° & 60°.The ratio of the height of the towers is

A) $\sqrt{3}:2$ B) $\sqrt{3}:1$ C) $2:\sqrt{3}$ D) 2:1

35) The heights of two towers are 90 meters and 45 meters. The line joining their tops make an angle 450 with the horizontal then the distance between the two towers is

A) 22.5 m B) 45 m C) 60 m D) 30 m

36) The Top of a 25 meter high tower makes an angle of elevation of 450 with the bottom of an electric pole and angle of elevation of 30 degree with the top of pole. Find the height of the electric pole.

A) $25\sqrt{3}$ B) $25((\sqrt{3}-1)/\sqrt{3})$ C) $25/\sqrt{3}$ D) $25((1-\sqrt{3})/\sqrt{3})$

37) An observer 1.4 m tall is $10\sqrt{3}$ away from a tower. The angle of elevation from his eye to the top of the tower is 60°. The heights of the tower is

A) 12.4 m B) 6.2 m C) $11.4\sqrt{3}$ m D) 11.4 m

38) A man is watching form the top of the tower a boat speeding away from the tower. The boat makes the angle of depression of 45° with the man's eye when at a distance of 60 meters from the tower. After 5 seconds the angle of depression becomes 30°. What is the approximate speed of the boat, assuming that it is running in still water?

A) 31.62 kmph B) 34 kmph C) 24 kmph D) 19.8 kmph

39) The horizontal distance between two towers is 90 m. The angular depression of the top of the first as seen from the top of the second which is 180 m high is 450.Then the height of the first is

A) $90\sqrt{3}$ m B) 45 m C) 90 m D) 150 m

40) The angle of elevation of a tower at a point 90 m from it is cot-1(4/5). Then the height of the tower is

A) 45 B) 90 C) 112.5 D) 150

41) A man is standing on the deck of a ship, which is 10m above water level. He observes the angle of elevation of the top of a light house as 600 and the angle of depression of the base of lighthouse as 300. Find the height of the light house.

A) 30m B) 40m C) 45m D) 38m

42) A person standing on the bank of a river observes that the angle of elevation of the top of a tree on the opposite bank is 450. When he moves 20m away from the bank, he finds the angle of elevation to be 300. Find the height of the tree.

A) $10(\sqrt{3} + 1)$m B) $15\sqrt{3}$m C) $200(\sqrt{3} + 1)$m D) $10(\sqrt{3} - 1)$m

43) From the top of a building 60m high, the angle of elevation and depression of the top and the foot of another building are α and β respectively. Find the height of the second building.

A) $60(1+ \tan\alpha \tan\beta)$ B) $60(1+ \cot\alpha \tan\beta)$ C) $60(1+ \tan\alpha \cot\beta)$ D) $60(1- \tan\alpha\cot\beta)$

44) From the top of a tower 75m high, the angles of depression of the top and bottom of a pole standing on the same plane as the tower are observed to be 300 and 450 respectively. Find the height of the pole.

A) 30.4m B) 35.9m C) 28.6m D) 31.7m

45) A 10 m long flagstaff is fixed on the top of a tower on the horizontal plane. From a point on the ground, the angles of elevation of the top and bottom of the flagstaff are 600 and 450 respectively. Find the height of the tower.

A) $5(\sqrt{3} + 1)$m B) $5(\sqrt{3} + 3)$m C) $10(\sqrt{3} - 1)$m D) $10(\sqrt{3} + 1)$m

46) The angles of elevation of the top of a tower from two points on the same side of the tower are α and β (α >β). If the distance between the two points is 40m, find the height of the tower.

A) $40\cot\alpha\cot\beta/(\tan\alpha + \tan\beta)$ B) $40\cot\alpha\tan\beta/(\tan\alpha - \tan\beta)$

C) $40\tan\alpha\tan\beta/(\tan\alpha - \tan\beta)$ D) $40\tan\alpha\tan\beta/(\tan\alpha + \tan\beta)$

47) The angle of elevation of the top of a tower from point A on the ground is 300. On moving a distance of 40m towards the foot of the tower, the angle of elevation increases to 450. Find the height of the tower.

A) 48.6m B) 42.84m C) 54.64m D) 58.76m

48) An aeroplane, when 4000m high from the ground, pass vertically above another aeroplane at an instance when the angles of elevation of the two aeroplanes from the same point on the ground are 600 and 300 respectively. Find the vertical distance between the two aero planes.

A) 8000/3m B) 8000/7m C) 6000/7m D) 1200m

49) A car is moving at uniform speed towards a tower. It takes 15 minutes for the angle of depression from the top of tower to the car to change from 300 to 600. What time after this, the car will reach the base of the tower?

A) 6 min B) 6.5 min C) 7 min D) 7.5 min

50) A man is watching from the top of a tower, a boat speeding away from the tower. The angle of depression from the top of the tower to the boat is 600 when the boat is 80m from the tower. After 10 seconds, the angle of depression becomes 300. What is the speed of the boat? (Assume that the boat is running in still water).

A) 20 m/sec B) 10 m/sec C) 16 m/sec D) 18 m/sec

Home Assignment

1) Length of a rectangle is 53 metres, while its breath is 28 metre. Cost of covering it with grass bed is Rs.27 sq meter. Find total expenditure?

A) Rs. 40,068 B) Rs. 41,048 C) Rs. 45,058 D) Rs. 49,088

2) Base of a right-angle triangle is 9 cm and its area is 81 sq cm. Find its height.

A) 36 cm B) 9 cm C) 27 cm D) 18 cm

3) Poles are to be created along the boundary of a rectangular field in such a way that distance between any two adjacent poles is 1.5 metres. The perimeter of the field is 21 metres and length and the breadth are in the ratio of 4:3 respectively. How many poles will be required?

A) 14 B) 16 C) 15 D) 20

4) The ratio of length and breadth of rectangle is 5:2 respectively. The respective ratio of its perimeter and area is 1:3 (irrespective of the unit). What is the length of the rectangle?

A) 27 units B) 32 units C) 21 units D) 37 units

5) The length of a rectangle, which is 25 cm is equal to the length of a square and the area of the rectangle is 125 square cm less than the area of the square. What is the breadth of the rectangle?

A) 15 cm B) 20 cm C) 12 cm D) 14 cm

6) If the length of a rectangle is increased by 20% and the breadth is decreased by 10%. What will be the effect on its area?

A) 8% increase B) 8% decrease C) 2% increase D) 2% decrease

7) The ratio of length and breadth of a rectangular plot is 71:16 respectively. The area of the plot is 17324 sq.metres. What is the perimeter of the plot?

A) 284 metres B) 528 metres C) 264 metres D) 614 metres

8) A cow is tied with a 14 ft. long rope in the centre of a field. If the cow can graze the grass of 100 ft2 area per day. What will be the time taken by the cow in grazing the grass of whole field?

A) 2 Days B) 18 Days C) 24 Days D) 6 Days

9) A rectangular plot has the ratio of 5:3 between length and breath. If the perimeter of the plot is 320 mtr. What's the area of the plot?

A) 6000 sq.mtr. B) 12000 sq.mtr. C) 4500 sq.mtr. D) 18000 sq.mtr.

10) Ratio of length, breath and height of a room is 5:4:2. Area of four wall is 144 square meters. Find diagonal of the floor.

A) $2\sqrt{41}$ mtr B) $3\sqrt{41}$ mtr C) $2\sqrt{42}$ mtr D) $2\sqrt{41}$ mtr

11) Find the number of bricks, each measuring 24 cm×12 cm × 8 cm, required to construct a wall 24 m long, 8m high and 60 cm thick if 10% of the wall is filled with mortar?

A) 450 B) 4500 C) 45000 D) 450000

12) The area of the base of a rectangular tank is 6500 cm^2 and the volume of water contained in it is 2.6 cubic meters. The depth of water in the tank is:

A) 3.5 m B) 4 m C) 5 m D) 6 m

13) Given that one cubic cm of marble weighs 25 gms, the weight of a marble block 28 cm in width and 5 cm thick is 112 kg. The length of the block is:

A) 26.5 cm B) 32 cm C) 36 cm D) 37.5 cm

14) Half cubic meter of the gold sheet is extended by hammering so as to cover an area of one hectare. The thickness of the sheet is:

A) 0.0005 cm B) 0.005 cm C) 0.05 cm D) 0.5 cm

15) Three metal cubes of sides 5 cm, 4 cm and 3 cm are melted and recast into a new cube. The length of the edge of this cube, is?

A) 6 cm B) 8 cm C) 10 cm D) None of these

16) A box is of 10 cm long, 8 cm broad and 5 cm high. What is the longest possible length of a pencil that can be put in ?

A) √150 cm B) √98 cm C) 3√21 cm D) 3√52 cm

17) What is the maximum number of pieces of 5cm x 5cm x 10 cm of cake that can be cut from a big cake of 5 cm x 30 cm x 30 cm size ?

A) 10 B) 15 C) 18 D) 30

18) A cylinder and a cone have the same height and same radius of the base. The ratio between the volumes of the cylinder and the cone is?

A) 1 : 3 B) 3 : 1 C) 1 : 2 D) 2: 1

19) Find the total surface area of a pyramid having a slant height of 8 cm and a base which is a square of side 4 cm (in cm^2) ?

A) 80 B) 64 C) 72 D) 84

20) 2 cm of rain has fallen on a square km of land. Assuming that 50% of the raindrops could have been collected and contained in a pool having a 100 m × 10 m base, by what level would the water level in the pool have increased?

A) 1 km B) 10 m C) 10 cm D) 1 m

21) A square of side 3 cm is cut off from each corner of a rectangular sheet of length 24 cm and breadth 18 cm and the remaining sheet is folded to form an open rectangular box. The surface area of the box is?

A) 468 cm^2 B) 396 cm^2 C) 615 cm^2 D) 423 cm^2

22) A solid metallic cone of height 10 cm, radius of base 20 cm is melted to make spherical balls each of 4 cm diameter. How many such balls can be made?

A) 25 B) 75 C) 50 D) 125

23) The volume of a right circular cylinder is equal to the volume of that right circular cone whose height is 108 cm and diameter of base is 30 cm. If the height of the cylinder is 9 cm, the diameter of its base is?

A) 30 cm B) 60 cm C) 50 cm D) 40 cm

24) The base of a conical tent is 19.2 metres in diameter and the height is 2.8 metres. The area of the canvas required to put up such a tent (in square meters) (taking $\pi=22/7$) is nearly?

A) 3017.1 B) 3170 C) 301.7 D) 30.17

25) A sphere of radius 2 cm is put into water contained in a cylinder of base radius 4 cm. If the sphere is completely immersed in the water, the water level in the cylinder rise by?

A) 1/3 cm B) 1/2 cm C) 2/3 cm D) 2 cm

26) Each of the measure of the radius of base of a cone and that of a sphere is 8 cm. Also, the volume of these two solids is equal. The slant height of the cone is?

A) $8\sqrt{17}$ cm B) $4\sqrt{17}$ cm C) $34\sqrt{2}$ cm D) 34 cm

27) The diameter of the iron ball used for the shot-put game is 14 cm. It is melted and then a solid cylinder of height cm is made. What will be the diameter of the base of the cylinder?

A) 14 cm B) 28 cm C) 14/3 cm D) 28/3 cm

28) A conical cup is filled with ice cream. The forms a hemispherical shape on its open top. The height of the hemispherical part is 7 cm. The radius of the hemispherical part equals to the height of the cone. Then the volume of the ice-cream is [PIE=22/7]?

A) 1078 cubic cm B) 1708 cubic cm C) 7108 cubic cm D) 7180 cubic cm

29) A hemispherical bowl of internal radius 15 cm contains a liquid. The liquid is to be filled into cylindrical shaped bottles of diameter 5 cm and height 6 cm. The number of bottles required to empty the bowl is?

A) 30 B) 40 C) 50 D) 60

30) A right triangle with sides 9 cm, 12 cm and 15 cm is rotated about the side of 9 cm to form a cone. The volume of the cone so formed is?

A) 432 π cm^3 B) 327 π cm^3 C) 334 π cm^3 D) 324 π cm^3

31) At a point on a horizontal line 6. through the base of a monument the angle of elevation of the top of the monument is found to be such that its tangent is $\mathbf{1/5}$. On walking 138 metres towards the monument the secant of the angle of elevation is found to be $\sqrt{\mathbf{193}}/\mathbf{2}$. The height of the monument (in metre) is

(a) 42 (b) 49 (c) 35 (d) 56

32) The angle of elevation of the top of a building from the top and bottom of a tree are x and y respectively. If the height of the tree is h metre, then (in metre) the height of the building is

(a) $h \cot x/\cot x + \cot y$ (b) $h \cot y/\cot x + \cot y$

(c) $h \cot x/\cot x - \cot y$ (d) $h \cot y/\cot x - \cot y$

33) The angle of elevation of the top of a tower from a point A on the ground is 30°. On moving a distance of 20 metres towards the foot of the tower to a point B, the angle of elevation increases to

60°. The height of the tower is

(a) √3 m (b) 5√3 m

(c) 10√3 m (d) 20√3 m

34) Two poles of equal height are standing opposite to each other on either side of a road which is 100m wide. From a point between them on road, angle of elevation of their tops are 30° and 60°. The height of each pole (in meter) is

(a) 25√3 (b) 20√3

(c) 28√3 (d) 30√3

35) A man is observing from the top of a tower a boat speeding away from the tower. The boat makes an angle of depression of 45° with the man's eye when at a distance of 60 m from the tower. After 5 second, the angle of depression becomes 30°, Find the speed of the boat, assuming that it is running in still water.

A) 30 km/hr. B) 31.5 km/hr C) 33 km/hr D) 34 km/hr

36) There are two vertical posts, one on each side of a road, just opposite to each other. One post is 108 metre high. From the top of this post the angle of depression of the top and foot of the other post are 30° and 60° respectively. The height of the other post (in metre) is

(a) 36 (b) 72 (c) 108 (d) 110

37) Two posts are x metres apart and the height of one is double that of the other. If from the midpoint of the line joining their feet an observer finds the angular elevations of their tops to be complementary, then the height (in metres) of the shorter post is

(a) $x/2\sqrt{2}$ (b) $x/4$ (c) $x\sqrt{2}$ (d) $x/2$

38) An aeroplane when flying at a height of 5000m from the ground passes vertically above another aeroplane at an instant, when the angles of elevation of the two aeroplanes from the same point on the ground are 60°and 45° respectively. The vertical distance between the aeroplanes at that instant is

(a) $5000(\sqrt{3} - 1)$ m (b) $5000(3 - \sqrt{3})$ m (c) $5000(1 - 1/\sqrt{3})$ m (d) 4500 m

39) A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30°. The man walks some distance towards the tower and then his angle of elevation of the top of the tower is 60°. If the height of tower is 30m, then the distance he moves is

(a) 22 m (b) 22√3 m (c) 20 m (d) 20√3 m

40) An aeroplane when flying at a height of 3125m from the ground passes vertically below another plane at an instant when the angle of elevation of the two planes from the same point on the ground an 30° and 60° respectively. The distance between the two planes at that instant is

(a) 6520 m (b) 6000 m (c) 5000 m (d) 6250 m

41) The shadow of the tower becomes 60 meters longer when the altitude of the sun changes from 45° to 30°. Then the height of the tower is

(a) $20(\sqrt{3} + 1)$ m (b) $24(\sqrt{3} + 1)$ m (c) $30(\sqrt{3} + 1)$ m (d) $30(\sqrt{3} - 1)$ m

42) A vertical post 15 ft. high is broken at a certain height and its upper part, not completely separated meets the ground at an angle of 30°. Find the height at which the post is broken

(a) 10 ft (b) 5 ft (c) $15\sqrt{3}(2-\sqrt{3})$ ft (d) $5\sqrt{3}$ ft

43) The shadow of a tower is $\sqrt{\mathbf{3}}$ times its height. Then the angle of elevation of the top of the tower is

(a) 45° (b) 30° (c) 60° (d) 90°

44) A man 6ft tall casts a shadow 4ft long. At the same time when a flag pole casts a shadow 50 ft long. The height of the flag pole is

(a) 80 ft (b) 75 ft (c) 60 ft (d) 70 ft

45) There are two temples, one on each bank of a river just opposite to each other. One temple is 50m high. From the top of this temple, the angles of depression of the top and the foot of the other temple are 30° and 60° respectively. The length of the temple is;

(a) 100/3 m (b) 36 m (c) $36\sqrt{3}$ m (d) $18\sqrt{3}$ m

46) The angle of elevation of the top of a tower from the point P and Q at distance of 'a' and `b' respectively from the base of the tower and in the same straight line with it are complementary. The height of the tower is

(a) $\sqrt{ab}$ (b) a/b (c) ab (d) a^2b^2

47) The angle of elevation of a tower from a distance 100 m from its foot is 30°. Height of the tower is

(a) $100/\sqrt{3}$m (b) $50\sqrt{3}$ m (c) $200/\sqrt{3}$m (d) $100\sqrt{3}$ m

48) A pole stands vertically inside a scalene triangular park ABC. If the angle of elevation of the top of the pole from each corner of the park is same, then in ΔABC, the foot of the pole is at the

(a) centroid (b) circumcentre (c) incentre (d) orthocentre

49) If the angle of elevation of a balloon from two consecutive kilometre-stones along a road are 30° and 60° respectively, then the height of the balloon above the ground will be

(a) $\sqrt{3}/2$km (b) 1/2km (c) $2/\sqrt{3}$km (d) $3\sqrt{3}$ km

50) A tower standing on a horizontal plane subtends a certain angle at a point 160 m apart from the foot of the tower. On advancing 100 m towards it, the tower is found to subtend and angle twice as before. The height of the tower is

(a) 80 m (b) 100 m (c) 160 m (d) 200 m

Competitive Level

1) A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour, how much water (in litres) will fall to into the sea in a minute?

A) 4,00,000 m^3 B) 40,00,000 m^3 C) 40,000 m^3 D) 4,000 m^3

2) A plate of square base made of brass is of length x cm and thickness 1 mm. The plate weights 4725 gm. If 1 cubic cm of brass weighs 8.4 gram, then the value of x is?

