IAS 100

A Civil Services Chronicle Initiative

DATA SUFFICIENCY

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DATA SUFFICIENCY

A data sufficiency problem in any test is generally a normal mathe-matical or logical problem asked in a different format. It is therefore imperative that the test - takers familiarize themselves with the format of the DS questions.

A typical DS set would be like a question followed by two independent statements and we have to check the sufficiency of the data given i.e., whether one of these two or both the statements are sufficient to get a unique answer for the given question. The question is an incomplete mathematical or LR question, i.e. it does not provide all the data that is required to solve the question. The test - taker is required to analyse as to what is the missing information. The following statements, independently or together, may provide the missing data that is required to answer the question.

Instructions:

The instructions / directions that precede the question have a different format and it is necessary to read them carefully before proceeding to answer the questions.

4 options DS

Directions for a 4 option DS question can be in the following form:

Each question is followed by two statements, I and II. Answer each question using the following instructions:

Choose **(A)** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **(B)** if the question can be answered by using either of the statements alone.

Choose **(C)** if the question can be answered by using both the statements together, but cannot be answered using either of the statements alone.

Choose **(D)** if the questions cannot be answered even by using both the statements together.

5 options DS

Directions for a 5 option DS question can be in the following form:

Each question is followed by two statements, I and II. Answer each question using the following instructions:

Choose **(A)** if the question can be answered by using statement I alone.

Choose **(B)** if the question can be answered by using statement II alone.

Choose **(C)** if the question can be answered by using either of the statements alone.

Choose **(D)** if the question can be answered by using both the statements together, but cannot be answered using either of the statements alone.

Choose **(E)** if the questions cannot be answered even by using both the statements together.

Scheme for solving DS questions:

Step 1: Read and comprehend the basic data. One cannot assume anything other than the basic rules and formulae. Try to understand: what specific information is needed to answer the question.

Step 2: Take statement I, combine the available data with already existing information from the question, check if you can arrive at a solution. Do not try solving; just ensure that a solution can be obtained. Be careful not to read any more into a statement than what is given.

Step 3: Irrespective of whether a solution can be obtained from statement I alone, take statement II alone, combine the available data with already existing information from the question, check if you can arrive at a solution. Remember not to use the data from statement I.

Step 4: If a solution cannot be arrived at from either of the statements I and II individually, combine the data available from the two statements and check if you can arrive at a solution.

Step 5: Select the right alternative.

A systematic approach to solving DS questions:

DS questions should always be solved in a systematic manner. By answering three basic questions, one can always arrive at the correct choice. In addition, if one can answer any of the three questions, the possibility of elimination of at least one of the choices exists and hence one can make intelligent guesses.

The three Basic questions are:

1. Is the first statement alone sufficient to solve the problem?
2. Is the second statement alone sufficient to solve the problem?
3. Are both the statements together sufficient to solve the problem?

Answers to the above three questions should be given in YES or No only. In many cases test - takers will not have to answer all three to get the correct choice.

For example consider the following question:

Is Sushil older than Manoj? ----------(Main question)

(A) Sushil is older than Rakesh.----------1st statement

(B) Rakesh is older than Manoj.---------2nd statement

Explanation:

For a question like this we need to establish a definite relationship between the ages of Sushil and Manoj.

From data statement (A) we get a relationship that Sushil is older than Rakesh (S > R). But this statement is not sufficient in establishing the relationship between Sushil and Manoj.

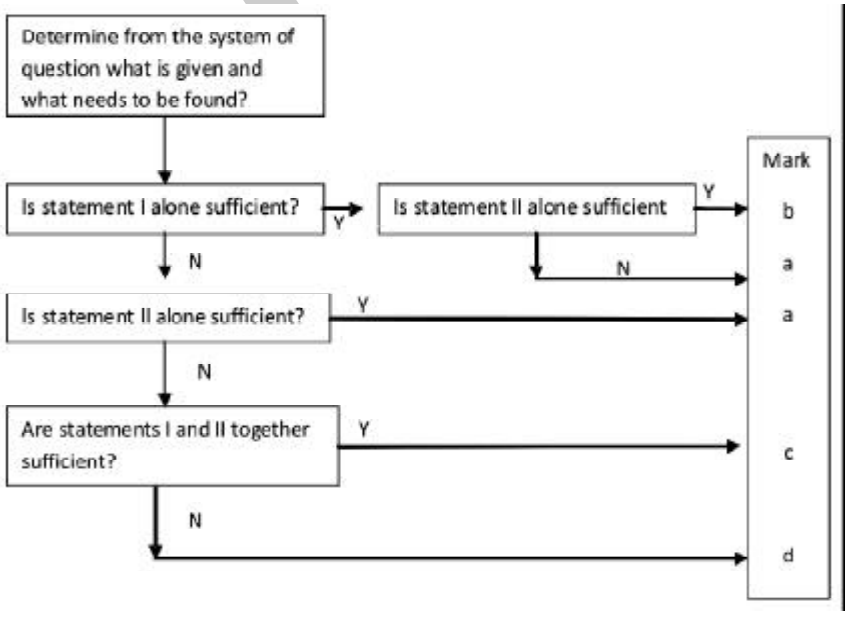
From data statement (B) we get a relationship that Rakesh is older than Manoj (R > M). This also does not give us the required relationship.

But if we take both the statements together, we can see that S > R > M, i.e. Sushil is older than Manoj and hence a unique answer can be obtained for the given question.

Points to remember:

- If a question asks for a numeric value, the question is answerable only if one can arrive at a unique value and not a range of values.
- A figure given for a problem may not depict the information contained in either of the statements.
- The geometrical figures are not necessarily drawn to scale. Do not assume the measure of an angle, line segment, congruence, similarity, etc, unless it is specified in the figure or the statement.

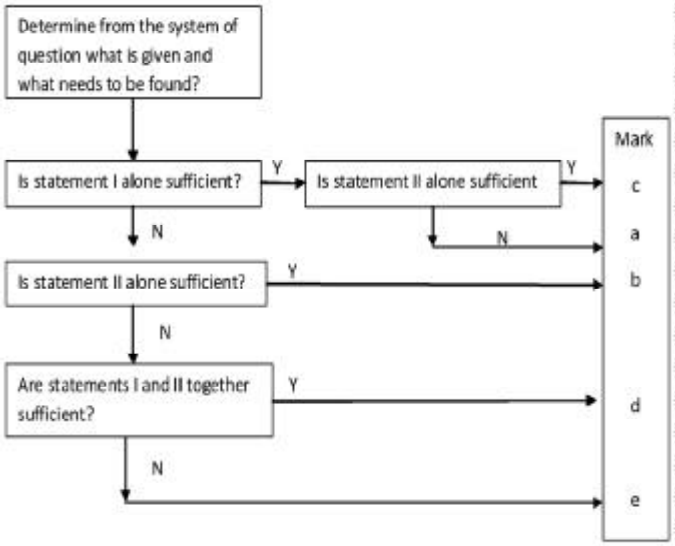
Flow - Chart for solving Data Sufficiency Problems (4 - Options):



- Data sufficiency questions are intended to test one's reasoning ability and quantitative concepts and not one's calculation skills. So one need not to arrive at the actual answer to the question. One only needs to check whetherit is possible to answer the question. So, if one finds oneself doing a lot of pencil work he/she is not on the track.
- Even 'no' can be answered in either 'yes' or 'no', then getting 'no' as an answer is possible and the basic Data Sufficiency question is answered.