A) 76 B) 72 C) 74 D) 75

3) The base of a right prism is a right-angled triangle whose sides are 5 cm, 12 cm and 13 cm. If the total surface area of the prism is 360 cm^2, then its height (in cm) is?

A) 10 B) 12 C) 9 D) 11

4) Given a solid cylinder of radius 10 cm and length 1000 cm, a cylindrical hole is made into it to obtain a cylindrical shell of uniform thickness and having volume equal to one-fourth of the original cylinder. The thickness of the cylindrical shell is?

A) $5(\sqrt{5}-2)$ cm B) $5(2-\sqrt{3})$ cm C) 5 cm D) $5\sqrt{2}$cm

5) A monument has 50 cylindrical pillars each of diameter 50 cm and height 4 m, what will be the labour charges for getting these pillars cleared at the rate of 50 paise per m^2 (Use $\pi = 3.14$)?

A) Rs. 237 B) Rs. 157 C) Rs. 257 D) Rs. 353

6) Sixteen cylindrical cans, each with a radius of 1 unit, are placed inside a cardboard box four in a row. If the cans touch the adjacent cans and or the walls of the box, then which of the following could be the interior area of the bottom of the box in square units?

A) 16 B) 32 C) 64 D) 128

7) A hemispherical bowl is 176 cm round the brim. Supposing it to be half full, how many persons may be swerved from it in hemispherical glasses 4 cm in diameter at the top?

A) 1372 B) 1272 C) 1172 D) 1472

8) The base of a prism is a regular hexagon. If every edge of the prism measures 1 metre and height is 1 metre, then volume of the prism is?

(a) $3\sqrt{2}/2$ cu. m B) $3\sqrt{3}/2$ cu.m C) $6\sqrt{2}/5$ cu. m D) $5\sqrt{3}/2$ cu. m

9) An oil funnel made of tin sheet consists of a 10 cm long cylindrical portion attached to 22 cm, diameter of the cylindrical portion is 8 cm and the diameter of the top of the funnel is 18 cm, find the area of the tin sheet required to make a funnel?

A) 728.57 cm^3 B) 782.57 cm^3 C) 872.57 cm^3 D) 827.57 cm^3

10) A conical tent is to accommodate 10 persons, each person must have 6 m^2 space to sit and 30m^3 of air to breadth. What will be the height of the cone?

A) 37.5 m B) 150 m C) 75 m D) None of these

11) A circular tent is cylindrical to a height of 3 metres and conical above it. If its diameter is 105 m and the slant height of the conical portion is 53 m, calculate the length of the canvas 6 m wide to make the required tent?

A) 3994 m B) 973.5 m C) 1947 m D) 1800 m

12) A solid sphere of radius 6 cm is melted into a hollow cylinder of uniform thickness. If external radius of the base of the cylinder is 5 cm and its height is 32 cm, find the uniform thickness of the cylinder?

A) 2 cm B) 3 cm C) 1 cm D) 3.5 cm

13) Two cm of rain has fallen on a square km of land. If 40% of the raindrops could have been collected and contained in a pool having a 200 m × 20 m base, by what level would the water level in the pool have increased?

A) 2 m B) 1 m C) 4 m D) 1.5 m

14) The edge of a cube is increased by 100% the surface area of the cube is increased by?

A) 100% B) 200% C) 300% D) 400%

15) A cylindrical cistern whose diameter is 21 cm is partly filled with water. If a rectangular block of iron 14 cm in length, 10.5 cm in breadth and 11 cm in thickness is wholly immersed in water, by how many centimetres will the water level rise?

A) 14 cm B) 20 cm C) 14/3 cm D) 12 cm

16) A pole is broken by the storm of wind and its top struck the ground at an angle of 45° and at 25 m from the foot of the pole. The height of the pole before it was broken was?

A) $25\sqrt{2}$ m B) $25(1+\sqrt{2})$ m C) $20\sqrt{3}$ m D) $(25\sqrt{3})/3$ m

17) A boy standing in the middle of a field, observes a flying bird in the north at an angle of elevation of 60° and after two minutes, he observes the same bird in the south at an angle of elevation of 45°. If the bird flies all along in a straight line at a height of $40\sqrt{3}$ m, then its speed in km/hr is?

A) 3.276 B) 3 C)2.985 D)3.50

18) The angles of elevation of the top of a tower standing on a horizontal plane from two points on a line passing through the foot of the tower at a distance 12 ft & 27ft respectively are complimentary angles. Then the height of the tower is

A) 16 ft B) 12 ft C) 18 ft D) 14.4 ft

19) A ladder is lying/resting on a 10 m high wall. If it makes an angle of 60° with horizontal then the distance between foot of ladder & wall is –

A) $10/\sqrt{3}$ m B) $(20\sqrt{3})/3$ m C) $10\sqrt{3}$ m D) $20\sqrt{3}$ m

20) A man standing at the top of tower of height 200 m observes a car at an angle of depression of 60°. After a while the angle of depression becomes 30°. The distance travelled by the car during this period is –

A) $200\sqrt{3}$ m B) $(400\sqrt{3})/3$ m C) $(100\sqrt{3})/3$ m D) $200\sqrt{3}$ m

21) A fountain is 100 meter from the base of a pole. Angle of depression of the fountain from 2/3 rd of the pole's height is 30°. What is the height of the pole ?

A) 150 m B) $150/\sqrt{3}$ m C) $50/\sqrt{3}$ m D) $50\sqrt{3}$ m

22) Walking towards the foot of a tower, at a certain distance Rana observes that the angle of elevation of the cliff of tower changes from 30° to 45° in 10 minutes. How much time will Rana take to reach the tower from the point where the angle of elevation is 45°?

A) $4(\sqrt{3}-1)$ m B) $5(\sqrt{3}+1)$ m C) $10(\sqrt{3}+1)$ m D) $10(\sqrt{3}-1)$ m

23) At the foot of mountain, the elevation of its summit is 45°; after ascending 1 km towards the mountain up a slope of 30° inclination, the elevation is found to be 60°. Find the height of the mountain.

A) $((\sqrt{3}-2))/2$ km B) $((\sqrt{3}+2))/2$ km C) $((\sqrt{3}-1))/2$ km D) $(\sqrt{3}+1)/2$ km

24) An aeroplane when flying at a height of 3000 m from the ground passes vertically below the another plane at an instant when the angles of elevation of two planes from the same point are 60° & 45° respectively. The vertical distance between the two planes at that instant is?

A) $3000(1-1/\sqrt{3})$ m B) 4500 m C) $3000(\sqrt{3}-1)$ m D) $3000(3-\sqrt{3})$ m

25) A minar is 800 m high from sea's surface. A guard sees a yacht of enemy from minar, which makes an angle of depression 60°. Find the distance between yacht and foot of the minar ?

A) 600 m B) $180\sqrt{3}$ m C) $800/\sqrt{3}$ m D) $160\sqrt{3}$ m

26) If the angle of elevation of sun is 60° then the height of a wall, shadow of which is 180m ?

A) $180\sqrt{3}$ m B) $60\sqrt{3}$ m C) 120 m D) 180 m

27) An aeroplane when flying at a height of 2500 m from the ground level passes vertically below the another plane at an instant when the angles of elevation of two planes from the same point are 30° & 60° respectively. The distance between the two planes at that instant is

A) 6250 m B) 6000 m C) 5000 m D) 6520 m

28) A vertical post 35 ft high is broken at a certain height and its upper part, not completely separated, meets the ground at an angle of 30°. Find the height at which the post is broken.

A) 50 ft B) 70/6 ft C) $15\sqrt{3}\ (2-\sqrt{3})$ ft D) $5\sqrt{3}$ ft

29) There are two temples on each bank of a river, just opposite to each other. One temple is 54 m high. From the top of this temple, the angle of depression of the top and the foot of the other temple are 30° and 60° respectively. The height of the temple is

A) $18\sqrt{3}$ m B) 18 m C) 36 m D) $36\sqrt{3}$ m

30) If the angles of elevation of a balloon from two stoves situated at two consecutive kilometers of a road are 30° & 60°, then the distance between nearest stove and balloon?

A) $\sqrt{3}/2$ km B) 1/2 km C) $2/\sqrt{3}$ km D) 1 km

Answer Key

Class Assignment

1. A	2. A	3. B	4. A	5. D	6. A
7. B	8. B	9. A	10. D	11. D	12. A
13. A	14. C	15. A	16. B	17. A	18. D
19. A	20. A	21. A	22. A	23. A	24. B
25. B	26. A	27. A	28. C	29. A	30. C
31. B	32. DB	33. C	34. B	35. B	36.B
37. D	38. A	39. C	40. C	41. B	42. A
43. C	44. D	45. A	46. C	47. C	48. A
49. D	50. C				

Home Assignment

1. A	2. D	3. A	4. C	5. B	6. A
7. B	8. D	9. A	10. A	11. C	12. B
13. B	14. B	15. A	16. C	17. C	18. B
19. A	20. B	21. B	22. D	23. B	24. C
25. C	26. A	27. B	28. A	29. D	30. A
31. A	32. A	33. C	34. A	35. B	36. B
37. C	38. C	39. D	40. D	41. C	42. B
43. B	44. B	45. A	46. A	47. A	48. B
49. A	50. A				

Competitive Level

1. D	2. D	3. A	4. B	5. B

6. C	7. A	8. B	9. B	10. D
11. C	12. C	13. B	14. C	15. C
16. B	17. A	18. C	19. A	20. B
21. D	22. B	23. D	24. C	25. C
26. A	27. C	28. B	29. C	30. D

CLOCKS AND CALENDARS

INTRODUCTION

CALENDAR:

Odd Days: We are supposed to find the day of the week on a given date. For this, we use the concept of 'odd days.

In a given period, the number of days more than the complete weeks are called odd days.

Leap Year:

(i) Every year divisible by 4 is a leap year, if it is not a century.

(ii) Every 4th century is a leap year and no other century is a leap year.

Note: A leap year has 366 days.

Examples:

i. Each of the years 1948, 2004, 1676 etc. is a leap year.

ii. Each of the years of 400, 800, 1200, 1600, 2000 etc. is a leap year.

iii. None of the years 2001, 2002, 2003, 2005, 1800, 2100 is a leap year.

Ordinary year: The year which is not a leap year is called an ordinary year. An ordinary year has 365 days.

Counting of odd days:

a. 1 ordinary year = 365 days = (52 weeks + 1 day) 1 ordinary year has 1 odd day

b. 1 leap year = 366 days = (52 weeks + 2 days) 1 leap year has 2 odd days.

c. 100 years = 76 ordinary years + 24 leap years

= (76 x 1 + 24 x 2) odd days = 124 odd days.

= (17 weeks + 5 days)

= 5 odd days.

Number of odd days in 100 years = 5.

Number of odd days in 200 years = (5 x 2) = 3 odd days.

Number of odd days in 300 years = (5 x 3) = 1 odd day.

Number of odd days in 400 years = (5 x 4 +1) = 0 odd day.

Similarly, each one of 800 years, 1200 years, 1600 years, 2000 years etc. has 0 odd days.

CLOCKS

The face or dial of a watch is a circle whose circumference is divided into 60 equal parts, called minute spaces.

A clock has two hands; the smaller one is called the hour hand or short hand while the larger one is called the minute hand or long hand.

i. In 60 minutes, the minute hand gains 55 minutes on the hour hand.

ii. In every hour, both the hands coincide once.

iii. The hands are in the same straight line when they are coincident or opposite to each other.

iv. When the two hands are at right angles, they are 15-minute spaces apart.

v. When the hands are in opposite directions, they are 30-minute spaces apart.

vi. Angle traced by hour hand in 12 hrs = 360°.

vii. Angle traced by minute hand in 60 min. = 360°.

viii. Too fast and too slow: if a watch or a clock indicates 8.15, when the correct time, 8 is said to be 15 minutes too fast.

On the other hand, if it indicates 7.45, when the correct time is 8, it is said to be 15 minutes too slow.

Solved Examples:

CALENDAR:

1. It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?

a) Sunday b) Saturday c) Friday d) Wednesday

Solution:

on 31st December, 2005 it was Saturday.

Number of odd days from the year 2006 to the year 2009 = (1+1+2+1) = 5 days On 31st December 2009, it was Thursday. Thus, on 1st Jan, 2010 it is Friday.

2. Today is Monday. After 61 days, it will be:

a) Wednesday b) Saturday c) Tuesday d) Thursday

Solution:

each day of the week is repeated after 7 days.

So, after 63 days, it will be Monday.

After 61 days, it will be Saturday.

3. If 6th march 2005 is Monday. What was the day of the week on 6th march, 2004?

a) Sunday b) Saturday c) Tuesday d) Wednesday

Solution:

the year 2004 is a leap year. So, it has 2 odd days.

But Feb 2004 not included because we are calculating from March 2004 to March 2005.

So, it has 1 odd day only.

The day on 6th march, 2005 will be 1 day beyond the day on 6th march, 2004.

Given that, 6th March, 2005 is Monday.

6th march, 2004 is Sunday (1 day before to 6th March, 2005).

CLOCK:

1. An accurate clock shows 8 o'clock in the morning. Through how may degrees will the hour hand rotate when the clock shows 2 o'clock in the afternoon?

a) 144° b) 150° c) 168° d) 180°

Explanation:

Angle traced by the hour hand in 6 hours= 6 x 30° = 180°

2. A clock is started at noon. By 10 minutes past 5, the hour hand has turned through:

a) 145° b) 150° c) 155° d) 160°

Explanation:

Angle traced by hour hand in 12 hrs = 360°.

Angle traced by hour hand in 5 hrs 10 min.

i.e., (5*30° +10/60*30°) = 150+5 = 155°

Class Assignment

1. At what time after 4 pm would the two hands of the clock overlap each other?
   a) 21 3/11 min b) 21 9/11 min c) 21 5/11 min d) 21 3/11 min

2. How many times in 12 hours do the hands of a clock overlap each other?
   a) 12 times b) 11 times c) 13 times d) none of these

3. What are the two times (in minutes) past 10 am and between 10 am and 11 am when the hands are perpendicular to each other?
   a) 60/11 min, 410/11 min b) 60/11 min, 210/11 min
   c) 60/11 min, 420/11 min d) 60/11 min, 205 min

4. 6th March 2005 is Monday, what was the day of the week on 6th march, 2004? (Wipro)

a) Monday b) Sunday c) Wednesday d) Thursday

5. The time in a clock is 20 minute past 2. Find the angle between the hands of the clock?
   a) 60 degrees b) 80 degrees c) 30 degrees d) 50 degrees

6. What was the day of the week on, 16th July, 1776? (TCS)
   a) Friday b) Monday c) Wednesday d) Tuesday

7. Dec 9, 2001 is Sunday then what was the day on Dec 9, 1971?
   a) Friday b) Monday c) Tuesday d) Wednesday

8. Today is 3rd November. The day of the week is Monday. This is a leap year. What will be the day of the week on this date after 3 years?
   a) Sunday b) Thursday c) Monday d) Saturday

9. How many times in 48 hours do the hands of the clock overlap each other?
   a) 48 times b) 46 times c) 44 times d) 42 times

10. 01- Jan-2007 was Monday. What day of the week lies on 01-Jan-2008? (Wipro)

   a) Tuesday b) Wednesday c) Monday d) Friday

11. If today is Monday, what will be the day one year and 50 days from now?

   a) Sunday b) Friday c) Monday d) can't be determined

12. What is the angle between the two hands of the clock at 3: 15 P.M?

   a) 15/2 degree b) 15/4 degree c) 10 degree d) 11 degrees

13. Today is Friday, after 126 days, it will be?

   a) Sunday b) Monday c) Wednesday d) Friday

14. When do the hands of a clock coincide between 4 & 5?

   a) 4: 20 8/11 min b) 4:20 6/11 min c) 4:21 8.11 min d) 4:21 8/11 min

15. What day of week was it on 5th November, 1989 if it was Monday on 4th April, 1988?

a) Friday b) Wednesday c) Monday d) Sunday

16. What was the day of the week on 7th October, 2003?

a) Tuesday b) Sunday c) Wednesday d) Monday

17. Today is Thursday. The day after 59 days will be?

a) Friday b) Sunday c) Wednesday d) Monday

18. If the first day of a year (other than leap year) was Friday, then which was the last day of that year?

a) Friday b) Thursday c) Sunday d) Monday

19. 1.12.91 is the first Sunday. Which is the fourth Tuesday of December 91?

a) 25.12.91 b) 22.12.91 c) 20.12.91 d) 24.12.91

20. The second day of a month is Friday, what will be the last day of the next month which has 31 days?

a) Friday b) Wednesday c) data inadequate d) Saturday

21. Jan 5, 1991 was a Saturday. What was the day of the week on March 3, 1992?

a) Tuesday b) Wednesday c) Thursday d) Friday

22. Monday falls on 4th April, 1988. What was the day on 3rd Nov, 1987?

a) Tuesday b) Wednesday c) Thursday d) Friday

23. Today is 21st August and the day of the week is Monday. This is a leap year. What will be the day of the week on this day after 3 years?

a) Tuesday b) Wednesday c) Thursday d) Friday

24. It was Thursday on 2nd Jan 1997. What day of the week will be on 15th March 1997?

a) Friday b) Saturday c) Sunday d) Monday

25. The first republic day of India was celebrated on 26th January 1950. What was the day of the week on that date?

a) Sunday b) Friday c) Tuesday d) Thursday

26. Today is Tuesday. After 1 yr., 68 days it will be (ordinary year)

a) Monday b) Tuesday c) Wednesday d) Thursday

27. The year next to 1990 having the same calendar as that of 1990 is

a) 2003 b) 2000 c) 2001 d) 2004

28. India got Independence on 15th August 1947. What was the day of the week?

a) Wednesday b) Friday c) Tuesday d) Saturday

29. If the seventh day of a month is three days earlier than Friday, what day will it be on the nineteenth day of the month?

a) Sunday b) Saturday c) Monday d) Wednesday

30. On 5th December 1993, Nirmala and Raju celebrated their anniversary on Sunday. What will be the day on their anniversary in 1997?

a) Saturday b) Monday c) Sunday d) Friday

Home Assignment

31. Mrs. Susheela celebrated her wedding anniversary on Tuesday 30th September 1997. What will be the day on their anniversary on same day (Tuesday)?

a) 30 September 2003 b) 29 September 2003 c) 27 September 2003 d) 28 September 2003

32. At what angle are the hands of a clock inclined at 15 minutes past 5?

a) 67.5 degree b) 62.6 degree c) 60.6 degree d) 61.5 degree

33. How many years have 29 days in February from 2001 to 2100?

a) 22 times b) 28 times c) 24 times d) 26 times

34. 2012, January 1st is Sunday, and then which day is the Independence Day of the same year?

a) Saturday b) Wednesday c) Thursday d) Friday

35. If Arun's birthday is on May 25 which is Monday and his sister's birthday is on july 13. Which day of the week is his sister's birthday?

a) Tuesday b) Friday c) Wednesday d) Monday

36. At what time between 5 and 6 are the hands of a clock 3 minutes apart?

a) 24 min past 5 b) 12 min past 5 c) 13 min past 4 d) 14 min past 5

37. A clock is set right at 8 am. If it gains 10-minute 24 hour, what is the true time when the clock indicates 1 pm the same day?

a) 57 min past 5 b) 48 min past 12 c) 54 min past 5 d) 56 min past 5

38. The minute hand of a clock overtakes the hour hand at intervals of 65 minutes of correct time. How much does the clock gain or lose in 12 hours?

a) 5 5/148 min b) 5 5/145 min c) 5 5/143 min d) 5 5/156 min

39. At what time between 4 and 5 will the hands of a watch point in the opposite direction?

a) 54 4/11 min past 4 b) 54 5/11 min past 4 c) 55 6/11 min past 4 d) 54 6/11 min past 4

40. At what time between 9 pm and 10 pm will the hands of a clock be coincident?

a) 49 1/11 min past 9 b) 49 5/11 min past 9 c) 49 3/11 min past 9 d) 47 4/11 min past 9

41. At what time between 1.30 pm and 2 pm. Will both the hands of a clock be at right angles?

a) 54 5/11 min past 1 b) 54 6/11 min past 1 c) 54 7/11 min past 1 d) 55 5/11 min past 1

42. A clock is set right at 5 am. The clock loses 16 minutes in 24 hours. What will be the true time when the clock indicates 10 pm on 4th day?

a) 1 pm b) 12 pm c) 11 pm d) 2 pm

43. An astronomical clock has its dial divided into 24 divisions instead of 12, and the small hand goes round in 24 hours, the large hand going round once every hour. The 24th hour is noon. Find when the hands are at right angles between 24 and 1.

a) 15-15 min past 24 b) 15 15/23 min past 24 and 46 22/23 min past 24

c) 15 10/14 min past 24 d) 15 16/20 min past 24

44. A man goes out in between 5 pm and 6 pm. When he comes back between 6 pm and 7 pm, he

observes that the two hands of clock have interchanged their position. When did the man go out?

a) 33 4/11 min past 5 c) 32 5/11 min past 5

b) 30 3/11 min past 5 d) 32 4/13min past 5

45. When the hands of a clock show 5 o'clock, the angle between them is

a) 180 degree b) 150 degree c) 140 degree d) 160 degree

46. In two hours, the minute hand of a clock rotates through an angle of

a) 760 degree b) 740 degree c) 720 degree d) 730 degree

47. A clock is set right at 5 am. The clock loses 16 min. in 24 hrs. What will be the true time when the clock indicates 10 pm on the 4th day?

a) 11 pm b) 10 pm c) 12 pm d) 8 pm

48. A watch which gains uniformly is 5 minutes slow at 8 am on a Sunday and 5 4/5 minutes fast on the following Sunday at 8 pm. During this period when (day and time) was the watch correct?

a) Thursday morning at 1:16 am b) Tuesday morning at 1:46 am

c) Sunday morning at 1:26 am d) 20 min past 7pm on Wednesday

49. Film actor- director Raj Kapoor died on 2nd June, 1988. What day of the week was it?

a) Tuesday b) Wednesday c) Thursday d) Friday

50. Any date in march is the same day of the week as corresponding date in of the same year.

a) October b) November c) June d) September

51. If March 18th, 1994 falls on Friday then Feb 25th, 1995 falls on which day?

a) Tuesday b) Monday c) Friday d) Wednesday

52. It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?

a) Tuesday b) Monday c) Saturday d) Friday

53. The calendar of the year 2024 can be used again in the year?

a) 2030 b) 2048 c) 2052 d) 2036

54. The calendar for the year 1993 will be same for the year:

a) 1998 b) 2004 c) 1993 d) 2003

55. The maximum gap between two successive leap years is?

a) 8 b) 4 c) 2 d) 1

56. My watch gains 5 min every hour. How many degrees the second hand moves in every min?

a) 340 degree b) 370 degree c) 360 degree d) 390 degree

57. When the time in the clock is 7.20, then the angle between the hands of the clock is?

a) 90 degree b) 100 degree c) 110 degree d) 120 degree

58. What was day of the week on 21 September 1987?

a) Sunday b) Monday c) Saturday d) Friday

59. On 2007, what was the date of last Saturday in May Month?

a) 21 b) 25 c) 26 d) 22

60. What day of the week will 22 April 2222 be?

a) Sunday b) Saturday c) Monday d) Tuesday

Competitive Exams-

61. A clock is started at noon. By 10 minutes pat 5, the hour hand has turned through?

a) 145 degree b) 160 degree c) 150 degree d) 155 degree

62. An accurate clock shows 8 o'clock in the morning. Through how many degrees will be hour hand rotate when the clock shows 2 o'clock in the afternoon?

a) 144 degree b) 150 degree c) 168 degre d) 180 degree

63. At 3.40, the hour hand and the minute hand of a clock form an angle of:

a) 120 degree b) 125 degree c) 130 degree d) 135 degree

64. The angle between the minute hand and the hour hand of a clock when the time is 8.30 is

a) 80 degree b) 75 degree c) 60 degree d) 105 degree

65. The angle between the, minute hand and the hour hand of a clock when the time is 4.20 is:

a) 0 degree b) 10 degree c) 5 degree d) 20 degree

66. At what angle the hands of a clock are inclined at 15 minutes past 5?

a) 58 1/2degree b) 64 degree c) 67 1/2 degree d) 72 1/2 degree

67. The reflex angle between the hands of a clock at 10.25 is:

a) 180 degree b) 192 1/2degree c) 195 degree d) 197 1/2degree

68. How many times do the hands of a clock coincide in a day?

a) 20 b) 21 c) 22 d) 24

69. How many times in a day, the hands of a clock are straight?

a) 22 b) 24 c) 44 d) 48

70. How many times are the hands of a clock at right angle in a day?

a) 22 b) 24 c) 44 d) 48

71. How many times in a day, are the hands of a clock in straight line but opposite in direction?

a) 20 b) 22 c) 24 d) 48

72. How much does a watch lose per day, if its hands coincide every 64 minutes?

a) 32 8/11 min b) 36 5/11 min c) 90 min d) 96 min

73. At what time, in minutes, between 3 o'clock and 4 o'clock, both the needles will coincide with each other?

a) 5 1/11" b) 12 4/11" c) 13 4/11" d) 16 4/11"

74. At what time between 9 and 10 o'clock will the hands of a watch be together?

a) 45 min past 9 b) 50 min past 9 c) 49 1/11 min past 9 d) 48 2/11 min past 9

75. At what time between 7 and 8 o'clock will the hands of a clock be in the same straight line but, not together?

a) 5 min past 7 b) 5 2/11 min past 7 c) 5 3/11 min past 7 d) 5 5/11 min past 7

76. At what time between 4 and 5 o'clock will the hands of a watch point in opposite directions?

a) 45 min past 9 c) 50 4/11 min past 5 b) 40 min past 4 d) 56 6/11 min past 7

77. At what time between 5.30 and 6 will the hands of a clock be at right angles?

a) 43 5/11mm past 5 c) 40 min past 5 b) 43 7/11 min past 5 d) 45 min past 5

78. A watch which gains uniformly is 2 minutes low at noon on Monday and is, 4 min 48 sec fast at

2 pm. On the following Monday. When was it correct?

a) 2 pm on Tuesday b) 2 pm on Wednesday c) 3 pm on Thursday d) 1 pm on Friday

79. A watch which gains 5 seconds in 3 minutes was set right at 7 am. In th afternoon of the same day, when the watch indicated quarter past 4 o'clock, the true time is:

a) 59 7/12 min past 3 c) 58 7/11 min past 3 b) 4 pm d) 2 3/11 min past 3

80. On what dates of April, 2001 did Wednesday fall?

a) 1st, 8th, 15th, 22nd, 29^{th} b) 2nd, 9th, 16th, 23rd,30th

c) 3rd, 10th, 17th, 24th d) 4th, 11th, 18th, 25th

81. What was the day of the week on 17th June, 1998?

a) Monday b) Tuesday c) Wednesday d) Thursday

82. What was the day of the week on 28th May, 2006?

a) Thursday b) Friday c) Saturday d) Sunday

83. What will be the day of the week on 15th August, 2010?

a) Sunday b) Monday c) Tuesday d) Thursday

84. Today is Monday. After 61 days, it will be

a) Wednesday b) Saturday c) Tuesday d) Thursday

85. The last day of a century cannot be?

a) Monday b) Wednesday c) Tuesday d) Friday

86. Which of the following is not a leap year?

a) 700 b) 800 c) 1200 d) 2000

87. How many days are there in x weeks x days?

a) 7x2 b) 8x c) 14x d) 1x4

88. It was Sunday on Jan 1, 2006. What was the day of the week on Jan 1, 2010?

a) Sunday b) Saturday c) Friday d) Wednesday

89. On 8th Feb, 2005 it was Tuesday. What was the day of the week on 8th Feb, 2004?

a) Tuesday b) Monday c) Sunday d) Wednesday

90. January 1, 2007 was Monday. What day of the week lies on Jan 1, 2008?

a) Monday b) Tuesday c) Wednesday d) Sunday

Answer Key of Calendar & Clock

1.b	**11.d**	**21.a**	**31.a**	**41.b**	**51. d**	**61. d**	**71. b**	**81.c**
2.b	**12.a**	**22.a**	**32.a**	**42.c**	**52. d**	**62.d**	**72. a**	**82. d**
3.c	**13.d**	**23.c**	**33.c**	**43.b**	**53. c**	**63. c**	**73. d**	**83. a**
4.b	**14.d**	**24.b**	**34. b**	**44.d**	**54. b**	**64.b**	**74.c**	**84. b**
5.d	**15.d**	**25.d**	**35.d**	**45.d**	**55. a**	**65.b**	**75. d**	**85. c**
6.d	**16.a**	**26.a**	**36. a**	**46. c**	**56. d**	**66.c**	**76. d**	**86. a**
7.c	**17.b**	**27.c**	**37. b**	**47. a**	**57. b**	**67.d**	**77. b**	**87. b**
8.b	**18.a**	**28.b**	**38. c**	**48.d**	**58. b**	**68.c**	**78.b**	**88. c**
9.c	**19.d**	**29.a**	**39. c**	**49. c**	**59. c**	**69.c**	**79. b**	**89.c**
10.a	**20.c**	**30.d**	**40.a**	**50. b**	**60. c**	**70. c**	**80.d**	**90. b**

INEQUALITIES

S.NO	SYMBOL	MEANING
1.	>	First element is Greater than the Second element.
2.	<	First element is Smaller than the Second element.
3.	=	First element is Equal to the Second element.
4.	≥	First element is Greater than or Equal to the Second element.
5.	≤	First element is Smaller than or Equal to the Second element.
6.	≠	First element is either greater than or smaller than the Second element.

Class Assignment

Directions (1-10): In these questions, relationship between different elements is show in the statements. The **Statements** are followed by conclusions. Study the conclusions based on the given **Statements** and select the appropriate answer from the given options:

A] If only conclusion I follows. B] If only conclusion II follows.
C] If either conclusion I or II follows D] If neither conclusion I nor II follows.
E] If both conclusions I and II follow.

1. **Statements:** $Q>H\leq D\geq G>S=B\leq L=I<Z$
   Conclusion: I: $S<Z$ II: $D\geq B$
2. **Statements:** $H=B\leq C\leq N>M=X\geq P=L>D$
   Conclusion: I: $H<N$ II: $M\geq L$
3. **Statements:** $C>B<O<P=L>H=M\geq S>X$
   Conclusion: I: $O>S$ II: $S\leq O$
4. **Statements:** $X>T<Y<B\geq C>M=O\geq P>Q$
   Conclusion: I: $T<C$ II: $Q<M$
5. **Statements:** $S>W=N\leq X\leq K=J>C\geq V$
   Conclusion: I: $W=K$ II: $W<J$
6. **Statements:** $A \geq B \geq C \leq D$; $E \geq F \geq G = A$
   Conclusions: I. $F > D$ II. $B \geq F$
7. **Statements:** $E \geq G \neq H \geq F$; $I \geq H \geq J$
   Conclusions: I. $G < H$ II. $H < G$
8. **Statements:** $V \geq U = T$; $Q = R \leq S \geq V$
   Conclusions: I. $V < Q$ II. $U \leq R$
9. **Statements:** $P \neq Q = R \geq S \geq T$; $U < V \leq W < X$
   Conclusions: I. $T < X$ II. $P > Q$
10. **Statements:** $F \geq G < E$; $G > D \geq C$; $D \geq A < B$
    Conclusions: I. $F > C$ II. $F \geq A$

Directions (11-13): In these questions, relationship between different elements is show in the statements. The **Statements** are followed by conclusions. Study the conclusions based on the given **Statements** and select the appropriate answer from the given options:

A] If only conclusion I follows. B] If only conclusion II follows.
C] If either conclusion I or II follows D] If neither conclusion I nor II follows.

E] If both conclusions I and II follow.

11. **Statements:** A > E ≥ T ≥ Y; E ≤ W < R; W ≥ Z > B
    Conclusions: I. R < B II. T = B
12. **Statements:** A ≥ D ≤ Z; P ≤ D; R > Q = D
    Conclusions: I. R > A II. P ≤ Z
13. **Statements:** C > B > L, Q = E > P = C
    Conclusions: I. Q > B II. L < E
14. **Statements:** S > A = N > D; A > L > E; M < L < O
    Conclusions: I. S > E II. A < O

    A] Both conclusions I and II follows B] Only conclusion II follows
    C] Only conclusion I follows D] Either conclusion I or II follows
    E] Neither conclusion I nor II follows
15. **Statements:** W < Q > R; R = T; T < S
    Conclusions: I. Q < T II. S > W

    A] Only conclusions I follows B] Only conclusions II follows
    C] Either conclusions I or II follows D] Neither conclusions I nor II follows
    E] Both conclusions I and II follows

Directions (16-21): In these questions # , ?, $ and % is used with different meaning as follows:
'A @ B' means 'A is smaller than B'.
'A # B' means 'A is either smaller than or equal to B'.
'A ? B ' means 'A is equal to B'.
'A $ B' means 'A is greater than B'.
'A % Q' means 'A is either greater than or equal to B'.
In each of the following questions assuming the given Statements to be follows, find which of the two conclusions I and II given below them is/are definitely follows and select the answer from the given options:

A] Only conclusion I follows B] Only conclusion II follows
C] Either conclusion I or conclusion II follows D] Neither conclusion I nor II follows
E] Both conclusions I and II follows

16. **Statements:** Q ? H @ L @ F
    Conclusions: I. Q @ F II. H @ F
17. **Statements:** D $ E, E % I, I % K
    Conclusions: I. D % I II. E % K
18. **Statements:** V @ W, W # U, U @ R
    Conclusions: I. V @ R II. W @ R
19. **Statements:** F @ J, J # T, T % R
    Conclusions:
20. **Statements:** M $ K, K ? H, H % L
    Conclusions: I. M $ L II. M @ H
21. **Statements:** P > T > G, S > T = N
    Conclusions: I. N >G II. S > P

Home Assignment

Directions (22-31): In these questions, relationship between different elements is show in the statements. The **Statements** are followed by conclusions. Study the conclusions based on the given **Statements** and select the appropriate answer from the given options:

A] Only conclusion I follows B] Only conclusion II follows
C] Either conclusion I or II follows D] Neither conclusion I nor II follows
E] Both conclusions I and II follow

22. **Statements:** H = I ≤ R; M ≥ R<S
    Conclusions: I. M=I II. M > I
23. **Statements:** D > H ≥ N; S > I ≤ H
    Conclusions: I. N ≤ S II. N < D
24. **Statements:** P ≤ O < I; P > Y > W
    Conclusions: I. Y ≤ I II. O > W
25. **Statements:** A < J = N; H ≥ Y ≥ I > S = N
    Conclusions: I. S = J II. S > J

26. **Statements:** T ≥ J ≥ F; U < J ≥ H= S
Conclusions: I. S > F II. T ≥ H
27. **Statements:** Y ≥ U ≥ H = Q; R ≥ U = M
Conclusions: I. M > Q II. M = Q
28. **Statements** A < J = N; H ≥ Y ≥ I > S = N
Conclusions: I. S = J II. S > J
29. **Statements:** T ≥ J ≥ F; U < J ≥ H= S
Conclusions: I. S > F II. T ≥ H
30. **Statements:** Y ≥ U ≥ H = Q; R ≥ U = M
Conclusions: I. M > Q II. M = Q
31. **Statements:** L ≤ F = G < W; H < S ≤ L
Conclusions: I. S ≤ G II. W > H
32. **Statement**: P < Q < R < S ≥ T = F ≥ Z ≥ H > U
Conclusion: I. S > Z II. S = Z
A] Both conclusions I and II follow B] Either conclusion I or II follows
C] Only conclusion I follows D] Only conclusion II follows
E] Neither conclusion I nor II follows

Direction (33-38): In the following questions, the symbol @, ©, $, % and ∗ are uses with the following meaning as illustrated below.
'P © Q' means 'P is not smaller than Q'
'P % Q' means 'P is not greater than Q'
'P*Q' means 'P is neither smaller than nor equal to Q'
'P@ Q' means 'P is neither greater than nor smaller than Q'
'P $ Q' means 'P is neither greater than nor equal to Q'.
Now in each of the following questions assuming the given Statements to be follows, find which of the conclusions I, II and III given below then is/ are definitely follows?