Flow - Chart for solving Data Sufficiency Problems (5 - Options):

Examples for learning:



Question: What is the value of x?

A. x is a positive integer

B. $x^2 = 25$

You can see in the example above, the question is to find the value of x. The helpful data is given in two parts as two statements (A) and (B). This is a typical format of a data-sufficiency problem.

Next comes the options! You might get surprised to know that every data-sufficiency problem has the same set of options, no matter what concept or topic it is based on.

Let's have a look at the options:

1. The question can be answered using statement A alone and cannot be answered using statement B alone.
2. The question can be answered using statement B alone and cannot be answered using statement A alone.
3. The question can be answered using either of the two statements alone.
4. The question can be answered using both the statements together and none of the statements alone is sufficient to answer the question.
5. The question cannot be answered even after using both the statements together.

One of these options becomes the answer of any data-sufficiency problem. No two options are ever the answer to the same question.

What is the approach to solve a data-sufficiency problem?

First of all, understand the requirement of the question properly. After that consider the data given in the first statement, while neglecting the second statement totally. Try to find the answer to the question with the help of first statement only.

There are two possibilities: either you could find the answer with the help of first statement or you could not. But in either of the cases, you are not in a position to mark one of the options as your final answer because you have not checked the second statement as yet.

e.g. Let's consider the question given above. We need to find a unique value of x in the question. Now statement 'A' says - "x is a positive integer". But obviously, it's not sufficient as there are infinitely many positive integers. So, after analyzing statement 'A' we can say that it is not sufficient to find the answer. But, knowing so, we are still indifferent among the options 2, 4 and 5. The correct answer could be any of these three options and it depends entirely on the second statement i.e. 'B'

Now, considering statement B, while totally neglecting statement A, it says - $x^2 = 25$ we conclude that there can be two values of x as 5 or -5. Again we are indifferent between the two possible values of x, so we can say that statement B also is not sufficient to find the answer. Option 2 also gets discarded. Now one of the two options (4 and 5) is our final answer.

Whenever such a situation arises that neither of the statements individually is sufficient to find the answer, then and only then we combine the two statements and try to find the answer. Like in this case, if we combine statements A and B, we get to know that x is either 5 or -5 and it has to be a positive integer. So clearly, x = 5. Hence, we find that we finally got a unique answer after combining the two statements together. Hence our correct option is 4.

You need to follow the same approach no matter what topic the problem is based on.

What is the syllabus or what are the specific topics on which the data-sufficiency problems are made?

The beauty of the data-sufficiency questions is that they don't need any particular syllabus to make a powerful question. The question may be based on a quant-based topic, it can be a reasoning problem, it can be a problem based on verbal ability or it can be a problem based on the application of common sense.

Notice the following data-sufficiency question.

Q. Is Raj one of the managers of the company?
   A. All the managers of the company are post graduates.
   B. Raj is a post-graduate.

Try to answer this question. Some of us might find the correct option to this question to be 4 as combining two sentences seem to answer the question positively. But actually, the correct answer to this question is 5. We must understand that the statement A means that all the managers of the company are post-graduates. It never means that all the post-graduates of the company are managers. Hence, the post-graduation of Raj does not ensure that he is necessarily the manager of the company. In short, we can say that even if we combine the two statements, we find that all the managers are post-graduates but all the post-graduates may or may not be the managers. Hence it cannot be determined whether Raj is a manager or not.

If you analyse, this problem is, in a way, requires an application of common-sense and checks whether the aspirant is alert or if they're thinking critically or not. This was a good example of a problem which appears very simple but might not fetch positive marks!

Why are some data-sufficiency problems called the hidden traps?

We will seek an answer to this question with the help of a few examples.

Q. Among A, B, C, D and E, is A the richest?
   A. Not more than 3 persons are richer than A.
   B. Exactly 3 persons are less rich than A.

Solution: According to Statement A, it might seem at first that one or more persons may be richer than A so it gives the answer. But it would be a wrong analysis. We must understand that the phrase- "not more than" creates ambiguity and only sets the upper limit for the number of persons richer than A. it means that maximum of 3 persons can be richer than A. but at the same time, it is equally probable that none of them is as rich as A is because the lower limit is not specified in the statement. Hence statement A is an ambiguous statement which does not fetch a concrete result.

On the other hand, if statement B is considered, we find that it is an exact statement with no ambiguity. It clearly states that 3 persons are less rich than A which means that the fourth person is either richer than A or is as rich as A. If you think critically, in either of these cases A is not the "richest". The word "richest", being in the superlative degree, can be applied to a single person. If two persons are equally rich, they cannot be called richest even if they are 'richer than the rest'. However, if that fourth person is richer than A, A would anyway not be the richest. Hence with the help of second statement alone, we get an answer to the question asked and the answer would be - "A is not the richest".

Also, please note that whenever we find an answer with the help of one of the statements alone, we don't try to combine the two statements even if the combination fetches a result.

Q. Is 3rd March a Sunday?
   A. 23rd Feb of the same year is a Sunday
   B. 5th March of the same year is a Wednesday.

Solution: This question is a very good example of another type of trap. Here the statement B is so

"tempting" that it shifts the focus of the aspirant from the hidden fact in statement A and the aspirant ends up by marking option 2 as the answer which is wrong.

Let's analyze statement A which says 23rd Feb is a Sunday. That means 28th Feb. is a Friday. Now if it's a leap year, 3rd March will be a Tuesday. If it's not a leap year, then 3rd March will fall on a Wednesday. So it cannot be concluded as to which day will fall on 3rd March, BUT it is certain that it will not be a Sunday. If you notice, the question only asks you whether it's a Sunday or not. It doesn't ask you as to which day it is. Hence the answer can be obtained by using each statement individually. So the correct answer is C.

In some problems, you can finally find out the result by solving the set of equations or processing the given data mathematically, but it's not needed. In fact, by doing so, you might end up marking a wrong answer. Look at the example below:

Q. a and b are positive integers. Is a + b = 19?
A. $a^2 + b^2 = 85$
B ab = 42

Solution: At first, it seems that combining the two statements will give $(a + b)^2 = 169$,

Hence it is not 19, but this analysis is incomplete as we did not analyse each statement alone. If we see statement first, there are two pairs of a and b, i.e. 9, 2 and 6,7, neither of which adds up to give 19 as the sum. Hence we can clearly say that statement A alone is sufficient to find the answer. Hence there is no need to combine the two statements at all.