33. **Statements:** F % T, T @ J, J * W
Conclusions: I. J @ F II. J * F III. W $ T
A] Only I is follows B] Only II is follows
C] Only III is follows D] Only either I or II is follows
E] Only either I or II and III are follows
34. **Statements:** R * D, D © K, K $ M
Conclusions: I. M * R II. K $ R III. D * M
A] None is follows B] Only I is follows
C] Only II is follows D] Only III is follows
E] Only II and III are follows
35. **Statements:** Z © F, F $ M, M % K
Conclusions: I. K * F II. Z * M III. K * Z
A] Only I is follows B] Only II is follows
C] Only III is follows D] Only II and III are follows
E] None of the above
36. **Statements:** H @ B, B © R, A $ R
Conclusions: I. B * A II. R % H III. A $ H
A] Only I and II are follows B] Only I and III are follows
C] Only II and III are follows D] All I, II and III are follows
E] None of above
37. **Statements:** M $ J, J * T, K © T
Conclusions: I. K * J II. M $ T III. M $ K
A] None is follows B] Only I is follows
C] Only II is follows D] Only III is follows
E] Only II and III are follows
38. **Statements:** P > Q > R = S; S > T = U
Conclusions: I. P > U II. P > T
A] Only I follows B] Both I and II follow
C] Neither I nor II follows D] Only II follows
E] Either I or II follows

Competitive Assignment

Direction (39): Study the following information carefully to answer the given questions.
'M%N' means 'M is neither smaller nor equal to N'
'M&N' means 'M is neither greater nor equal to N'
'M$N' means 'M is not smaller than N'
'M*N' means 'M is neither smaller nor greater than N'
'M@N' means 'M is not greater than N'
Now in each of the following questions, assuming the given Statements to be follows, find which of the two conclusions given below them is/are follows

39. **Statement:** A$B, B&P, B @ Q, Q @ R
Conclusion: I. A @ Q II. B @ R
A] Only conclusion I is follows. B] Only conclusion II is follows.
C] Either conclusion I or II is follows. D] Neither conclusion I nor II is follows.
E] Both conclusion I and II are follows.

Directions (40-42): Study the following information carefully and answer the questions given below:
'P @Q' means 'P is not smaller than Q.'
'P %Q' means 'P is neither greater than nor smaller than Q.'
'P *Q' means 'P is not greater than Q.'
'P × Q' means 'P is neither smaller than nor equal to Q.'
'P #Q' means 'P is neither greater than nor equal to Q.'
Now in each of the following questions assuming the given statement to be follows, find which of the two conclusions I and II give below them is/are definitely follows. Give answer:
A] Only conclusion I follows B] Only conclusion II follows
C] Either conclusion I or conclusion II follows D] Neither conclusion I nor II follows
E] Both conclusions I and II follows

40. **Statements:** M @ Q, Q × S, S % T
Conclusions: I. T #M II. M × S

41. **Statements:** A × B, B * C, C # A
Conclusions: I. B *A II. B #A

42. **Statements:** A % B, B * C, C @ D
Conclusions: I. A %C II. A #C

43. **Statement:** A>Q, B<T, A = B
Conclusions: I. B = Q II. B > Q
A] If only conclusion I is follows. B] If only conclusion II Is follows.
C] If either conclusion I or II is follows. D] Neither conclusion I nor II is follows.
E] Both conclusion I and II are follows.

44. **Statement:** Z < A, A > R, A = W
Conclusions: I. R < Z II. Z < W
A] If only conclusion I is follows. B] If only conclusion II Is follows.
C] If either conclusion I or II is follows. D] Neither conclusion I nor II is follows.
E] Both conclusion I and II are follows.

45. **Statement:** K > H ≥ Y = A < T ≤ I
Conclusions: I. A < I II. K ≥ A
A] Only Conclusion I follows B] Only Conclusion II follows
C] Either Conclusion I or II follows D] Neither Conclusion I nor II follows
E] Both Conclusion I and II follows

Directions(46-50): Study the following information carefully and answer the questions given below:
'A @ B' means 'A is neither greater than nor smaller than B]'
'A % B' means 'A is not greater than B]'
'A # B' means 'A is neither smaller than nor equal to B]'
'A © B' means 'A is not smaller than B]'
'A δ B' means 'A is neither greater than nor equal to B]'

46. Statements : A # B, B @ C, C δ D
Conclusions : I.A # D II.A δ D
A] if only conclusion I is true B] if only conclusion II is true
C] if either conclusion I or II is true D] if neither conclusion I nor II is true

E] if both conclusions I and II are true

47. Statements : A δ B, C % D, B © C
Conclusions : I. A δ C II. B % D
A] if only conclusion I is true B] if only conclusion II is true
C] if either conclusion I or II is true D] if neither conclusion I nor II is true
E] if both conclusions I and II are true

48. Statements : A # B, B @ C, C © D
Conclusions : I. C δ A II. A # D
A] if only conclusion I is true B] if only conclusion II is true
C] if either conclusion I or II is true D] if neither conclusion I nor II is true
E] if both conclusions I and II are true

49. Statements : W @ X, X © Y, Z δ Y
Conclusions : I. W © Y II. X # Z
A] if only conclusion I is true B] if only conclusion II is true
C] if either conclusion I or II is true D] if neither conclusion I nor II is true
E] if both conclusions I and II are true

50. Statements : W δ X, X @ Y, Y #Z
Conclusions : I. W @ Y II.Z # C
A] if only conclusion I is true B] if only conclusion II is true
C] if either conclusion I or II is true D] if neither conclusion I nor II is true
E] if both conclusions I and II are true

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1.	A	2.	B	3.	D]	4.	B	5.	C
6.	D	7.	C	8.	D	9.	D	10.	A
11.	D	12.	B	13.	E	14.	C	15.	D
16	E	17.	B	18.	E	19.	D	20.	A
21.	A	22.	C	23.	B	24.	B	25.	A
26.	B	27.	C	28.	A	29.	B	30.	C
31.	E	32.	B	33.	E	34.	C	35.	A
36.	D	37.	A	38.	B	39.	B	40.	E
41.	B	42.	C	43.	C	44.	D	45.	A
46.	D	47.	D	48.	E	49.	E	50.	D

SEATING ARRANGEMENT

Class Assignment

Direction (1-5): Study the information given below and answer the questions based on it.
Eight persons A, B, C, D, E, F, G and H are sitting around a circular table and facing the center. They like different colors i.e. Red, Pink, Blue, Yellow, Brown, White, Black and Silver, not necessarily in the same order. They belong to different cities i.e. Goa, Bhopal, Mumbai, Pune, Delhi, Kolkata, Chennai and Indore, not necessarily in the same order.
H is 2nd to the left of G who belongs to Mumbai. The one who belongs to Pune is neighbor of H. Two persons sit between the one who belongs to Pune and F who likes Red. D is 2nd to the left of F. The one who belongs to Goa sits opposite to D. B is 3rd to the left of the one who belongs to Goa. B belongs to Kolkata. A likes Pink and 2nd to the left of B. The one who belongs to Chennai sits opposite to A. The one who likes Yellow is neighbor of the one who belongs to Chennai. The one who likes Silver is 2nd to the right of the one who belongs to Chennai. C likes Brown. The one who likes Blue is 2nd to the left of C. The one who belongs to Indore likes Black. The one who belongs to Bhopal is not the neighbor of G.

1. Who among the following belongs to Indore?
   A] D B] A C] B D] G

2. Which of the following combination is correct?
   A] E-Black B] H-White C] None is correct D] C-Brown

3. Who among the following sits opposite to the one who belongs to Kolkata?
   A] The one who likes Yellow B] C
   C] The one who belongs to Pune D] D

4. H belongs to which of the following city?
   A] Chennai B] Goa C] Indore D] Kolkata

5. Which of the following combination is not correct?
   A] E-Silver B] H-Yellow C] All is correct D] C-Brown

Direction (6-10): Study the following information carefully and answer the questions.
Eight people A, B, C, D, E, F, G and H are sitting in a straight line, all of them facing the north direction. Each one of them like a different fruit – Apple, Mango, Banana, Orange, Litchi, Kiwi, Pineapple and Papaya but not necessarily in the same order.
G sits third to the right of the person who likes Litchi. The person who likes Papaya sits second to the right of G. A and E are immediate neighbors of each other and neither of them likes Litchi and Papaya and they are not immediate neighbors of G. H sits third to the right of the person who likes Apple. Neither A nor E likes Apple. H does not like PapayA] Only two people sit between E and the one who likes Pineapple. The person who likes Mango sits to the immediate left of D] E does not like Mango. Only one person sits between E and B] Only one people sit between C and Kiwi. G does not like Orange.

6. Who among the following sits at extreme end of the row?
   A] C, B B] E, H C] A, D D] B, F

7. B likes which of the following fruit?
   A] Pineapple B] Apple C] Orange D] Guava

8. Who among the following sits third to the left to the right of F?
   A] C B] The one who likes Orange
   C] A D] The one who likes Litchi

9. Who among the following likes Mango?
   A] G B] D C] H D] B

10. If all the persons made to sit in alphabetical order from left to right, position of how many persons remains unchanged?

A] One B] Two C] Three D] Four

Direction (11-15): Study the information given below and answer the questions based on it.
Six tables which are kept in a horizontal line. Each table costs a different amount. The tables are of different colors viz. Brown, Black, Golden, Silver, Red and Grey. Two tables are of circular shape and two are of square shape. While one each is of rectangular and oval shape.
The golden table is kept at one of the extreme ends. Both the circular tables are kept together. The silver table is neither circular in shape nor it is the costliest. The oval table is grey in color and it is neither the costliest nor the cheapest. The rectangular table lies to the immediate left of one of the square tables. The red table is cheaper than only one table and kept at the farthest possible distance from the oval table. None of the circular tables lies at the extreme ends. The black table is costlier than only two tables. The brown table is neither rectangular nor circular in shape. The golden table is the third costliest among all and is kept third to the right of the brown table.

11. Which is the cheapest and the costliest table respectively?
A] Silver and Black B] Rectangular and Brown
C] Oval and Silver D] Black and Golden

12. Which of the following is correct regarding rectangular table?
A] It is kept between square tables. B] It is the cheapest of all.
C] It is brown in color. D] It is kept to the right of the circular tables.

13. What is the correct order of the table arrangement from left to right?
A] Grey, Silver, Brown, Black, Golden, Red B] Silver, Grey, Brown, Red, Black, Golden
C] Grey, Silver, Brown, Black, Red, Golden D] Silver, Brown, Grey, Black, Golden, Red

14. Which are the two circular tables?
A] The second and third costliest. B] The brown and red colored
C] The golden and red colored D] The fourth and second costliest.

15. Which are the square tables?
A] The golden and silver ones. B] The brown and black ones.
C] The costliest and golden ones. D] The third costliest and silver ones.

Direction (16-20): Study the information given below and answer the questions based on it.
Eight persons A, B, C, D, E, F, G and H are sitting in a straight line and facing north. Their ages are multiple of 7, which is 14, 21, 28, 35, 42, 49, 56 and 63. The one who is youngest is 14 years old. The number of people to the left of E is 3 less than the number of people to the right of E. The sum of the age of E and A is 35 and they both sit together. G is 56 years old. F is 35 years older than E. F is neighbor of A. H is 3rd to the right of F. The number of people to the left of D, who is 42 years old, is same as the number of people to the right of G. D is not the neighbor of H. C is not the neighbor of D. C is elder than B but younger than D. The total age of A and D is equal to H.
Note: No two persons have the same age.

16. Which of the following pair sit at the corners?
A] B and G B] G and H C] B and H D] C and G

17. Who is the youngest person in the group?
A] A B] E C] D D] C

18. What is the sum of age of C and H?
A] 91 B] 84 C] 56 D] 98

19. How many people are sitting to the right of the eldest person?
A] None B] 1 C] 2 D] 3

20. Which of the following combination is correct?
A] E-21 years old B] F-35 years old C] H-56 years old D] B-28 years old

Home Assignment

Direction (1-5): Study the following information carefully and answer the questions given below:
There are seven family members T,U,V,W,X,Y and Z sitting in a row facing north. There are three couples in the family. W is on the immediate left of her father-in-law. Y has two children. V sits second to the right of her mother U, who is third to the left of Z, who is second to the left of X. The one who is the husband of Y does not sit on the extreme ends of the row. Z is the son of X, who is the husband of Y. The one who is the husband of U sits an extreme ends of the row. U is sister-in-law of Z. V is niece of W.

1. Which of the following pairs sit on the extreme ends of the row?
   A] Y, X B] T, Y C] W, T D] None of these

2. How is W related to Z?
   A] Wife B] Mother C] Sister D] Brother
3. Who among the following sits third to the right of Y?
   A] X B] T C] W D] U

4. How is Z related to U?
   A] Brother B] Husband C] Sister D] Brother-in-law

5. Who among the following is third to the left of X?
   A] Daughter of Z B] Y's granddaughter C] X's grandson D] T's son

Direction (6-10): Study the following information and answer it:
Seven persons Ramesh, Suresh, Jignesh, Parmesh, Kalpesh, Saurabh, and Surbhi are sitting in a row andall of them are facing north direction and likes different cities Delhi, Varanasi, Bengaluru, Jaipur, Jodhpur, Pune and Hyderabad but not necessarily in the same order.
Ramesh likes Delhi. Ramesh sits at one of the ends of the row. Kalpesh sits second to the right of Ramesh and second to the left of the one who likes Varanasi. Saurabh also sits at one of the ends of the row and likes Jaipur. Saurabh and Surbhi are immediate neighbors of each other. There are three persons between Surbhi and the one who likes Bengaluru. Parmesh likes Bengaluru. Jignesh sits to the immediate left of Varanasi. Kalpesh likes Jodhpur.

6. Which city does Jignesh like?
   A] Pune B] Hyderabad C] Varanasi D] Either Pune or Hyderabad

7. Which city does Suresh like?
   A] Pune B] Hyderabad C] Varanasi D] Jodhpur

8. How many persons sit between Kalpesh and Surbhi?
   A] Two B] Three C] Four D] Five

9. Which cities are the immediate neighbours of the city to which Jignesh belongs?
   A] Pune, Hyderabad B] Hyderabad, Jodhpur C] Varanasi, Jodhpur D] Jodhpur, Bangaluru

10. Find the odd one out.
    A] Ramesh – Delhi B] Parmesh – Bangaluru C] Kalpesh – Jaipur D] Saurabh – Jaipur

Direction (11-15): Study the information given below and answer the questions based on it.
Eight persons M, N, O, P, Q, R, S and T are sitting in a straight line and facing north. They like different fruits i.e. Berry, Cherry, Apple, Banana, Orange, Papaya, Grapes and Mango, not necessarily the same order. Q likes Grapes and sits 3rd from the left enD] Two persons sit between Q and S. One person sits between S and the one who likes PapayA] Three persons are sitting between the one who likes Papaya and M. O likes Berry and sits 2nd to the left of M. Two persons sit between O and N. More than two persons sit between N and T who likes Cherry. P likes Orange. The one who likes Mango is 2nd to the left of the one who likes Banana.

11. Who among the following likes Papaya?
    A] R B] S C] M D] None of these

12. How many persons live between N and P?
A] None B] 1 C] 2 D] 3

13. Who among the following 3rd to the left of M?
A] O B] T C] Q D] S

14. Which of the following is TRUE regarding this arrangement?
A] M is neighbor of T B] Two persons sit between P and Q
C] None is true D] N likes Apple

15. Which of the following pair is at the both ends?
A] T and P B] P and R C] T and R D] O and R

Direction (16-20): Study the given information carefully to answer the given question.
M, N, O, P, Q and R are sitting around a circular table. Three of them facing towards the center while the rest faces outside the center. Only two of them are female members while the rest are male members.
* The female member's faces opposite direction i.e. if one female faces towards the center then another female must face outside the center.
* R faces outside and he is not the immediate neighbor of either N or P.
* P sits third to the left of M who is facing inside the center.
* One of the immediate neighbors of M is a female.
* The female member's do not sit together.
* R is to the immediate right of Q who faces outside and N is to the immediate right of O.
* N is M's wife and P is Q's husband]
* M sits third to the right (clock-wise) of the one who is to the immediate left of O.

16. Who is sitting to the immediate right of M?
A] Q B] O C] R D] N

17. Who is sitting between N and P?
A] Q B] O C] R D] N

18. How many person(s) are sitting between R and P when counted from the right hand side of R?
A] One B] Two C] Three D] Four

19. Who are the two males that are immediate neighbor of Q?
A] P, M B] R, M C] P, R D] R, O

20. Four of the five are alike in a certain way. Find the odd one out.
A] O B] M C] P D] N

Competitive Assignment

Direction (1-5): Study the following information carefully and answer the questions given below:
Nine persons A, B, C, D, E, F, G, H and I sit around a circular table facing towards the centre. They use different brands of mobile phones viz, Samsung, Apple, Nokia, Sony and Intex. Not more than two people use the same branD] The following information is known about them.
* B and C use the same mobile phone.
* H sits second to the right of the one who uses Nokia.
* A sits third to the right of E.
* B sits third to the left of D who either uses Samsung or Sony.
* G sits to the immediate left of H.
* Two persons sit between B and I.
* The person sitting fourth to right of D uses the same mobile phone as that of D]
* F does not use Samsung and Apple.
* The immediate neighbors of C use Intex.
* There is only one pair of people who like the same mobile phone (but neither Nokia nor Samsung) and sit together.