Also, we should not stop here thinking that we have got the answer. The second statement is still left to be analysed. If we observe, we find there are four pairs of a and b which are 7 and 6, 14 and 3, 21 and 2 & 42 and 1. None of these pairs give a sum of 19. Hence again, we don't know what the actual values of a and b are, but we surely know that their sum will never be 19. Hence option C is the correct answer as each statement alone is sufficient to find out the answer.

Some questions are really very easy but they are framed to check whether the aspirant is mentally biased or unbiased. Notice the following example:

Q. In a round-table conference, six people are sitting in such a way that there are three pairs, each sitting diagonally opposite to each other. Who is sitting opposite to C?
A. D is sitting opposite to A
B. F is sitting opposite to B

Solution: Obviously, none of the statements alone give you the answer. But still, many of us would think that after combining the two statements, we get the answer that out of 6 people D is opposite to A and F is opposite to B, hence C must be sitting opposite to 'E', the left one in the group. BUT as we think this, we commit a blunder of assuming E to be one of the persons in the group. Nowhere in the question it is mentioned that the sixth person is E or somebody else. Questions of this type attack on the psyche of the aspirant. The logic might be very good but if the student is mentally biased, he/she tends to commit such mistakes. Hence the correct answer to this question is option 5 as it cannot be determined as the name of the sixth person is unknown.

So with the help of these examples, we can conclude that the problems of data-sufficiency do not only check the knowledge of the aspirant about a topic, but it also checks the mental-biasness, coolness of mind while attempting the question and alertness of the aspirant.

These are the qualities which are required in the people who seek a career in Management Services and the problems of data-sufficiency check them to a very good extent.

However, it is advisable that CAT aspirants should practise the problems of data-sufficiency without keeping in mind whether these problems would appear in the exam or not because these problems force you to think critically and their practice will make you more aware and alert. These are the by-products of practising data-sufficiency. Eventually it helps those aspirants the most who happen to commit the infamous 'silly mistakes' in the exams.

TEST -1

(4 - OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

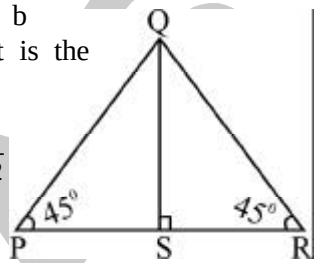
Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

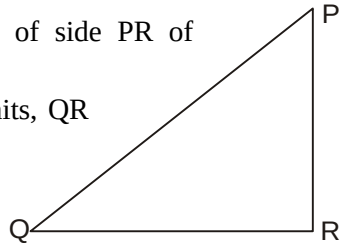
Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

1. What is the value of x in the number 2x25x6?
   I) The number is divisible by 3
   II) $x < 5$
2. What is the speed of a bus 25m long?
   I) The bus takes 3s to cross on electric pole.
   II) The bus crosses a railway crossing 20m wide in 10s.
3. Is a>b
   I) $a = b^2$
   II) $a = b + 2$
4. Which out of the two numbers a and b is / are non-negative?
   I) $ab < 0$
   II) $a^2b>0$
5. What the sum of the first ten terms of an arithmetic progression?
   I) The first term is 11.
   II) The sum of the first three terms is equal to the sum of the first nine terms.
6. a, b, c are distinct positive integers, each greater than two. Is {a + b + c} a prime number?
   I) a, b, c are three terms of an A.P.
   II) b - a = c - b
7. In the fig, what is the length of QS
   I) PQ = 2
   II) PR = $2\sqrt{2}$



8. If Varun and Sameer together completed a project in 25 days and earned Rs. 5000, then what is Sameer's share
   I) Working individually, Sameer takes thrice the time taken by Varun to complete the project.
   II) Varun alone can complete the project in 40 days.
9. What is the area of the Δ ABC?
   I) The perimeter of the triangle is 40 units.
   II) The triangle is right angled at B.
10. What is the speed of the boat in still water?
   I) The time taken by the boat to travel 20 km upstream is same as the time it takes to cover 30 km downstream
   II) The boat travels 36 km downstream in 6 hours.
11. How many questions did Amit attempt in a CAT 100 maths test having 25 questions?
   I) Amit scored 16 marks.
   II) for every correct answer he got 1 mark while for every wrong answer he lost ¼ mark.
12. What is length of side PR of Δ PQR
   I) PQ = 7 units, QR = 3 units
   II) $\angle P = 63°$.



13. Does 12x + 18y = c have at least one integral solution for x and y?
   I) c is an even multiple of 9.
   II) $c^2 + 4c - 396 = 0$.
14. What is the value of p^7?
   I) p is a prime number between 20 and 30.
   II) $p^3 = 35937$
15. x is a positive integer. Is x equal to 5?
   I) $x^2 - 10x + 25 = 0$
   II) $x^2 = 25$

TEST – 2

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

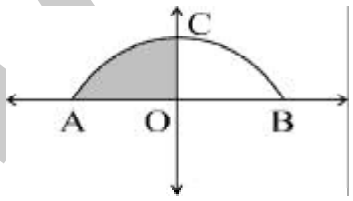
Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

1. Four persons - A, B, C, and D sat around a circular table. Is A next to B?
   I) A is next to C
   II) A is next to D
2. In a group of 50 person, 28 persons like western music. How many like classical music?
   I) The number of person, who like both western and classical music is same as those who like none of those.
   II) The number of persons who like only classical music is 6 less than those who like only western music
3. How is A related to D?
   I) A is the son of B and B is the son of D.
   II) A is the son of C and D is the mother-in-law of C.
4. The ratio of males to females in the population of a town is 5:4. What is the number of male children in the town.
   I) The ratio of Men:Women is 4:5
   II) The ratio of the number of male children to the number of female children is 6:5.
5. Is $x^2 - 17x + 71 < 5$?
   I) $5 < x < 13$
   II) $8 < x < 10$
6. In the figure given below OA = OB = OC. What is the area of the shaded portion?



   I) The length of line segment AB is 10 units.
   II) The area of ΔABC is 25 sq. units.
7. The students of a class are standing in a row all facing north. How many students are there between Amit and Dheeraj?
   I) The number of students towards the left of Amit is 15 and Dheeraj is 10th from the right end.
   II) One third of the total number of students are between Amit and Dheeraj.
8. What is the speed of the train?
   I) To cover the distance in 2hrs, Amit travels 12km by ship, 45km by train and 6km by rickshaw.
   II) The ratio of speed of ship, train and rickshaw by which Amit travels is 4 : 15 : 1
9. A finance company offers only 10% and 11% interest on either SI or CI on all loans. Is the interest simple or compounded?
   I) The interest collected for the second year on Rs 10,000 is Rs 1100.
   II) Total interest on Rs 15,000 is Rs 3150 after 2 years.
10. If the product of three positive integers be 40, how many of these are odd?
   I) Sum of three positive integers is odd.
   II) If the three integers are a, b and c then, ab + bc + ca is odd.

11. Is Mr. Kumar the only child of Mr. Raj?
    I) Rama is the only sibling of Kumar.
    II) Raj's sister has only 1 nephew.

12. Each of the students of a class play at least one of the games - Cricket, Hockey and Football. 5 students play only Cricket and Football, 10 students play only Cricket and Hockey, and 20 students play all three. How many students play football?
    I) 30 students play Hockey and Football.
    II) The number of students who play only cricket, only Football and only Hockey are 10, 20 and 30 respectively.

13. Ram and Shyam take x days and 15 days respectively to complete a job. They work on alternate days to complete it. Find the time in which the job is completed.
    I) x = 10
    II) They can complete the job in 6 days working together.

14. Certain quantities of iron and aluminium are mixed with some mercury to form an amalgam. The densities of Iron, aluminium and mercury are in the ratio 5 : 2 : 7, What part of the weight of the amalgam does aluminium account for?
    I) The ratio of the volumes of iron, aluminium and mercury which are mixed is 1 : 2 : 2.
    II) The weight of mercury in 1kg of amalgam is 136gm.

15. What is the profit per cent obtained by selling each banana?
    I) Bananas are brought at Rs x per gross but sold at Rs x/8 per dozen (1 gross = 12 dozens).
    II) By selling x dozens of bananas at Rs x per dozen, there is a profit of Rs. 300.

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TEST – 3

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

1. Among the four person A, B, C and D, two persons are truth tellers and two are liars. Who are truth tellers?
   I) A said, "of the remaining three persons only C is the liar".
   II) B said, "of the remaining three persons only C is the truth teller".

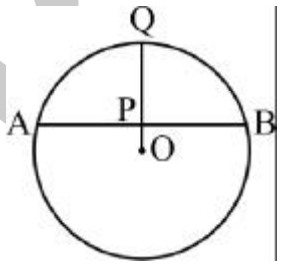
2. P and Q are two points on AB and AC respectively of triangle ABC. If ∠APQ is 45°, then find ∠ACB.
   I) ∠AQP = ∠ACB
   II) PQCB is a cyclic quadrilateral.

3. What is the value of $\frac{x^2}{y^2}+\frac{y^2}{x^2}$?
   I) $\left(\frac{x}{y}+\frac{y}{x}\right)^2 = 25$
   II) $\left(\frac{x}{y}-\frac{y}{x}\right) = 7$

4. If 'a' and 'b' are positive integers, then what is the value of a + b?
   I) $5^a + 2^{b+2} = 253$
   II) $5^{a+1} + 2^{b-2} = 633$.

5. Is f(f(4)) = 117?
   I) f(x) = 3x - 54; if x is odd
   II) $f(x) = x^3-1$; if x is even

6. What is the radius of the circle in the given figure with centre O?



   I) The ratio of OP to PQ is 1 : 2
   II) P is the midpoint of chord AB.

7. Is the unit's digit in the product of $(832)^{64} \times (294)^x$ equal to 6?
   I) x is odd.
   II) x is a multiple of 4 and is less than 10.

8. Is the natural number x, greater than 189, a prime number?
   I) The number has only five multiples less than 1000.
   II) The number is odd and does not end in 5.

9. How much does the clock lose in a day?
   I) At 6:00 am, the clock is showing 5 : 55 am.
   II) The hour hand and minute hand coincide every 67 minutes of the correct time.

10. Is x a positive integer?
    I) $x^3 + x^2 - 6x > 0$
    II) $6x^2 + 11x + 3 = 0$

11. Stainless steel nuts are sold at Rs 32/kg. Wrought iron nuts are sold at Rs.22/kg. What is the ratio in which they are mixed?
    I) The mixture is sold at Rs 36/kg with 20% profit margin.
    II) Weight of the mixture is 12 kg.

12. A cricket test match consists of two innings each. In a three test match series against Pakistan, Tendulkar got out in all the innings and had scores of 10, 15, 17, 24, 20, 30. How much did he score in the 3 first innings?
    I) The highest aggregate runs he scored in any of the 3 test matches is 40 runs.
    II) In each match, he scored more runs in the second innings compared to the first innings. And in each match he has scored more runs than the runs scored in previous match.

13. What is the average mark of all the students of a class?
    I) Average mark of to one third of the class is 78.
    II) Sum of marks of all the students of the class is 4256.

14. If one wants to make a trip around the earth along its equator, how much distance does he has to travel?
    I) Earth completes one revolution around the run in 365 days.
    II) Earth's radius is nearly 6400 km at the equator.

15. What is the 28^{th} term of an AP?
    I) Five times the fifth term is equal to 23 times the twenty third term.
    II) The sum of the first and the fifty fifth term is 188.

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TEST – 4

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

1. How long it will take to fill a 330 litre tank?
   I) There are a total of 6 taps. First a tap is turned on and then every half an hour an additional tap is turned on till all the taps are turned on.
   II) Each tap can fill a 20 litre tank in one hour.
2. By what distance does Arif beat Alok in a 800m race?
   I) In a 400m race Biswa beats Alok by 30m.
   II) In a 800m race Biswa beats Arif by 40m.
3. The points o_1 and o_2 are the centres of two circles having radius 10cm and 20cm respectively. What is the distance between the points o_1 and o_2?
   I) The two circles have only one common tangent.
   II) The two circles have only three common tangents.
4. Each face of a cube is painted with different colours among red, blue, orange, white, yellow and violet, further red and blue are in two opposite faces. Which colour is on the face which is opposite the face painted by yellow colour?
   I) White and orange are on two adjacent faces
   II) Blue and violet are on adjacent faces.
5. What is the minimum value of $\frac{(y)}{(x)+(y)}$?
   I) $-4 \leq x \leq 2$
   II) $2 \leq y \leq 5$
6. What is the numerical value of $\frac{a+b}{c+d}$?
   I) a:c::b:d
   II) $(2d + b) \times b = b^2 + d^2$
7. If only the smallest among the three integers x, y and z is a single digit number, what are the three numbers?
   I) They are in the ratio 3 : 4 : 5.
   II) The arithmetic mean of the two greatest number is 10.5, while that of the three numbers is 10, also $x > y > z$
8. What is the remainder when $N^2 - 30N + 200$ is divided by 50?
   I) N is the smallest natural number which leaves a remainder of 4 when divided by 13 and 14.
   II) N is the smallest natural number which leaves a remainder of 6, 7. respectively when divided by 16 and 17.
9. Is the average of 60 numbers less than 20?
   I) One sixth of the numbers equal 10.