1. Who uses Sony Mobile Phone?
   A] A B] C C] D D] F

2. Who sits second to the left of F?
   A] The one who uses Nokia B] The one who uses Intex
   C] H D] G

3. Which among the following pairs who uses the same mobile phone are sitting together?
   A] A F B] I A C] A D D] G H

4. Which among the following phone is used by I?
   A] Intex B] Apple C] Nokia D] Sony

5. How many persons sit between F and D when counted in anticlockwise direction?
   A] One B] Two C] Three D] Four

Direction (6-10): Study the following information and answer the questions.
Eight friends-Riya, Rita, Disha, Diya, Teena, Gaurav, Rahul and Rajesh- are sitting around a circular table but not facing the centre. Each of them likes a different colour viz, Pink, Red, Black, Brown, Yellow, Blue, White and Green but not necessarily in the same order.
* Rajesh who likes Brown sits third to the right of TeenA]
* The one who likes Blue sits second to the left of Rahul, who likes Pink.
* Disha who likes white sits between the persons who like Red and Blue colour.
* Rahul sits second to the left of Rita, who cannot sit adjacent to TeenA]
* Gaurav likes Green and sits second to the right of Riya, who likes Black Color.

6. What is the position of Rahul with respect to the person who likes White color?
   A] Third to the left B] Third to the right C] Second to the right D] Fifth to the right

7. Which of the following combination is definitely true?
   A] Rajesh- Blue B] Riya- Pink C] Teena-Green D] Rita –Yellow
8. How many persons are sitting between Teena and the one who likes Brown? (if counted from Teena in clockwise direction)
   A] One B] Two C] Three D] None

9. Which of the following person likes Red?
   A] Riya B] Rita C] Teena D] Rahul

10. 'Rahul' is related to 'Blue' and 'Gaurav' is related to 'Black' in the same way 'Diya' is related to which of the following colors?
    A] Pink B] Red C] green D] Blue

Direction (11-15): Nine persons Anmol, Bhavesh, Chetan, Donny, Eshika, Farhan, Ganguly, Hitesh and Ivneet are sitting in a row and all are facing north. It is known that Chetan sits exactly in the middle and there is no person to the right of Ivneet. Donny is fourth to the right of Farhan. Ganguly and Hitesh are sitting next to each other. Eshika is the neighbour of Donny but not of Chetan. Hitesh doesn't sit at any extreme corner.Donny is not sitting adjacent to either Chetan or Ivneet.Anmol is second to the right of Hitesh.

11. Who is sitting to the immediate left of Chetan?
    A] Farhan B] Anmol C] Hitesh D] Donny E] None of these

12. Who is sitting between Bhavesh and Eshika?
    A] Donny B] Farhan C] Ganguly D] Chetan E] None of these

13. Four of the following five are alike in a certain way and thus forms a group. Which of the following does not belong to that group?
A] Ganguly and Hitesh B] Chetan and Bhavesh
C] Farhan and Ganguly D] Donny and Eshika
E] Eshika and Ivneet

14. Who is sitting third to the right of Hitesh?
A] Bhavesh B] Donny C] Farhan D] Chetan E] None of these

15. Who is sitting at the left most seat of the row?
A] Farhan B] Bhavesh C] Ganguly D] Donny E] None of these

Directions(16-20): There are eight persons - Mamta, Neha, Onkar, Paritosh, Qinjal, Rano, Sneha and Titli. All of them are sitting in a straight row and are facing in the South direction but not necessarily in the same order. There are only two persons between Rano and Paritosh. The number of persons between Qinjal and Mamta is same as the number of persons between Paritosh and SnehA] Onkar is not a neighbor of Sneha who is immediate left of NehA] Qinjal is second to the left of Rano who is fourth frOnkar the right corner. Mamta sits at any corner of the row. Titli sits immediate right of Qinjal.

16. How many persons are seated to the left of Neha?
A] One B] Three C] Four D] Six E] None of these

17. Four of the following five are alike in sOnkare way and thus form a group. Which of the following does not belong to the group?
A] Onkar B] Rano C] Sneha D] Qinjal E] Paritosh

18. Who among the following is/are immediate neighbour(s) of Qinjal?
A] Titli B] Onkar C] Both A and B D] Either A or B E] Sneha

19. Who among the following sits second to the left of the person who sits third frOnkar the right end?
A] Mamta B] Titli C] Paritosh D] Neha E] None of these

20. Who among the following sits third to the left of Rano?
A] Onkar B] Paritosh C] Neha D] Mamta E] None of these

Class Assignment									
Q. No.	**Answer**	**Q. No.**	**Answer**	**Q. No.**	**Answer**	**Q. No.**	**Answer**	**Q. No.**	**Answer**
1.	D	2.	A	3.	B	4.	C	5.	D
6.	C	7.	B	8.	D	9.	C	10.	D
11.	B	12.	C	13.	D	14.	D	15.	D
16.	C	17.	B	18.	A	19.	B	20.	C
Home Assignment									
1.	A	2.	C	3.	C	4.	D	5.	B
6.	A	7.	B	8.	C	9.	C	10.	D
11.	B	12.	D	13.	C	14.	D	15.	A
16.	B	17.	A	18.	D	19.	B	20.	A
Competitive Level									
1.	D	2.	B	3.	B	4.	D	5.	A
6.	A	7.	A	8.	D	9.	C	10.	A
11.	D	12.	B	13.	B	14.	D	15.	C
16.	B	17.	C	18.	D	19.	B	20.	B

Data Interpretation

Class Assignment

Directions (Q1 to Q5): Study the following table and answer the questions based on it

Expenditures of a Company (in Lakh Rupees) per Annum Over the given Years.

Year	Item of Expenditure				
	Salary	Fuel and Transport	Bonus	Interest on Loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

Q1. What is the average amount of interest per year which the company had to pay during this period?
(a) 32.43 Lakhs (b) 33.43 Lakhs (c) 34.12 Lakhs (d)36.66 Lakhs

Q2. The total amount of bonus paid by the company during the given period is approximately what percent of the total amount of salary paid during this period?
(a) 0.1 % (b) 0.25 % (c) 1% (d) 1.25%

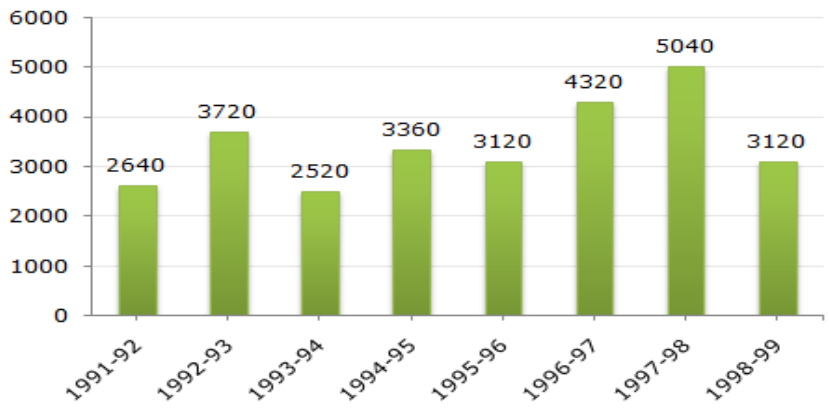
Q3. Total expenditure on all these items in 1998 was approximately what percent of the total expenditure in 2002?
(a) 62% (b) 66% (c) 69% (d) 71%

Q4. The total expenditure of the company over these items during the year 2000 is?
(a) 544.44 Lakhs (b) 546.44 Lakhs (c) 578.44 Lakhs (d) 560 Lakhs

Q5. The ratio between the total expenditure on Taxes for all the years and the total expenditure on Fuel and Transport for all the years respectively is approximately?
(a) 4:7 (b) 10:13 (c) 15:18 (d) 5:8

Directions (Q6 to Q10): The bar graph given below shows the foreign exchange reserves of a country (in million US $) from 1991 - 1992 to 1998 - 1999.

Foreign Exchange Reserves of a Country (in million US $).



Q6. The ratio of the number of years, in which the Foreign exchange reserves are above the average reserves, to those in which the reserves are below the average reserves is?
(a) 2:6 (b) 3:4 (c) 3:5 (d) 4:4

Q7. The foreign exchange reserves in 1997-98 were how many times that in 1994-95?
(a) 0.7 (b) 1.2 (c) 1.4 (d) 1.5

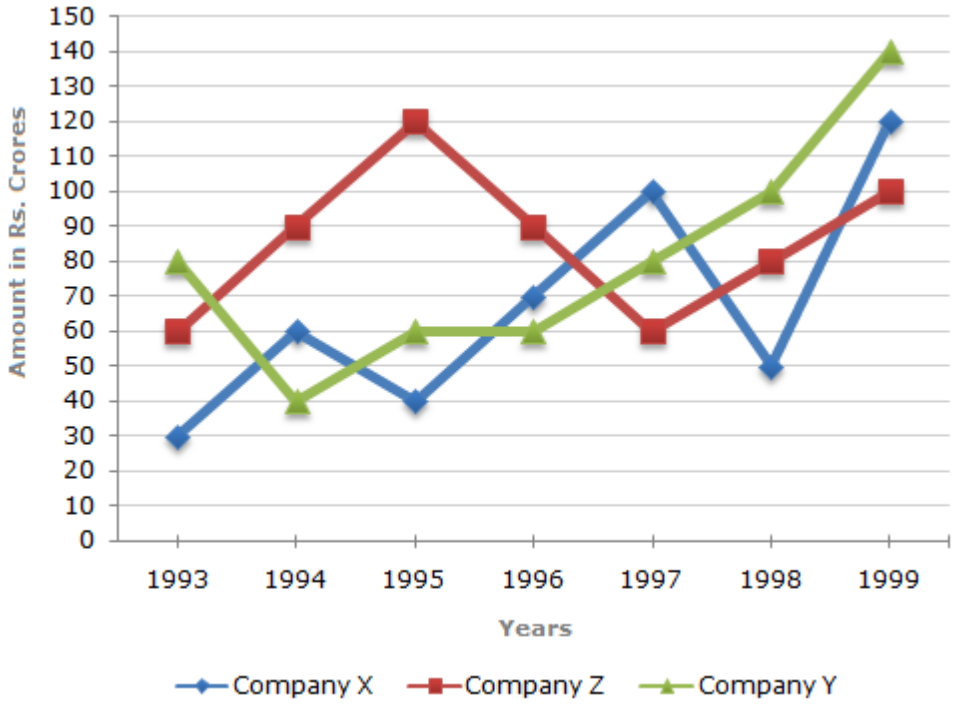
Q8. For which year, the percent increase of foreign exchange reserves over the previous year, is the highest?
(a) 1998-1999 (b) 1993-1994 (c) 1994-1995 (d) 1992-1993

Q9. The foreign exchange reserves in 1996-97 were approximately what percent of the average foreign exchange reserves over the period under review?
(a) 95% (b) 110% (c) 115% (d) 125%

Q10. What was the percentage increase in the foreign exchange reserves in 1997-98 over 1993-94?
(a) 300 (b) 150 (c) 100 (d) 200

Directions (Q11 to Q15): Study the following line graph and answer the questions

Exports from Three Companies over the Years (in Rs. crores)



Q11. For which of the following pairs of years the total exports from the three Companies together are equal?
(a) 1995 & 1998 (b) 1996 & 1998 (c) 1997 & 1998 (d) 1995 & 1996

Q12. Average annual exports during the given period for Company Y is approximately what percent of the average annual exports for Company Z?
(a) 87.12% (b) 89.64% (c) 91.21% (d) 93.33%

Q13. In which year was the difference between the exports from Companies X and Y the minimum?
(a) 1994 (b) 1995 (c) 1996 (d) 1997

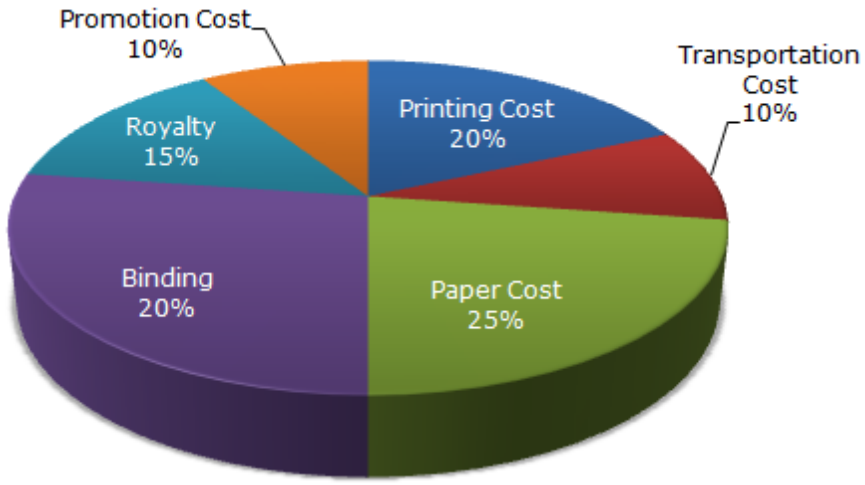
Q14. What was the difference between the average exports of the three Companies in 1993 and the average exports in 1998?
(a) Rs. 15 crores (b) Rs. 18 crores (c) Rs. 20 crores (d) Rs. 22 crores

Q15. In how many of the given years, were the exports from Company Z more than the average annual exports over the given years?

(a) 2 (b) 3 (c) 4 (d) 5

Directions (Q16 to Q20): The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.

Various Expenditures (in percentage) Incurred in Publishing a Book



Q16. If for a certain quantity of books, the publisher has to pay Rs. 30,600 as printing cost, then what will be amount of royalty to be paid for these books?

(a) Rs. 19,450 (b) Rs. 21,200 (c) Rs. 22,950 (d) Rs. 26,150

Q17. What is the central angle of the sector corresponding to the expenditure incurred on Royalty?

(a) 15 (b) 24 (c) 54 (d) 48

Q18. The price of the book is marked 20% above the C.P. If the marked price of the book is Rs. 180, then what is the cost of the paper used in a single copy of the book?

(a) Rs. 36 (b) Rs. 37.50 (c) Rs. 42 (d) Rs. 44.25

Q19. If 5500 copies are published and the transportation cost on them amounts to Rs. 82500, then what should be the selling price of the book so that the publisher can earn a profit of 25%?

(a) Rs. 187.50 (b) Rs. 191.50 (c) Rs. 175 (d) Rs. 180

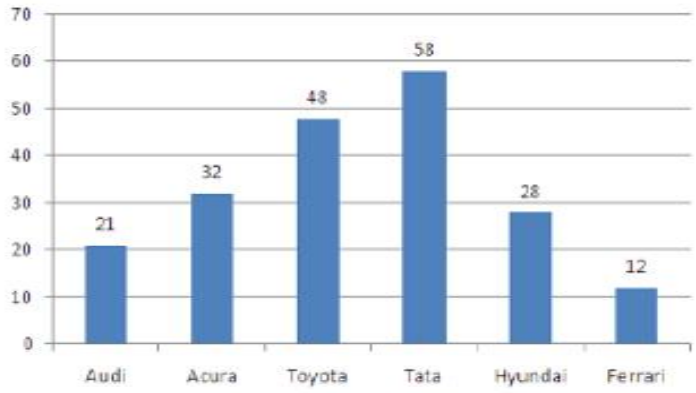
Q20. Royalty on the book is less than the printing cost by?

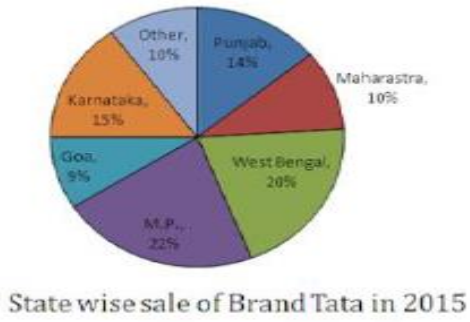
(a) 5% (b) 33.33% (c) 20% (d) 25%

Directions (Q21 to Q25): The bar graph shows the sales of six different car-manufacturers in 2015 (in thousands of units) in India.

The pie-chart shows the break-up of sales of Brand TATA in 2015 in different states of India.

Note→ All manufactured cars are sold in these given 7 states.





State wise sale of Brand Tata in 2015

Q21. What is the difference between the sales of Tata in West Bengal and that in Goa?
(a) 50600 (b) 6380 (c) 6567 (d) 6220

Q22. By what percent should the sales of brand Tata is increased so that it sales volume in Punjab becomes 15000, while the volume of sales in all other state remains the some (approximately)?
(a) 10% (b) 9% (c) 7% (d) 12%

Q23. If in 2016, the total sale of Brand Tata increase by 12%, while its sale in Maharashtra is increased by 34% and in M.P. by 22%, what is the approximate sales increase in the rest of the states?
(a) 7000 (b) 6500 (c) 8000 (d) 10,000

Q24. Total sale of Audi, Acura and Toyota in 2015 is what percent of the total sales of Tata in all states together in that year 2015 (approximately)?
(a) 100% (b) 113% (c) 190% (d) 175%

Q25. If total sale of all brands together increases by 20% in 2016 and sale of Tata in West Bengal increase by 10% keeping % percentage distribution of Tata in these seven states same as previously then, what is the total sale of all cars in 2016 of all brands except brand Tata?
(a) 1,75,000 (b) 1,50,000 (c) 2,00,000 (d) 1,00,000

Directions (Q26 to Q30): Read the given information and answer the following questions.
Krishna distributed 10-acre land to Gopal and Ram who paid him the total amount in the ratio 2: 3. Gopal invested a further Rs. 2 lakh in the land and planted coconut and lemon trees in the ratio 5: 1 on equal areas of land. There were a total of 100 lemon trees. The cost of one coconut was Rs. 5. The crop took 7 yr to mature and when the crop was reaped in 1997, the total revenue generated was 25% of the total amount put in by Gopal and Ram together. The revenue generated from the coconut and lemon trees was in the ratio 3: 2 and it was shared equally by Gopal and Ram as the initial amounts spent by them were equal.