II) One half of the numbers are less than 20.

10. What is the average monthly profit from sales of product A in a leap year?
    I) In a month that has 30 days, the profit from sales of product A is Rs 6000.
    II) In a month that has 31 days, profit from sales of product A is Rs 6200

11. What is the sum of 3 non-consecutive numbers?
    I) The product of the number is 945?
    II) The average of the numbers is 10.33.

12. If a, b and c are non-zero numbers, is b the Harmonic mean of a and c?
    I) $\frac{1}{b-a}+\frac{1}{b-c}=\frac{1}{a}+\frac{1}{c}$
    II) $2ac = ab + bc$

13. Are the Δ 's ADB and CBD congruent, if D is the mid-point of AC?
    I) DB is perpendicular to AC.
    II) AB = BC

14. In a race, Susanthika gives Anju a 40m head start. What is the length of the race if they both finish the race simultaneously
    I) Susanthika's speed relative to Anju is 4 m/s.
    II) Susanthika runs 1.5 times faster the Anju.

15. If a + b = c +d, is a > b?
    I) a > c
    II) b < d

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TEST – 5

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

1. How many students are there in the class?
   I) The numbers of students in the class is between 100 and 125.
   II) The number of students in the class is a perfect square and Raju, who is a student of that class, has as many classmates who are boys as there are girls.

2. What are the angles of ΔABC?
   I) The ratio of the radii of the in-circle and circum-circle is 2 : 5
   II) AC is the diameter of the circum-circle

3. Each of A, B, C and D are given one fruit from Apple, Orange, Banana and Mango. Did C get the Mango?
   I) The youngest person get the Orange and the eldest person got banana.
   II) C is neither the youngest nor the eldest. B did not get Mango.

4. What is the distance between points X and Y of a box ABCDEFGH, where X is the centre of a face ABCD and Y is the mid-point of HG, which is an edge on the face EFGH?
   I) ABCDEFGH is a cube with volume 216cm?
   II) The diagonal BH = $\sqrt{108}$

5. What is the minimum value of $x + \frac{1}{x}$?
   I) x is a positive integer
   II) x is a positive real number

6. If 3x + 7y = 19, then find y.
   I) 6x + 14y = 38
   II) 9x + 21y = 16

7. What is the discount percentage given on the watch?
   I) The marked price of the watch is Rs. 800.
   II) The ratio of the selling price and the marked price of the watch is 5:8

8. What is the absolute value of the difference between the first and third terms of an A.P. where in all the terms of A.P. are natural numbers?
   I) The sum of its first 3 terms is 36.
   II) The product of its first 3 terms is 1428.

9. Who among Rakesh, Reena, Vivek and Swati are married?
   I) True statement: Rakesh and Reena are unmarried.

II) False statement: At least one out of Reena and Rakesh is married.

10. If $x > y$, is $x^3y^3 > 0$?
    I) $y^2 = 16$
    II) $x + y = 0$

11. Is the average age of students taking SAT geater than 22?
    I) Out of the 100 test takers, the average age of 92 students is 14.
    II) The oldest test taker is 24 years old.

12. What is today's date and month?
    I) Two weeks ago it was the first of this month.
    II) Two weeks hence will be the first of next month.

13. Is the number of kilograms in one litre of an acidic solution more than the number of litres in one kilogram of the same solution?
    I) 4 beakers each of mass 200 gms, are required to hold 800 ml of the solution.
    II) A half filled jug with capacity of holding 500 ml of the solution weighs 600 gms.

14. What is the sum of the roots of $ax^2 + bx + c = 0$?
    I) Product of the roots of $cx^2 - ax + b = 0$ is 3.
    II) Sum of the roots of $cx^2 + ax + b = 0$ is 4.

15. How is B related to A?
    I) A is the son of C and C is the brother of B.
    II) A is the father of D and D is the son of B.

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TEST – 6

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

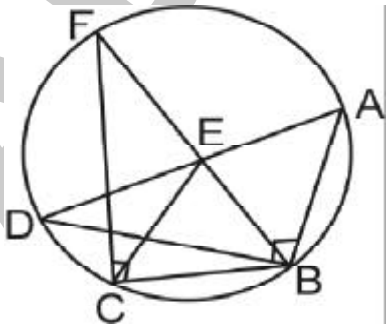
1. What is the probability of selecting a green ball from a box?
   I) The box contains 5 green balls.
   II) There are a total of 12 balls in the box.

2. Is $x < 0$?
   I) $x < x^2$
   II) $\frac{1}{x} < 2$

3. What is the selling price of an article?
   I) Profit is 10% of the selling price.
   II) Ratio of profit to selling price is 2/3 times the ratio of profit to cost price.

4. In a class of 60 students for every 3 students who passed in physics there are 2 students who passed in chemistry.
   How many students passed in both the subjects if 50% of the class passed in physics only?
   I) Number of students who passed in both the subjects is equal to the no. of students passing in Chemistry only.
   II) No. of students passing in Chemistry only is 15.

5. **What is the measure of** ∠BEA in the figure fellow if ∠ABD = ∠BCF = 90°?



   I) ∠BDA = 30°
   II) ∠CFB = 30°

6. Is (w^6-1) equal to zero ?
   I) $1 + w + w^2 = 0$
   II) $w^3 + 1 = 0$

7. Is $\frac{a(1+b)^2}{b} > 2a$?
   I) $ab > 0$
   II) $a < b$

8. Mohan and Sohan take $\frac{27}{7}$ days to complete a job. They complete it by working on alternate days in a total of x days. Is $x > 7.5$, given that Mohan is more efficient than Sohan?

I) $x \geq 6.76$

II) Sohan Starts the job.

9. A train going from Delhi to Calcutta is delayed by an hour because of a technical snag. What is the distance between Delhi and Calcutta?

I) The problem occurred after the train travelled for 800 km from Delhi after which the speed of the train reduced by one-fifth.

II) The problem occurred after the train had travelled for 10 hrs, from Delhi after which the speed of the train reduced by one-fifth.

10. A team of three members was to be selected from five members A, B, C, D, and E. Is B selected?

I) If A is selected, E cannot be selected

II) If D is selected, C cannot be selected

11. How many triangles can be formed using 10 distinct points.

I) Exactly 4 of these points are collinear.

II) 5 of these points lie on the circumference of a circle.

12. What is the value of x?

I) x lies between 15 and 25 and is a prime number

II) x is an integer which is not a solution to $(x-22)^2 + 4x = 93$.

13. If x is a positive integer and x <100, then is $\sqrt[x]{\sqrt[4]{\sqrt[3]{\sqrt{512^{216}}}}}$ an integer?

I) x is a multiple of 10.

II) $x = 3^n$ where n is an integer

14. Ramesh and Suresh can complete a job in 18 days. If Ramesh's efficiency is doubled and Suresh's efficiency tripled, they would take x days to complete it. Find x?