Q26. What was the ratio of yield per acre of land for coconuts and lemons (in terms of number of lemons and coconuts)?
(a) 3: 2 (b) 2: 3 (c) 1: 1 (d) Can't say

Q27. What was the value of output per tree for coconuts?
(a) Rs 36 (b) Rs 360 (c) Rs 3,600 (d) Rs 240

Q28. What was the amount received by Gopal in 1997?
(a) Rs. 1.5 lakh (b) Rs. 3 lakh (c) Rs. 6 lakh (d) Rs. 4 lakh

Q29. What was the value of output per acre of the lemon tree planted (in lakh/acre)?
(a) 0.24 (b) 2.4 (c) 24 (d) Can't say

Q30. What was the total output of coconuts?
(a) 24,000 (b) 36,000 (c) 18,000 (d) 48,000

Home Assignment

Directions (Q1 to Q5): Study the following data related to the performance of 6 batsmen in a tournament

Batsman	No. of matches played	Average runs scored	Total balls faced	Strike rate
Ankit	8	—	—	129.6
Bikas	20	81	—	—
Cheeru	—	38	400	114
Dheeru	—	—	—	72
Eeshan	28	55	1280	—
Farhan	—	—	—	66

Note:

i) Strike rate $= \frac{\text{Total runs scored}}{\text{Total balls faced}} \times 100$

ii) All given batsmen bat in all the given matches played by them.

Q1. The respective ratio between the total number of balls faced by Dheeru and that of Farhan in the tournament is 3 : 4. The total number of runs scored by Farhan in the tournament is what percent more than the total runs scored by Dheeru in the tournament?

(a) 33 1/3 % (b) 22 2/9 % (c) 22 1/9 % (d) 22 %

Q2. If the runs scored by Eeshan in Last 3 matches of the tournament are not considered, his average runs scored in the tournament decreased by 9. If the runs scored Eeshan in 26th and 27th match are below 128 and no two scores among these 3 scores are equal, then what are the minimum possible runs scored by Eeshan in the 28th match?

(a) 133 (b) 135 (c) 137 (d) 140

Q3. In the tournament, the total number of balls faced by Ankit is 74 less than the total number of runs scored by him. What is the average run scored by Ankit in the tournament?

(a) 42.5 (b) 40 (c) 41.8 (d) 40.5

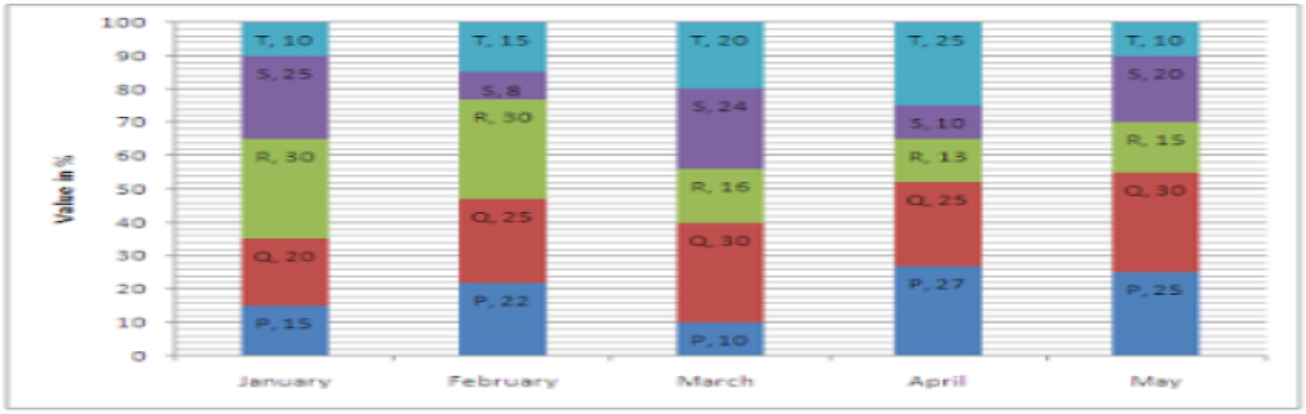
Q4. In the tournament Cheeru and Dheeru played same number of matches. Dheeru scored 24 runs more than that scored by Farhanwhen Farhan faced equal number of balls which was faced by Cheeru. Find the difference in the total runs scored and total ball faced by Dheeru?

(a) 118 (b) 112 (c) 122 (d) 108

Q5. If the average number of the match played by all players is 19, and the maximum possible runs scored by Farhan is 3 times the match played by him when he faced a total number of balls less than 151, then find the minimum possible matches played by Dheeru.?

(a) 12 (b) 10 (c) 13 (d) 8

Directions (Q6 to Q10): The following graph shows the percentage of discount offered on the total discount given in any month for 5 various products P, Q, R, S and T in a given month by a shopkeeper.



Condition 1: Total value of discount offered on all products increases by 10% every month.
Condition 2: Difference between the discount of R in January and discount of S in April is Rs. 333.8.

Q6. If total discount per month would have been increased by 20% instead of 10% as given above and condition 2 remains the same for new rate then, difference in value of discount of R in January and T in February according to new rate (approximately)?
(a) 315 (b) 330 (c) 305 (d) 405

Q7. What is the cost price of article T in February if ratio of cost price of T in February and cost price of S in May are in the ratio 6 : 5 and profit of S in May is Rs 343 (approximately)?
(a) 2400 (b) 2500 (c) 2000 (d) 1800

Q8. Cost price of Q in April is what percent more or less than the cost price of R in January if profit of Q in April is 280 and profit of R in January is 20% more than the discount of T in March (approximately)?
(a) 98% (b) 92% (c) 109% (d) 113%

Q9. If there are 82 articles of R are sold in March and Profit percent per article of R in March is 25/4% more of the percent value of discount of R in March then find the total profit in selling all articles (approximately)?
(a) 22500 (b) 17500 (c) 19250 (d) 24200

Q10. If shopkeeper had 10 units of Q type products in February in which 2 articles are spoiled then he should sell the remaining articles at what price so that there is overall gain of 20% if there is a profit of 125/7% on selling a unit of Q type product initially (approximately)?
(a) 2100 (b) 1800 (c) 1500 (d) 1400

Directions (11-15): Study the graph carefully to answer the questions that follow.
PERCENT INCREASE IN PROFIT OF THREE COMPANIES OVER THE YEARS

Q11. What was the per cent increase in profit of company Y in the year 2008 from the previous year?
(a) 2 (b) 10 (c) 20 (d)14

Q12. What was the approximate percent increase in the profit of company Z in the year 2005 from the previous year?
(a) 14 (b) 21 (c) 8 (d) 26

Q13. If the profit earned by company X in the year 2004 was Rs. 2,65,000, what was its profit in the year 2006?
(a) Rs 6,21,560 (b) Rs 4,68,290 (c) Rs 7,05,211 (d) Rs 4,82,300

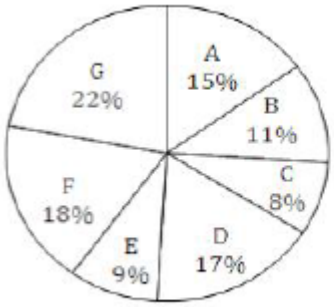
Q14. What is the average per cent increase in profit of company Z over the years?
(a) 40 5/6 % (b) 41 2/3 % (c) 28 1/6 % (d) 23 1/3 %

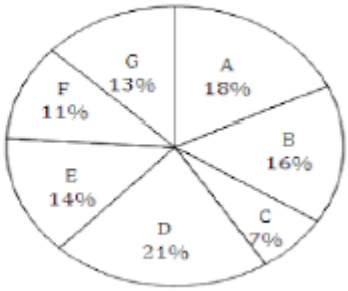
Q15. What is the ratio of profit percent of company Y in 2005 to company Z in 2007?
(a) 1:4 (b) 2:1 (c) 3:4 (d) 2:3

Directions (Q16 to Q20): These questions based on the following graphs.

Classification of appeared candidates in a test from different states and qualified candidates from those states.

Appeared candidates = 45000. Qualified candidates = 9000





Q16. What is the ratio of the number of appeared candidates from states C and E together to that of the appeared candidates from states A and F together?

(a) 17: 33 (b) 11 : 13 (c) 13 : 27 (d) 17 : 27

Q17. In which state, the percentage of qualifies candidates with respect to that of appeared candidates is minimum?

(a) C (b) F (c) D (d) G

Q18. What is the difference between the number of qualified candidates of states D and those of G?

(a) 690 (b) 670 (c) 780 (d) 720

Q19. What is the percentage of qualified candidates with respect to appeared candidates from states B and C taken together? (rounded to two decimal places)

(a) 23.11 (b) 24.21 (c) 21.24 (d) 23

Q20. What is the ratio between the number of candidates qualified from states B and D together to the number of candidates appeared from states 'C', respectively?

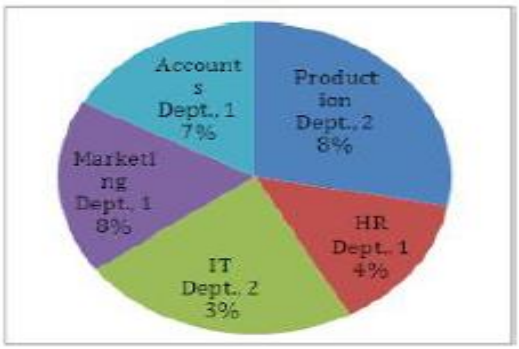
(a) 8 : 37 (b) 11 : 12 (c) 37 : 40 (d) 7 : 37

Directions (Q21 to Q25): Study the following pie chart and table carefully to answer the following questions that follow.

Percentages break up of employees working in various departments of an organization and the ratio of men to women in them.

Total Number of Employees = 1800

Percentage Break up of employees



Ratio of Men to Women		
Department	**Men**	**Women**
Production	11	1
HR	1	3
IT	5	4
Marketing	7	5
Accounts	2	7

Q21. What is the number of men working in the marketing department?
(a) 132 (b) 174 (c) 126 (d) 189

Q22. The number of women working in the IT department of the organization forms approximately what per cent of the total number of employees in the organizations from all departments together?
(a) 7 (b) 5 (c) 19 (d) 10

Q23. What is the respective ratio of the number of women working in the HR department of the organization and the total number of employees in that department?
(a) 3 : 4 (b) 2 : 5 (c) 2 : 9 (d) 3 : 7

Q24. What is the respective ratio of the number of men working in the Accounts departments to the total number of employees working in that department?
(a) 9 : 2 (b) 7 : 6 (c) 2 : 9 (d) 6 : 7

Q25. The number of men working in the production department of the organization forms what per cent of the total number of employees working in that department? (Rounded off to two digits after decimal)
(a) 89.76 (b) 91.67 (c) 88.56 (d) 94.29

Competitive Assignment

Directions (Q1 to Q5): In the following table, the Investment and profit of three Companies in different countries is given.

Investment (in mn $.)				Profit (in mn $.)		
State	TCS	Infosys	Accenture	TCS	Infosys	Accenture
Singapore	15000	—	25000	—	8000	12500
UK	—	7000	8000	—	—	14000
UAE	4000	5000	4500	—	—	—
Qatar	9000	10000	—	4500	6000	—
Malaysia	—	—	17000	20000	30000	40000

Note: Some values are missing. You have to calculate these values as per data given in the questions.

Q1. If TCS invested his amount in SINGAPORE state for 9 years and Accenture invested his amount in the same country for 10 years then find the total profit made by all of them from SINGAPORE?
(a) 29250 mn $ (b) 24250 mn $ (c) 27250 mn $ (d) 31200 mn $

Q2. If the total profit earned from UK by all of them is mn $ 32375 and each invested for 9 years then find the ratio of investment of TCS in UK to the profit of Infosys from SINGAPORE?
(a) 16 : 7 (b) 7 : 16 (c) 8 : 13 (d) 13 : 8

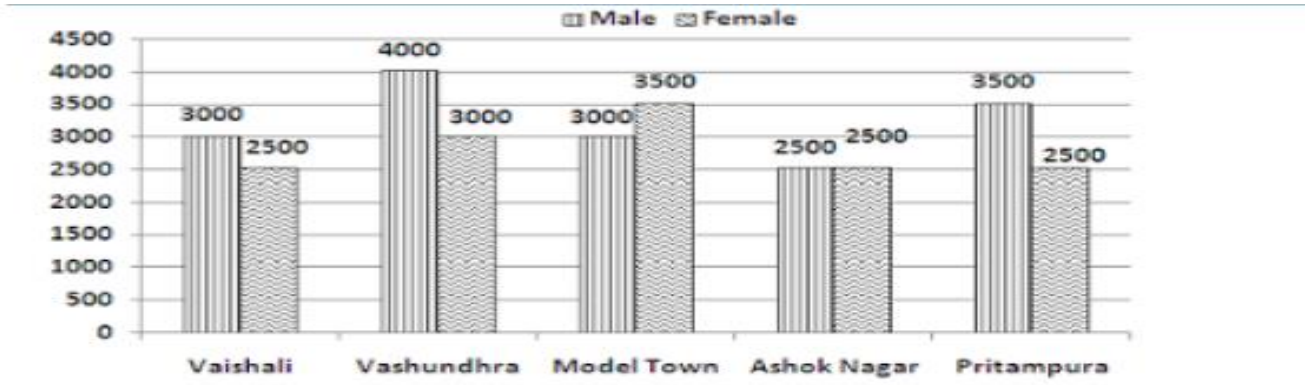
Q3. If TCS, Infosys and Accenture invested in UAE for 5 years, 8 years and 6 years respectively then profit earned by Accenture from UAE is what % of the profit earned by TCS and Infosys together from the same Country, if total profit earned by all of them from UAE state is 8700 mn $?
(a) 45% (b) 50% (c) 55% (d) 40%

Q4. In Malaysia state total Investment of TCS and Infosys is 85000 mn $, while TCS and Infosys invested their amount for 4 years and 6 years respectively in the same country, then find the number of years that Accenture invested his amount?
(a) 8 years (b) 9 years (c) 20 years (d) Can't say

Q5. Average Investment made by all of them in Qatar is 10,000 mn $ and average profit earned by all of them from the same state is $ 6000 mn , then profit earned by Accenture in the same country is what percent more/less than the amount invested by Accenture in the same state?

(a) 35 1/3 % (b) 37 6/7 % (c) 32 7/11 % (d) 31 9/11 %

Directions (Q6 to Q10): Study the following graph carefully to answer the questions that follow.



Q6. What is the average number of females from all the organizations together?

(a) 2700 (b) 2500 (c) 2800 (d) 2900

Q7. The total number of males from organization Vaishali and Vashundhra together is approximately what percent of the total number of females from organization Vaishali, Vashundhra and Model Town together?

(a) 33% (b) 55% (c) 66% (d) 78%

Q8. What is the difference between the total number of females and the total number of males from organization Vaishali, Vashundra, Model Town and Ashok Nagar together?

(a) 900 (b) 800 (c) 700 (d) 1000

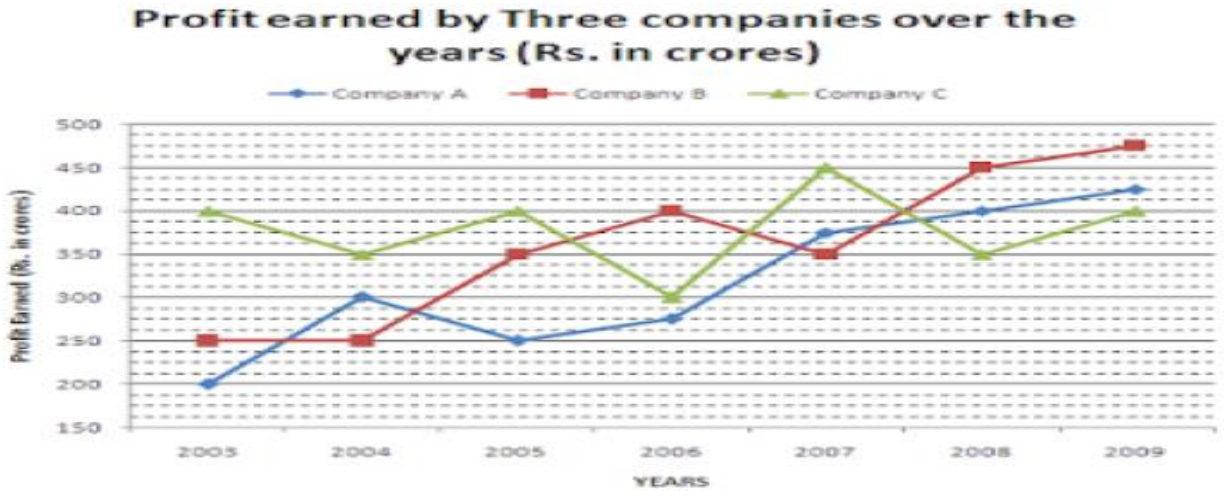
Q9. What is the ratio of the number of females from organization Vashundra to the number of females from organization Pritampura?

(a) 6 : 5 (b) 5 : 6 (c) 6 : 7 (d) 7 : 6

Q10. The number of males from organization Vashundhra is approximately what percent of the total number of males from all the organizations together?

(a) 23.42% (b) 21.42% (c) 25% (d) 26%

Directions (Q11 to Q15): Study the following graph carefully and answer the questions given below:**.**



Q11. What was the average profit earned by all the three companies in the year 2008?
(a) Rs. 300 crore (b) Rs. 400 crore (c) Rs. 350 crore (d) Rs. 520 crore

Q12. In which of the following years was the difference between the profits earned by company B and company A the minimum?
(a) 2003 (b) 2004 (c) 2005 (d) 2007

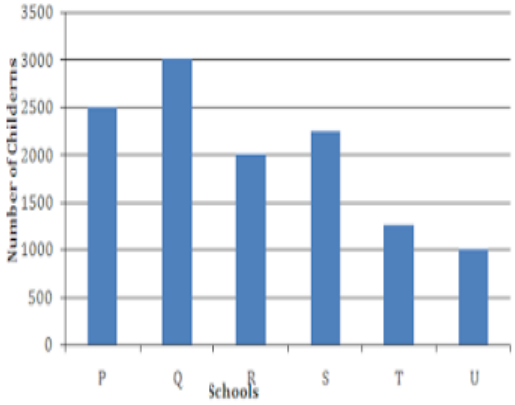
Q13. In which of the following years was the total profit earned by all three companies together with the highest?
(a) 2004 (b) 2007 (c) 2008 (d) 2009

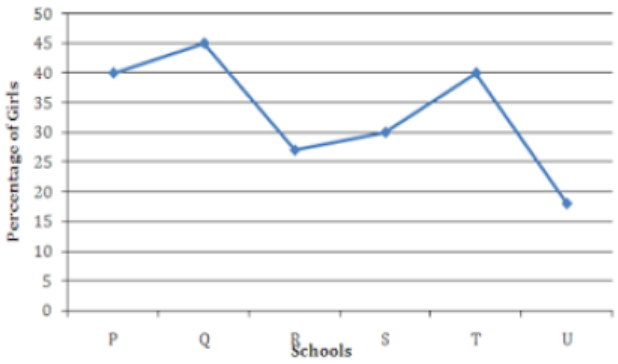
Q14. What was the approximate percentage increase in the profit earned by Company A from 2006 to 2007?
(a) 36 (b) 24 (c) 40 (d) 20

Q15. What was the difference between the profit earned by company A in 2004 and the profit earned by company C in 2009?
(a) Rs.50 crore (b) Rs.1 crore (c) Rs.100 crore (d) Rs.200 crore

Directions (Q16 to 20): Study the graphs carefully to answer the questions that follow.

Total number of children in 6 different schools and the percentage of girls in them





Q16. What is the total percentage of boys in schools R and U together? (Rounded off to two digits after decimal)
(a) 78.55 (b) 72.45 (c) 76.28 (d) 75.83

Q17. What is the total number of boys in school T?
(a) 500 (b) 600 (c) 750 (d) 850

Q18. The total number of students in school R, is approximately what per cent of the total number of students in school S?
(a) 89 (b) 75 (c) 78 (d) 82

Q19. What is the average number of boys in schools P and Q together?
(a) 1425 (b) 1575 (c) 1450 (d) 1625

Q20. What is the respective ratio of the number of girls in schools P to the number of girls in school Q?
(a) 27 : 20 (b) 17 : 21 (c) 20 : 27 (d) 21 : 17

Answer Key

Class Assignment									
Q.No	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**
1	d	2	c	3	c	4	a	5	b
6	c	7	d	8	d	9	d	10	c
11	d	12	d	13	c	14	c	15	c
16	a	17	c	18	b	19	a	20	d
21	b	22	d	23	c	24	d	25	a
26	d	27	b	28	a	29	a	30	b
Home Assignment									
Q.No	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**
1	b	2	c	3	d	4	b	5	c
6	a	7	a	8	c	9	d	10	a
11	d	12	a	13	d	14	a	15	d
16	a	17	d	18	d	19	b	20	c
21	d	22	d	23	a	24	c	25	b
Competitive Assignment									
Q.No	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**	**Q.No**	**Ans**
1	c	2	b	3	a	4	c	5	d
6	c	7	d	8	d	9	a	10	c
11	b	12	d	13	d	14	a	15	c
16	d	17	c	18	a	19	b	20	c

Data Sufficiency

1. How is P related to Q?
   I. P is the mother-in-law of R who is the father of Q.
   II. S is the grandfather of Q and also the husband of P.
   A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
   B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
   C) If the data either in statement I alone or in statement II alone are sufficient to answer the question.
   D) If the data even in both statements I and II together are not sufficient to answer the question.
   E) If the data in both statement I and II together are necessary to answer the question.

2. Seven persons X, Y, Z, A, B, C and D are belonging to the same family and it is a family of three-generation and there are two married couples in the family. How is C related to D?
   I. B is brother of C and son of A. A is mother-in-law of Z and grandmother of D. Z is not married to C.
   II. C is daughter of A and sister of Y. B is son of X and brother-in-law of Z. Z is father of D. Z is not married to C.
   A) The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question
   B) The data even in both statements I and II together are not sufficient to answer the question
   C) The data either in statement I alone or in statement II alone are sufficient to answer the question
   D) The data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question
   E) The data in both statements I and II together are necessary to answer the question

3. A has how many daughters?
   I. B is husband of C and father-in-law of A who has three Children.
   II. D's father E is husband of A. F and G are sisters of D.
   III. E has three children out of which only one is a boy.
   A) Only statement I is required
   B) Only statement II is required
   C) Both I and III required
   D) Both II and III required
   E) Question cannot be answered even with all the statements together.

4. How is M related to N?
   I. P, who has only two kids, M & N, is the mother-in-law of Q, who is sister-in-law of N.
   II. R, the sister-in-law of M, is the daughter-in-law of S, who has only two kids, M & N.
   A) Data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.
   B) Data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.
   C) Data either in Statement I alone or in Statement II alone are sufficient to answer the question.
   D) Data in both the Statements I and II together are not sufficient to answer the question.
   E) Data in both the Statements I and II together are necessary to answer the question.

5. Seven persons P, Q, R, S, T, U and V are belonging to the same family. It is a three-generation family and two married couples are there in the family. How is U related to V?

I. T is brother of U and son of S. S is mother-in-law of R and grandmother of V. R is not married to U.
II. U is daughter of S and sister of Q. T is son of P and brother-in-law of R. R is father of V. R is not married to U.

A) The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

B) The data even in both statements I and II together are not sufficient to answer the question

C) The data either in statement I alone or in statement II alone are sufficient to answer the question

D) The data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

E) The data in both statements I and II together are necessary to answer the question

6. In which month (of the same year) did Ram visit Goa?

I. Ram's mother correctly remembers that Ram visit Goa after June, but before October and that month had less than 31 days.

II. Ram's father correctly remembers that Ram visit Goa after August, but before December and the month had only 30 days.

A) The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

B) The data even in both statements I and II together are not sufficient to answer the question

C) The data either in statement I alone or in statement II alone are sufficient to answer the question

D) The data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

E) The data in both statements I and II together are necessary to answer the question

7. In which year was Sugan born ?

I. Sugan's present age is 20 years more than his child

II. Sugan's have two children. First child was born in 1993 ?

A)Only I

B)Only II

C)Both I and II

D)Either I or II

E)Neither I or II

8. On which day of the week did Priya arrive?

I. Her sister, Anu, correctly remembers that she did not arrive on Monday.

II. Her friend, Bala, correctly remembers that she arrived before Friday.

III. Her mother correctly mentions that she arrived before Friday but after Tuesday.

A)Only I and II

B)Only II and III

C)Only I and III

D)All I, II and III

E)Data inadequate

9. How is ‘Go’ written in a given language?

   I. ‘go to school’ is written as ‘ fa la da’ and ‘on the way’ is written as ‘ni da ka’

   II. ‘way for market’ is written as ‘ sh da pi’ and ‘way to School’ is written as ‘ ma la fa’

   A)Only I

   B)Only II

   C)Both I and II

   D)Either I or II

   E)Neither I or II

10. How many days did Rahul take to complete his assignment?

    I. Mohan correctly remembers that Rahul took more than 3 days but less than 9 days to complete his assignment.

    II. Mithun correctly remembers that Rahul took more than 6 days but less than 11 days to complete his assignment.

    A) Only I

    B) Only II

    C) Both I and II

    D) Either I or II

    E) Neither I or II

11. In the question below consists of two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements.
    Question: Which train did Aman catch to go to office ?
    Statements: I. Aman missed his usual train of 10.25 a.m. A train comes in every 5 minutes.
    II. Aman did not catch the 10.40 a.m. train or any train after that time.

a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

12. In the question below consists of two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements.
    Question: What time did the train leave today ?
    Statements: I. The train normally leaves on time.
    II. The scheduled departure is at 14 : 30.
    a) I alone is sufficient while II alone is not sufficient
    b) II alone is sufficient while I alone is not sufficient
    c) Either I or II is sufficient
    d) Neither I nor II is sufficient
    e) Both I and II are sufficient

Directions for Q13-15

Statement 1 ALONE is sufficient, but statement 2 alone is not sufficient to answer the question asked.
Statement 2 ALONE is sufficient, but statement 1 alone is not sufficient to answer the question asked.
BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
EACH statement ALONE is sufficient to answer the question asked.
Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

13. What is the present time in the clock?
    The angle between the hour hand and the minute hand is 100
    The mirror reflection of the clock shows the time 7:40

14. Find the time shown in a wall clock?
    The angle between the two hands is 1800
    The hour hand of the clock is between 7 and 8 on the dial

15. What is the angle between the hour hand and the minute hand of the clock?
    The two hands are 503 minute spaces apart.
    The minute hand is on 8, and the hour hand is between 4 and 5.

16. What is the code for 'smart' in the code language?

    I. In the code language, 'Ram is smart' is written as 'Ab Bc De'

    II. In the same language, 'Smart people are intelligent' is written as 'Bc Cd Ef Gh'

    III. In the same language, 'Riya is intelligent' is written as 'Ab Cd Fg'

    A) All the statements are needed to answer the question.

    B) Only statements I and III are sufficient.

    C) Only statements I and II are sufficient.

    D) Only statements II and III are sufficient.

    E) Question cannot be answered even with the information in all the statements.

17. Which of the following will indicate colour of clear sky in a coding system?

    I. 'Indigo' means 'Grey', 'Grey' means 'Black', Black' means 'Blue' in that system.

    II. 'Black' means 'Blue', 'Blue' means 'Orange'; Orange' means 'Green' in that system.

    A) Data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

    B) Data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.

    C) Data either in Statement I alone or in Statement II alone are sufficient to answer the question.

    D) Data in both the Statements I and II together are not sufficient to answer the question.

    E) Data in both the Statements I and II together are necessary to answer the question.

18. How is ' home' written in a given language?

    I.'go to home' is written as ' sa la da' and 'on the way' is written as 'ni da ka'

    II.'way for market is written as ' sh da pi' and way to home is written as ' da pi ma'

    1.Only I

    2.Only II

    3.Both I and II

    4.Either I or II

    5.Neither I or II

19. What does ‘ Zee’ represent in a code language ?
    I. In that code language ‘ ah koj zee pig’ mean ‘ can you take that ’
    II. In that code language ‘et zee lin ter’ means ‘ you may come now’
    1.Only I
    2.Only II
    3.Both I and II
    4.Either I or II
    5.Neither I or II

20. Find the length of the diagonal of square G.
    I. The area of G is 169 fathoms squared.
    II. The side length of G is 13 fathoms.
    A) Each statement alone is enough to solve the question.
    B) Neither statement is sufficient to solve the question. More information is needed.
    C) Statement 2 is sufficient to solve the question, but statement 1 is not sufficient to solve the question.
    D) Statement 1 is sufficient to solve the question, but statement 2 is not sufficient to solve the question.
    E) Both statements taken together are sufficient to solve the problem.

21. The circle with center F is inscribed in square ABCD. What is the length of diagonal AC?
    I. The area of the circle is 16π.
    II. The side of the square is 8.
    a. Both statements together are sufficient.
    b. Statements 1 and 2 together are not sufficient.
    c. Statement 2 alone is sufficient.
    d. Each statement alone is sufficient.
    e. Statement 1 alone is sufficient.

22. On your college campus there is a square grassy area where people like to hang out and enjoy the sun. While walking with some friends, you decide to take the shortest distance to the corner of the square opposite from where you are. Find the distance you travelled.
    I. The perimeter of the square is 60 meters.
    II. The square covers an area of 225 square meters.
    Statement II is sufficient to answer the question, but statement I is not sufficient to answer the question.
    Neither statement is sufficient to answer the question. More information is needed.
    Both statements are needed to answer the question.
    Statement I is sufficient to answer the question, but statement II is not sufficient to

23. Find the length of the diagonal of square A if the diagonal of square B is 82–√in.
    The perimeter of square B is 32in
    The area of square A is 16in2
    Statement 2 alone is sufficient, but statement 1 alone is not sufficient to answer the question.
    Both statements taken together are sufficient to answer the question, but neither statement alone is sufficient.
    Statement 1 alone is sufficient, but statement 2 alone is not sufficient to answer the question.
    Statements 1 and 2 are not sufficient, and additional data is needed to answer the question.
    Each statement alone is sufficient to answer the question.

24. What is the length of the diagonal of the square?
    1. The area of the square is 64cm2.
    2. The perimeter is 32cm.
    a) Statements 1 and 2 are not sufficient, and additional data is needed to answer the question.

b) Both statements taken together are sufficient to answer the question, but neither statement alone is sufficient.
c) Statement 2 alone is sufficient, but statement 1 alone is not sufficient to answer the question.
d) Each statement alone is sufficient to answer the question.
e) Statement 1 alone is sufficient, but statement 2 alone is not sufficient to answer the question.

25. Jiminy wants to paint one of his silos. One gallon of this paint covers about 300 square feet. How many gallons will he need?
    I) The radius of the silo is 14π feet.
    II) The height is 12π times longer the radius.
    A] Statement II is sufficient to answer the question, but statement I is not sufficient to answer the question.
    B] Either statement alone is sufficient to answer the question.
    C] Both statements are necessary to answer the question.
    D] Statement I is sufficient to answer the question, but statement II is not sufficient to answer the question.
    E] Neither I nor II is sufficient to answer the question. More information is needed.

26. A tin can has a volume of 375πin3.
    I) The height of the can is 15 inches.
    II) The radius of the base of the can is 5 inches.
    What is the surface area of the can? (Assume it is a perfect cylinder)
    Options :
    A] Neither statement is sufficient to answer the question. More information is needed.
    B] Both statements are needed to answer the question.
    C] Either statement is sufficient to answer the question.
    D] Statement II is sufficient to answer the question, but statement I is not sufficient to answer the question.
    E] Statement I is sufficient to answer the question, but statement II is not sufficient to answer the question.

27. The tank of a tanker truck is made by bending sheet metal and then welding on the ends. If the length of the tank is 10 meters, what is its radius?
    I) The volume of the tank is 250m3.
    II) It takes 150π square meters of metal to build the tank.
    A] Both statements are needed to answer the question.
    B] Statement II is sufficient to answer the question, but statement I is not sufficient to answer the question.
    C] Neither statement is sufficient to answer the question. More information is needed.
    D] Statement I is sufficient to answer the question, but statement II is not sufficient to answer the question.
    E] Either statement is sufficient to answer the question.

28. Of Cylinder 1 and Cylinder 2, which, if either, has the greater surface area?
    Statement 1: The sum of the height of Cylinder 1 and the radius of one of its bases is equal to the sum of the height of Cylinder 2 and the radius of one of its bases.
    Statement 2: The bases of Cylinder 1 and Cylinder 2 have the same circumference.
    A] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
    B] BOTH statements TOGETHER are insufficient to answer the question.
    C] EITHER statement ALONE is sufficient to answer the question.

D] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
E] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

29. Give the surface area of a cylinder.
Statement 1: The circumference of each base is 14π.
Statement 2: Each base has radius 7.
A] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
B] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
C] EITHER statement ALONE is sufficient to answer the question.
D] BOTH statements TOGETHER are insufficient to answer the question.
E] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

30. Which of Cylinder 1 and Cylinder 2, either, has the greater lateral area?
Statement 1: The product of the height of Cylinder 1 and the radius of one of its bases is less than the product of the height of Cylinder 2 and the radius of one of its bases.
Statement 2: The product of the height of Cylinder 2 and the radius of one of its bases is equal to the product of the height of Cylinder 1 and the diameter of one of its bases.
A] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
B] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
C] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
D] EITHER statement ALONE is sufficient to answer the question.
E] BOTH statements TOGETHER are insufficient to answer the question.

Home Assignment

1. Who is youngest among six family members U, V, W, X, Y and Z?
I. U is the daughter-in-law of X, Y is grandson of Z, who is the father of V.
II. U is not youngest while Z is the eldest.
III. V is the father of W, who is grandson of Z. X is the wife of Y's son and W's father.
A) If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.
B) If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.
C) If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.
D) If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.
E) If the data in all the statement I, II and III are necessary to answer the question

2. There are six members A, B, C, D, E, and F in a family, how is E related to D?
I. D is son of C. A and F are child of B. E is grandfather of A.
II. C is mother-in-law of B, who is a female member. D has no brother.
A) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are

not sufficient to answer the question.
B) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
C) If the data either in statement I alone or in statement II alone are sufficient to answer the question.
D) If the data even in both statements I and II together are not sufficient to answer the question.
E) If the data in both statement I and II together are necessary to answer the question.

3. How is Rai related to Varun ?
I.Sai is one of the brothers of Rai. Latha is the sister of Rai
II.Varun is husband of Mala, who is mother of Sai
A).Only I
B).Only II
C).Both I and II
D).Either I or II
E).Neither I or II

4. How is 'Shilpa' the girl related to 'Mani'?
I.Shivi, the cousin of Mani, is niece of Shilpa.
II.Shilpa's sister Susi is wife of Ravi, who is father of Mani.
A).Only I
B).Only II
C).Both I and II
D).Either I or II
E).Data inadequate

5. AJAY and MRITHULA are father and mother of Sathya, respectively. Sathya has four uncles and three aunts. AJAY has two siblings. The siblings of AJAY and MRITHULA are unmarried. How many brothers does MRITHULA have?
I.AJAY has two brothers.
II.MRITHULA has five siblings.
A).Only I
B).Only II
C).Both I and II
D).Either I or II
E).Neither I or II

6. On which day of the week from Monday to Sunday did Vijay leave for Mumbai?
I.Vijay's brother left for Mumbai on Friday.
II.Vijay leaves for Mumbai after Tuesday.
III.Vijay left before his brother.
A)Only I
B)Only II
C)Both I and II
D)Both I and III
E)Data inadequate

7. On which day of the week from Monday to Sunday did Vinay leave for Vietnam?

   I.Vinay didn't leave for Vietnam during the weekend.

   II.Vinay's brother left for Vietnam on Friday, 2 days after Vinay left for Vietnam

   A)Only I

   B)Only II

   C)Both I and II

   D)Either I or II

   E)Neither I or II

8. On which day of the week did Arjun arrive?

   I. His sister, Malavika, correctly remembers that he did not arrive on Wednesday.

   II. His friend, Bala, correctly remembers that he arrived before Friday.

   III. His mother correctly mentions that he arrived before Friday but after Tuesday.

   A) Only I and II

   B) Only II and III

   C) Only I and III

   D) All I,II and III

   E) Can't be determined

9. On which day of the week did Renu arrive?

   I. Her sister, Teena, correctly remembers that she did not arrive on Wednesday.

   II. Her friend, Meena, correctly remembers that she arrived before Friday.

   III. Her mother correctly mentions that she arrived before Friday but after Tuesday.

   1.Only I and II

   2.Only II and III

   3.Only I and III

   4.All I, II and III

   5.Data inadequate

10. On which day of the week did Anil arrive?

    1) His sister, Tanvi, correctly remembers that he did not arrive on Wednesday.