I) x is prime.

II) x is an integer less than 8.

15. The students of a class are standing in a row facing south. What is the position of Tony from the left end?

I) Ramya is twentieth from the left end and fourteenth from the right end of the row.

II) The number of person towards the left of Tony is equal to that towards his right.

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TEST – 7

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

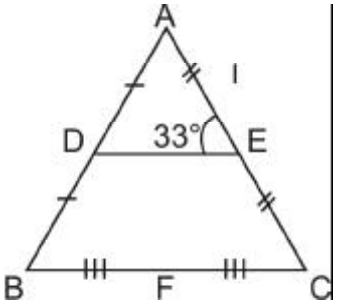
Choose **[D]** if the question cannot be answered exactly using both statements together.

1. What is the unit's digit of $(5xy)^{16}$ where x and y are the ten's and units's digits in respect of the three digit number 5xy?
   I) $6 < x + y < 9$ and $x, y \leq 6$ and $x, y \neq 5$
   II) $y > 3$
2. How much fuel will a 100 horse power engine consume in 110 minutes?
   I) Fuel costs Rs. 31.50 per gallon.
   II) A 110 horse power engine consumes 3/7 gallons of fuel per horse power per hour.
3. What are the 2 positive numbers?
   I) The AM is greater than their GM mean by 0.5
   II) The difference between the two numbers is 5.
4. There are four person - Ramya, Sowmya, Jamuna and Archana. How many persons are older than Ramya?
   I) Sowmya is older than exactly two persons.
   II) Ramya is not younger than Sowmya.
5. Is $a > b$?
   I) $|a| > |b|$
   II) $\frac{a}{b} > 1$
6. How many students are there in the class?
   I) The rank of Ramani among the girls is 10^{th} from the top and 12^{th} from the bottom.
   II) The rank of Raju among the boys is 16^{th} from the top and 21^{st} from the bottom.
7. x and y are two single digit prime numbers. What is the two digit number xy ?
   I) The number 1485 is divisible by xy.
   II) $x = y$
8. If Dheeraj joins Amit 7 days after Amit started the work, in how much time does the work gets finished?
   I) Amit takes 56 days to complete the work. But if the two worked together from the beginning they complete the work in $31\frac{1}{9}$ days.
   II) The efficiencies of Dheeraj and Amit are in the ratio 3:2 and they can together complete the work in $16\frac{4}{5}$ days.
9. In what ratio must petrol and kerosene be mixed so that the resultant fuel is worth Rs 45/litre?

I) Petrol worth Rs 500/litre.

II) The mixture which contains $8\frac{1}{3}\%$ petrol worth Rs. 22.5/litre

10. In the fig. below if $\angle EFB$?



I) $\angle FEC = 78°$

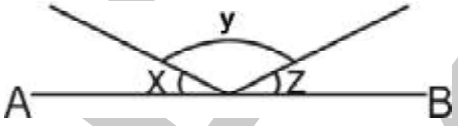
II) $\angle BAC = 78°$

11. The vertices of a regular hexagon lie on a circle. What is the length of one side of the hexagon?

I) The circumference of the circle is 4.75% more than the perimeter of the hexagon.

II) The area of the circle is 100 units more than that of the hexagon.

12. AB is a straight line as shown in the figure. What is the value of y?



I) $2x + 3y + 2z = 420°$

II) $y = 3x, z = 2x$

13. What is the value of $y - 2x$?

I) $(2^{6x-3y})\ (3^{4x-2y}) = 2^{18} \times 6^{36}$

II) x and y are integers.

14. Are x, y, z in A. P.?

I) $x = \log p, y = \log q, z = \log r$.

II) $\frac{p}{q} = \frac{q}{r}$

15. Six persons - P, Q, R, S, T and U sit around a circular table. P and U are opposite to each other. Who are the persons adjacent to S?

I) Q is adjacent to T but not to P.

II) U is not adjacent to R.

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TEST – 8

(4 – OPTIONS DS)

Directions : *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose **[B]** if the question can be answered by using either of the statements alone.

Choose **[C]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[D]** if the question cannot be answered exactly using both statements together.

1. Is $x > 0$?
   I) $x^n > 0$; For all values of n.
   II) $x^6 > 0$
2. What is the area of triangle ABC?
   I) ABC is an equilateral triangle.
   II) The coordinates of vertex A and mid-point of BC are (-3,5) and (5,2).
3. Towards which direction the minute hand of a clock lying on the floor will point at 7:45?
   I) At 12 'O' clock the hour hand is pointing towards North-West.
   II) At 6 the minute hand is pointing towards South-East.
4. How is Madhu related to Phani?
   I) Phani's brother's father in law's only daughter's brother-in-law is Madhu.
   II) Phani's brother's father's son is Madhu.
5. What percentage of population of the town of Gorakhpur comprises of married males?
   I) $3/7^{th}$ of the population of the town consists of females.
   II) 40% of the males are unmarried.
6. Can Sumit finish typing a 2250 words long report in 25 minutes?
   I) He types at the speed of 4800 words/hr.
   II) He can type 1200 words in 15 minutes.
7. Three bodies x, y and z are placed on a floor. Is x heavier than y?
   I) The weight of x is half of the sum of the weight of the other two bodies.
   II) The weight of y is half of the sum of the weights of the other two bodies.
8. What is the radius of the circle?
   I) The circle can be divided into 4 equal sections of area π square units each.
   II) Each of the 4 equal sectors of the circle will have a perimeter of $(1.5\pi + 6)$ length units.
9. What is the sum to infinity of the decreasing geometric progression?
   I) Sum to infinity is twice the sum of the first R term.
   II) Common ratio of the progression is greater than zero.
10. If a is an integer, how many roots of the equation $ax^2 - (a + 1)x + 1 = 0$ are integers.

I) $|a| \neq 1$

II) $-5 < a < 0$

11. What is the base of the number system?

I) The number 121 is a perfect square in the system.

II) The number of two digit numbers in the system is 30.

12. Is X adjacent to Y, if U, V, W, X, Y and Z are sitting in a row facing north?

I) Neither X nor Y is at any exterme end.

II) U and Z are adjacent to each other and there are three persons between V and W.

13. How long does a train halt in each hour?

I) With halting the train can cover 40 km in each hour.

II) Without halting the train can cover 50 km in each hour.

14. Is $x + y > \sqrt{2}$?

I) $x^2 + y^2 = 1$

II) $x = \log_b a$ and $y = \log_a b$ where a, b, x, y are positive real numbers and $a \neq 1$, $b \neq 1$.

15. A number K is multiplied with $0.\overline{xy}$. Is the product an integer?

I) K is a multiple of 9.

II) K is a multiple of 11.

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TEST – 9

(5 – OPTIONS DS)

Direction: *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using statement (I) alone, but cannot be answered using statement (II) alone.

Choose **[B]** of the question can be answered by using statement (II) alone, but cannot be answered using statement (I) alone.

Choose **[C]** if the question can be answered by using either of the statements alone.

Choose **[D]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[E]** if the question cannot be answered exactly using both statements together.

1. How is 's' coded in this specific language?
   I) In the language 'u s q p' is coded as '5 2 3 1' and 't p q u' is coded as '3 4 5 2'.
   II) In the language, the letter from p to x are coded among 1 to 9 and 'x p u v' is coded as '8 4 5 9' and 'q r t w' is coded as '2 6 3 7'.
2. No elephant is a dog. No dog is cat.
   Is no elephant a tiger?
   I) All tigers are dogs.
   II) All tigers are cats.
3. 10 soldier ants take 6 hrs to build an anthill. How long will it take for 5 queen ants to build the anthill?
   I) A queen ant works at half the rate of a soldier ant.
   II) 5 soldier ants and 5 queen ants take 7½ days to build the anthill.
4. Air contains oxygen and carbon dioxide in the ratio 5:3 by weight. What is the ratio of the weight of oxygen and carbon dioxide in smoke.
   I) Exhaust gases contains oxygen and carbon dioxide in the ratio 1:11 by weight.
   II) Smoke is the mixture of air and unburnt gases in the ratio 2:3 by wt.
5. By what percent is the savings of A more than that of B?
   I) The income of A is 30% more than that of B.
   II) The expenditure of A is 30% more than that of B.
6. There are three married couples among P, Q, R, S, T and U. P is the spouse of neither Q nor R. Find each couple.
   I) Neither of P, S or T is the spouse of either Q or R.
   II) Neither P nor Q is the spouse of either R or S or U.
7. Find the area of triangle ABC?
   I) $\angle ABC = 60°$
   II) AB = 10 cm; AC = 10 cm.
8. What is the rate of interest?
   I) The simple interest is 40% of the principal for 5 yrs.
   II) Principal is Rs 6000
9. Is $\frac{x^2}{y^3} > 5$?
   I) $-5 < x < -1$ and $1 < y < 2$
   II) $x > 3$ and $0 < y < 1$

10. A three digit number is a multiple of 37. Find its value.
    I) The three digit number is a palindrome.
    II) Sum of the digit of the three digit number is 9.
11. Is product of a and b more than 6?
    I) Sum of a and b is 6.
    II) Both a and b are more than or equal to 2.
12. Which company (X or Y) has reported a higher increase of sales in terms of rupees?
    I) X showed a 5% increase in sales rupee and Y showed a 9% increase in sales rupee.
    II) Before the increase, sales of Y were 10% less than the sales of X in terms of rupee sales.
13. Is X a prime number, X>10?
    I) X is an even number.
    II) X is one more than its closest multiple of 6.
14. What is the value of A
    I) $A = 5^2$
    II) $A^2 = 625$
15. What is the remainder when a four digit number X is divided by 3?
    I) Sum of digits of X is 14.
    II) When (X+5) is divided by 9 then it gives a remainder of 2.

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TEST – 10

(5 – OPTIONS DS)

Direction: *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using statement (I) alone, but cannot be answered using statement (II) alone.

Choose **[B]** of the question can be answered by using statement (II) alone, but cannot be answered using statement (I) alone.

Choose **[C]** if the question can be answered by using either of the statements alone.

Choose **[D]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[E]** if the question cannot be answered exactly using both statements together.

1. Is x more than y?
   I) $x^2 > y^2$
   II) $6x > 5y$
2. How is A related to B?
   I) C is the wife of B's only brother.
   II) A is C's husband.
3. Is ab a positive number
   I) $(a + b)^2 > (a – b)^2$
   II) $(a + b)^3 > (a – b)^3$
4. Is k a positive number if a > b? Assume k is an integer.
   I) a + k > b + k
   II) k a > k b
5. What it the value of a : b? Assume a and b are positive numbers.
   I) $a^3 : b^2 = 27 : 4$
   II) $a^2 + b^2 : a^2 – b^2 = 7 : 5$
6. Did India win the hockey match against Pakistan?
   I) Pakistan was leading by 2 goals just 15 minutes before the finish time.
   II) India scored 3 goals in last 15 minutes of the match.
7. How many Chronicle magazines were sold in the year 2010?
   I) Chronicle generated revenue of Rs 15.68 lakhs through sales of magazines in 2010.
   II) Price of magazine was Rs 50 per copy and company was selling one free copy with every 5 magazines.
8. What is the remainder when x is divided by 2?
   I) $(–1)^{x+7} = (–1)$
   II) x is a prime number.
9. What is the radius of the circle inscribed in a square?
   I) Area of the square is 16 sq units.
   II) Diagonal of the square is 10 units.
10. x is a positive number. Is x a natural number?
    I) $2x^2 – 5x – 3 = 0$
    II) $x^2 – 5x + 6 = 0$
11. If Ramu and Kallu are working on a job working on alternate days, then in how many days, the work will be completed?
    I) Ramu working alone can finish the job in 10 days and Kallu working alone can finish the job in 20 days.
    II) Ramu working alone can finish the job in 12 days and Kallu working alone can finish the job in 24 days.
12. What is the cost of one chair and one table?
    I) Cost of one chair is 20 % less than the cost of one table.
    II) 4 chairs and 3 tables cost Rs 240.
13. If $5x + 7y = 234$, then what is the value of x?
    I) x is a natural number.
    II) x is less than 7.
14. What is the amount of profit earned by the company X for a given year through product ABC?
    I) Company X sold 1000 sets of product ABC during the course of year.
    II) Price for each product was Rs 250 with no discount.
15. What is the area of ΔABC?
    I) Two angles of the triangle are 45° and 75°.
    II) Sides of the triangle are 3 cm, 6 cm and 7 cm.

TEST – 11

(5 – OPTIONS DS)

Direction: *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using statement (I) alone, but cannot be answered using statement (II) alone.

Choose **[B]** of the question can be answered by using statement (II) alone, but cannot be answered using statement (I) alone.

Choose **[C]** if the question can be answered by using either of the statements alone.

Choose **[D]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[E]** if the question cannot be answered exactly using both statements together.