    2) His friend, Manav, correctly remembers that he arrived before Friday.

    3) His mother correctly mentions that he arrived before Friday but after Tuesday.

    a) only 1 and 2

    b) only 2 and 3

    c) only 1 and 3

    d) all 1,2 and 3

    e) none of these

11. Is it 9 o'clock now?

    STATEMENT 1: After half an hour, the minute and the hour hands of the clock will make an angle of exactly 90° with each other.

    STATEMENT 2: Exactly 15 minutes ago, the minute and the hour hands of the clock coincided with each other.

    a) if the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

b) if the data in Statements II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.
c) if the data either in Statement I alone or in Statement II alone are sufficient to answer the question.
d) if the data given in both the Statement I and II together are not sufficient to answer the question.
e) if the data in both the Statement I and II together are necessary to answer the question.

12. Is the time in the clock 3 O'clock now ?
I After fifteen minutes the minute and the hour hands of the clock will make a straight line.
II. The train which is running late by exactly three hours from its scheduled time of arrival i. e. 11 A. M. has reached now.
(a) if the data in statement I alone are sufficient to answer the question while the data in statement II alone are not sufficient to answer the question.
(b) if the data in statement II alone are sufficient to answer the question while the data in statement I alone are not sufficient to answer the question.
(c) if the data either in statement I alone or in statement II alone are sufficient to answer the question .
(d) if the data given in both the statements I and II together are not sufficient to answer the question and
(e) if the data in both the statements I and II together are necessary to answer the question

13. What will be the position of hour hand of a clock at 7:30 PM? Statements
STATEMENT 1: There are English alphabets on the dial of the clock instead of digits.
STATEMENT 2: The hour hand is at P at 7 O' clock.
(a) if the data in statement f alone are sufficient to answer the question while the data in statement II alone are not sufficient to answer the question.
(b) if the data in statement II alone are sufficient to answer the question while the data in statement I alone are not sufficient to answer the question.
(c) if the data either in statement 1 alone or in statement II alone arc sufficient to answer the question.
(d) if the data even in both satements I and II together are not sufficient to answer the question.
(e) if the data in both statements I and II together are necessary to answer the question.

14. At what time between 5 and 6 o'clock are the hands of a clock 3 min apart?
I. The time is 5:28
II. The time is 5:22
a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

15. What is the angle between the two hands of a clock
I. The time is clock is 5.30 p.m.
II. The difference between minute hand and hour hand in degree is 15 degree.
a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

16. Find the side length of square R.
STATEMENT 1: The area of square R is 225 yd^2.
STATEMENT 2: The perimeter of square R is 60 yd.
a) Neither statement is sufficient to solve the question. More information is needed.
b) Statement 1 is sufficient to solve the question, but statement 2 is not sufficient to solve the question.
c) Both statements taken together are sufficient to solve the question.
d) Statement 2 is sufficient to solve the question, but statement 1 is not sufficient to solve the question.
e) Each statement alone is enough to solve the question.

17. Find the area of square TGIF.
    STATEMENT 1: TGIF has a diagonal of $\sqrt{52}$ inches.
    STATEMENT 2 TGIF has a perimeter of 20 inches.
    a) Both statements together are needed to answer the question.
    b) Statement II is sufficient to answer the question, but Statement I is not sufficient to answer the question.
    c) Neither statement is sufficient to answer the question. More information is needed.
    d) Either statement alone is sufficient to answer the question.
    e) Statement I is sufficient to answer the question, but Statement II is not sufficient to answer the question.

18. Calculate the length of the square.
    Statement 1): The area is 1.
    Statement 2): The diagonal is 1.
    a) Statement 2) ALONE is sufficient, but Statement 1) ALONE is not sufficient to answer the question.
    b) BOTH statements taken TOGETHER are sufficient to answer the question, but neither statement ALONE is sufficient.
    c) EACH statement ALONE is sufficient.
    d) Statement 1) ALONE is sufficient, but Statement 2) ALONE is not sufficient to answer the question.
    e) BOTH statements TOGETHER are NOT sufficient, and additional data is needed to answer the question.

19. Find the length of the quadrilateral.
    Statement 1.) The area of a quadrilateral is 4.
    Statement 2.) All interior angles of a quadrilateral are right angles.
    a) EACH statement ALONE is sufficient.
    b) BOTH statements TOGETHER are NOT sufficient, and additional data is needed to answer the question.
    c) Statement 1) ALONE is sufficient, but Statement 2) ALONE is not sufficient to answer the question.
    d) BOTH statements taken TOGETHER are sufficient to answer the question, but neither statement ALONE is sufficient.
    e) Statement 2) ALONE is sufficient, but Statement 1) ALONE is not sufficient to answer the question.

20. Find the area of a square.
    STATEMENT 1: The length of one side of the square is 4.
    STATEMENT 2: The length of the diagonal of the square is 12.
    a) Both statements taken together are sufficient to answer the question, but neither statement alone is sufficient
    b) Each statement alone is sufficient
    c) Statement 2 alone is sufficient, but statement 1 alone is not sufficient to answer the question
    d) Statement 1 alone is sufficient, but statement 2 alone is not sufficient to answer the question
    e) Statements 1 and 2 together are not sufficient, and additional data is needed to answer the question

21. Give the surface area of a cylinder.
    Statement 1: The circumference of each base is 18π.
    Statement 2: The height is four greater than the diameter of each base.
    A] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
    B] EITHER statement ALONE is sufficient to answer the question.
    C] BOTH statements TOGETHER are insufficient to answer the question.
    D] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
    E] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

22. Of Cylinder 1 and Cylinder 2, which, if either, has the greater surface area?
    Statement 1: Cylinder 1 has bases with radius twice those of the bases of Cylinder 2.

Statement 2: The height of Cylinder 1 is half that of Cylinder 2.

A] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
B] EITHER statement ALONE is sufficient to answer the question.
C] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
D] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
E] BOTH statements TOGETHER are insufficient to answer the question.

23. Give the surface area of a cylinder.
Statement 1: If the height is added to the radius of a base, the sum is twenty.
Statement 2: If the height is added to the diameter of a base, the sum is thirty.

A] EITHER statement ALONE is sufficient to answer the question.
B] BOTH statements TOGETHER are insufficient to answer the question.
C] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
D] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

24. Of Cylinder 1 and Cylinder 2, which, if either, has the greater lateral area?
Statement 1: The cylinders have the same volume.
Statement 2: The product of the height of Cylinder 1 and the area of its base is equal to the product of the height of Cylinder 2 and the area of its base.

A] BOTH statements TOGETHER are insufficient to answer the question.
B] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
C] EITHER statement ALONE is sufficient to answer the question.
D] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

25. The city of Wilsonville has a small cylindrical water tank in which it keeps an emergency water supply. Give its surface area, to the nearest hundred square feet.
Statement 1: The water tank holds about 37,700 cubic feet of water.
Statement 2: About ten and three fourths gallons of paint, which gets about 350 square feet of coverage per gallon can, will need to be used to paint the tank completely.

A] EITHER statement ALONE is sufficient to answer the question.
B] BOTH statements TOGETHER are insufficient to answer the question.
C] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
D] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

26. Of a given cylinder and a given sphere, which, if either, has the greater surface area?
Statement 1: The height of the cylinder is equal to the radius of the sphere.
Statement 2: The radius of a base of the cylinder is greater than the radius of the sphere.

A] BOTH statements TOGETHER are insufficient to answer the question.
B] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
C] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
D] EITHER statement ALONE is sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

27. In the above figure, a cylinder is inscribed inside a cube. X and Y mark the points of tangency the upper base has with $\overline{BC}$ and $\overline{CD}$. What is the surface area of the cylinder?
Statement 1: Arc $\overset{\frown}{XY}$ has length 5π.
Statement 2: Arc $\overset{\frown}{XY}$ has degree measure 90°.
A] BOTH statements TOGETHER are insufficient to answer the question.
B] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
C] EITHER statement ALONE is sufficient to answer the question.
D] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

28. Of a given cylinder and a given cube, which, if either, has the greater surface area?
Statement 1: Both the height of the cylinder and the diameter of its bases are equal to the length of one edge of the cube.
Statement 2: Each face of the cube has as its area four times the square of the radius of the bases of the cylinder.
A] EITHER statement ALONE is sufficient to answer the question.
B] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
C] BOTH statements TOGETHER are insufficient to answer the question.
D] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
E] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

29. Of Cylinder 1 and Cylinder 2, which, if either, has the greater surface area?
Statement 1: The radius of the bases of Cylinder 1 is equal to the height of Cylinder 2.
Statement 2: The radius of the bases of Cylinder 2 is equal to the height of Cylinder 1.
A] EITHER statement ALONE is sufficient to answer the question.
B] BOTH statements TOGETHER are insufficient to answer the question.
C] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
D] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

30. In the above figure, a cylinder is inscribed inside a cube. What is the surface area of the cylinder?
Statement 1: The volume of the cube is 729.
Statement 2: The surface area of the cube is 486.

A] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
B] BOTH statements TOGETHER are insufficient to answer the question.
C] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
D] EITHER statement ALONE is sufficient to answer the question.
E] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

Competitive Assignment

1. Which of Cylinder 1 and Cylinder 2, if either, has the greater volume?
Statement 1: The height of Cylinder 1 is equal to the radius of the base of Cylinder 2.
Statement 2: The height of Cylinder 2 is equal to twice the radius of the base of Cylinder 1.

A] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
B] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
C] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
D] EITHER statement ALONE is sufficient to answer the question.
E] BOTH statements TOGETHER are insufficient to answer the question.

2. How many identical cans can be packed in a certain box?
1. The box is 50 centimeters wide and 30 centimeters high.
2. Each can is 5 centimeters high.
A] BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient
B] Statements (1) and (2) TOGETHER are not sufficient
C] Statement (1) ALONE is sufficient, but statement (2) ALONE is not sufficient
D] Statement (2) ALONE is sufficient, but statement (1) ALONE is not sufficient
E] EACH statement ALONE is sufficient

3. Jenkins has a poster tube which he is using to carry his posters to college.
I. The poster tube has a volume of 46in3.
II. The poster tube is 23 inches long.
What is the radius of the poster tube?
A] Neither I nor II are sufficient to answer the question. More information is needed.
B] Either statement alone is sufficient to answer the question.
C] Statement I is sufficient to answer the question, but statement II is not sufficient to answer the question.
D] Statement II is sufficient to answer the question, but statement I is not sufficient to answer the question.
E] Both statements are necessary to answer the question.

4. How much water, in cubic feet, can a cylindrical water tank whose bases have radius 6 feet hold?
Statement 1: The lateral area of the tank is 125.66 square yards.
Statement 2: The tank is 30 feet high.

A] BOTH statements TOGETHER are insufficient to answer the question.
B] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is not sufficient to answer the question.
C] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is not sufficient to answer the question.
D] EITHER statement ALONE is sufficient to answer the question.
E] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

5. What is the length of the edge of a cube?
I. Its volume is 1,728 cubic meters.
II. Its surface area is 864 square meters
A] Statement 1 ALONE is sufficient, but Statement 2 alone is not sufficient.
B] BOTH statements TOGETHER are sufficient, but neither statement ALONE is sufficient.
C] EACH statement ALONE is sufficient.
D] Statement 2 ALONE is sufficient, but Statement 1 alone is not sufficient.
E] Statements 1 and 2 TOGETHER are not sufficient.

6. A sphere is inscribed inside a cube. What is the volume of the sphere?
Statement 1: The surface area of the cube is 216.
Statement 2: The volume of the cube is 216.
A] Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
B] Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
C] BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
D] BOTH statements TOGETHER are insufficient to answer the question.
E] EITHER statement ALONE is sufficient to answer the question.

7. Find out the total distance covered by both the hands?
I. A clock the long hand is of 8cm
II. The short hand is of 7cm. if the clock runs for 4 days
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

8 On the planet Oz, Find the approximate angle between the hands of a clock on Oz when the time is 12:40 am.
I. There are 8 days in a week, Sunday to Saturday and another day called Oz day. There are 36 hours in a day and each hour has 90 minutes while each minute has 60 seconds.
II. As on earth, the hour hand covers the dial twice every day.
A. I alone is sufficient while II alone is not sufficient
B. II alone is sufficient while I alone is not sufficient
C. Either I or II is sufficient
D. Neither I nor II is sufficient
E. Both I and II are sufficient

9 What time will it at 10 A.M. on Tuesday if the watch is set right at 3 A.M. on Sunday?
I. watch gains 12 seconds every 3 hours,

II. watch gains 15 sec in 5 hrs

A] I alone is sufficient while II alone is not sufficient
B] II alone is sufficient while I alone is not sufficient
C] Either I or II is sufficient
D] Neither I nor II is sufficient
E] Both I and II are sufficient

10 What will be the time in watch when the actual time is 8 p.m.?

I: For each hour a watch is going slow by ¼ of its hour hand .

II: For each hour a watch is going slow by 30 seconds. Now the time is 8 a.m., when the clock is set right.

a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

11 What is the local time when my plane landed?

I: My flight takes off at 2 AM from a place at 18N 10E and landed 10 Hrs. later at a place with coordinates 36N 70W.

II: The distance covered by plane is 2000km.

a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

12 Tell the time of the shooting (both actual and claimed).

I. Sometime after 10:00 PM a murder took place. A witness claimed that the clock must have stopped at the time of the shooting.
II. It was later found that the positions of both the hands were the same but their positions had interchanged.

a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

13 What time will it be 18 hours from now in India, ?

I. In the USA it is 4:15 AM
II. USA is situated in North-west of india

a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

14 What time will the clock indicate for such settings?

I. Ram's teacher asked him to set the two hands of the clock between 10 am and 11 am such that they are 8 minutes apart.
II. Ram's teacher asked him to set the two hands of the clock between 11 am and 12 am such that they are 12 minutes apart.

a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient

d) Neither I nor II is sufficient
e) Both I and II are sufficient

15 How much does a clock gain or lose in 24 hrs
I - if the minute hand and hour hand meet in every 62 minutes?
II- if the minute hand and hour hand meet in every 64 minutes?
a) I alone is sufficient while II alone is not sufficient
b) II alone is sufficient while I alone is not sufficient
c) Either I or II is sufficient
d) Neither I nor II is sufficient
e) Both I and II are sufficient

16. What is the position of P with respect to S?

I. Q is left to R.

II. S is south to R and south-west to T.

III. Q is south to P.

A) All the statements are required to answer the question.

B) Only statements I and II are sufficient.

C) Only statements II and III are sufficient.

D) Only statements I and III are sufficient.

E) Question cannot be answered even with the information in all three statements.

17. 'Q' is in which direction with respect to 'R'?

I. S is north of R and west of T who is south of U.

II. T is west of V who is north east of Q who is north of X.

III. Q is north of W and south west of S.

A) If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

B) If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.

C) If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.

D) If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.

E) If the data in all the statement I, II and III together are not sufficient to answer the question.

18. Who among the following is second to the left of E?

I. Five toys A, B, C, D and E are placed in a row in north direction. A is placed at one of the extreme end. B is placed exactly in between A and C.

II. Only one toy is placed in between C and E. E does not placed to the left of B.

A) The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

B) The data even in both statements I and II together are not sufficient to answer the question

C) The data either in statement I alone or in statement II alone are sufficient to answer the question

D) The data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

E) The data in both statements I and II together are necessary to answer the question

19. What is the direction of car R with respect to car V?

I. R is to the east of S and to the south of T.

II. U is to the south of R and V is 2m away from U.

III. W is to the north east of R and V is to the east of U.

A) Only III

B) Only I and II

C) Only II and III

D) Question cannot be answered even with all I, II & III

E) None of these

20. A' is in which direction with respect to 'B'?

(I) C is north of B and west of D who is south of E.

(II) D is west of F who is north east of A who is north of H.

(III) A is north of G and south west of C.

A) If the data in statement I and II are sufficient to answer the question, while the data in statement III are not sufficient to answer the question.

B) If the data in statement I and III are sufficient to answer the question, while the data in statement II is not sufficient to answer the question.

C) If the data in statement II and III are sufficient to answer the question, while the data in statement I is not sufficient to answer the question.

D) If the data in statement I alone or in the statement II alone or in the statement III alone is sufficient to answer the question.

E) If the data in all the statement I, II and III together are not sufficient to answer the question.

Answer Key

Class Assignment									
Q.no	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**
1	**c**	**2**	**a**	**3**	**d**	**4**	**a**	**5**	**a**
6	**d**	**7**	**e**	**8**	**e**	**9**	**c**	**10**	**e**
11	**d**	**12**	**d**	**13**	**b**	**14**	**c**	**15**	**d**
16	**c**	**17**	**b**	**18**	**e**	**19**	**c**	**20**	**a**
21	**d**	**22**	**e**	**23**	**a**	**24**	**d**	**25**	**c**
26	**c**	**27**	**e**	**28**	**d**	**29**	**d**	**30**	**d**
Home Assignment									
Q.no	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**
1	**d**	**2**	**e**	**3**	**e**	**4**	**b**	**5**	**a**
6	**e**	**7**	**b**	**8**	**c**	**9**	**c**	**10**	**c**
11	**c**	**12**	**a**	**13**	**e**	**14**	**c**	**15**	**c**
16	**e**	**17**	**d**	**18**	**d**	**19**	**c**	**20**	**b**
21	**d**	**22**	**a**	**23**	**e**	**24**	**a**	**25**	**c**
26	**e**	**27**	**b**	**28**	**b**	**29**	**b**	**30**	**d**

Competitive Assignment									
Q.no	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**	**Q.no**	**Ans**
1	**e**	**2**	**b**	**3**	**e**	**4**	**d**	**5**	**c**
6	**e**	**7**	**a**	**8**	**e**	**9**	**c**	**10**	**b**
11	**a**	**12**	**e**	**13**	**a**	**14**	**c**	**15**	**c**
16	**a**	**17**	**e**	**18**	**e**	**19**	**c**	**20**	**e**