1. Is Ramu on time for his classes?
   I) Ramu is late for the class as per his watch.
   II) Ramu's watch is not showing the right time.
2. Does Ramu has more shirts than his pair of jeans?
   I) Ramu has at least one shirt for each and every pair of jeans that he has.
   II) Ramu has at least one pair of jeans for each and every shirt that he has.
3. Is petrol cheaper than diesel?
   I) 1 litre of petrol cost more than 1 litre of gasoline and one litre of natural gas.
   II) 1 litre gasoline cost more than 1 litre of diesel and 1 litre of natural gas.
4. Is Ramu eldest of all his siblings?
   I) Ramu is elder than all his sisters.
   II) Kallu is eldest of all brothers. Ramu and Kallu are brothers.
5. Is A the sibling of B?
   I) A is grandson of Lala Lallu Mal.
   II) Lala Lallu Mal is grandfather of B.
6. Is the tallest student of the class a boy or a girl?
   I) F is the tallest student of the class.
   II) No girl in the class is taller than F.
7. Is Ramu carrying an umbrella?
   I) It is raining heavily.
   II) Ramu is not wet because of rain.
8. Who is the richest businessman of Delhi?
   I) Richness increase with age of every person.
   II) Ramu Prasad Chaurasia is the eldest businessman of Delhi.
9. Which movie is the biggest hit of the year 2010.
   I) 3 idiots has been the biggest hit of all times.
   II) 3 idiots was released on the last day of the year 2010.
10. Is Aamir a better actor than Shahrukh?
    I) Aamir is a better actor than Salmaan.
    II) Salmaan is a better actor than Shahrukh.
11. Who among Ramu and Kallu has more no. of chocolates?
    I) The difference of the no. of chocolates is 10.
    II) Ramu had 9 chocolates.
12. What is the value of x?
    I) $x^3 < 0$ II) $x^2 = 36$
13. How many boys are there?
    I) If all the students are seated round a circular table, then they can be seated in 720 ways.
    II) All the girls can be seated round a circular table in 24 ways.
14. What does the word "lipa" mean?
    I) "ala bila lipa" means "I am coming".
    II) "lipa bila kala" means "I am stupid".
15. What is the area of triangle ABC?
    I) The perimeter of the triangle is 60 cm and all the sides have integer values.
    II) ABC is a right angled triangle.

TEST – 12

(5 – OPTIONS DS)

Direction: *Each question is followed by two statements; I and II. Answer each question using the following instructions.*

Choose **[A]** if the question can be answered by using statement (I) alone, but cannot be answered using statement (II) alone.

Choose **[B]** of the question can be answered by using statement (II) alone, but cannot be answered using statement (I) alone.

Choose **[C]** if the question can be answered by using either of the statements alone.

Choose **[D]** if the question can be answered by using both statements together, but cannot be answered using either of the statement alone.

Choose **[E]** if the question cannot be answered exactly using both statements together.

1. How many people died in the Car accident?
   I) The car had a seating capacity of 10.
   II) Two of the occupants survived.
2. What is the probability of picking a red ball?
   I) There are a total of 12 balls.
   II) There are 50% non-red balls in the bag.
3. What is the distance between A and B?
   I) Time taken to travel from A to B is 3 hours.
   II) If the speed is increased from 40 km/hr to 60 km/hr, the time taken to reach B from A decreases by 1 hour.
4. How many children does Ramu has?
   I) Ramu had six sons.
   II) Ramu's family had a total of four female members, including his wife.
5. How many pages were there in the book?
   I) Ramu tore 25 pages from the book.
   II) The last page no. in the book after the pages are torn is 102.
6. How many words did Ramu write on the notebook?
   I) Ramu erased a total of 56 words from the notebook.
   II) After erasing, there are 150 words on the notebook.
7. Ram, Raj and Roy stay in a building. Everyone stays on a different floor. Who stays on the top floor?
   I) Ram stays on the ground floor.
   II) Raj does not stay on the middle floor.
8. Arpan and Arpit are two friends. Who among them is the taller?
   I) Arpan is 5 feet and 4 inches tall.
   II) Arpit is 6 inches less than 6 feet.
9. How many colours of the balls are there in the bag?
   I) The bag contains two balls.
   II) One ball was picked and that was not white.
10. Who won the Cricket World Cup?
    I) India and Australia played the final match.
    II) Australia lost only one match in the world cup.
11. In which direction is Seema facing?
    I) Seema and Ajay are sitting facing each other in the morning and the shadow of Ajay is towards his left.
    II) Seema is sitting opposite to the face of the Sun at sunset.

12. What is the value of x + y if both x and y are integers?
    I) $x > 4$ and $y < 8$
    II) $x < 6$ and $y > 6$
13. Is $x \geq 2$, if x is a real number?
    I) $x^n = 64$, where n is a whole no.
    II) $a \times x = 20$, where a is a whole no.
14. How many 'A' does the word contains?
    I) The letters of the word can be arranged in 6!/2! Ways.
    II) The word contained only 1 vowel.
15. How many runs did Sachin score in this tournament?
    I) Sachin scored with an average of 36 runs per match in a 5 match series.
    II) Sachin scored 25% more runs than the first match in all the other matches. He scored 30 runs in the first match.

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DATA REDUNDANCY

A data redundancy problem in any test is generally a normal mathematical or logical problem asked in a different format. It is therefore imperative that the test - takers familiarize themselves with the format of the DR questions.

A Data Redundancy set is somewhat similar to a Data Sufficiency set with a question followed by some statements. The difference is that it can have more than two statements and we need to point out the statements which are not required for answering the question. Unlike DS questions where we have to focus on the statements required to get the answer, here the focus is on finding the statements not required while finding the answers.

A thing to be noticed is that the main purpose of the question is to find the statements which are redundant, not the answer of the question being asked in the set. So, try not to sit getting solving the questions. Only find out the statements which are not necessary and mark the correct option.

The options are of somewhat this format.

Mark your answers:

(a) If statement (A) is redundant.
(b) If statement (B) is redundant.
(c) All the statements are necessary to answer the question.
(d) The question cannot be answered even after using all the statements together.

For example:

Find the value of x.

(A) $x^2 = 4$
(B) x is a positive integer.
(C) x is a real number.

(a) Statement (B) is redundant.
(b) Statement (C) is redundant.
(c) All the statements are necessary to answer the question.
(d) The question cannot be answered even after using all the statements together.

Sol: From statement (A) we get that x = -2 or x = 2. From, statement (B) we get that x = 2. So, we don't need statement (C) for finding the answer of the question. Hence, statement (C) is redundant.

This was one way of doing such questions, the other way would be, on going through the statements we get that statement (C) is not of any use as statement (B) makes it pretty much clear than statement (C) does. Also, from (A) alone we wouldn't be able to find the correct answer. Hence, clearly statement (C) is redundant.

Let's have a look at another example.

Who between Ramu and Kallu is heavier?

(A) Ramu weighs 56 kg.
(B) Kallu weighs 2/3rd that of Billu.
(C) Billu weight 5/4th of Ramu.

(a) Statement (A) is redundant.
(b) Statement (C) is redundant.
(c) All the statements are necessary to answer the question.
(d) The question cannot be answered even after using all the statements together.

Sol: From the statements (B) and (C) we can find that Kallu weighs 5/6 of Ramu. Hence, Ramu is heavier. Hence, there is no need for statement (A). But if we keep on solving for the weight of Ramu and Kallu, we will require the three statements. So, these type of questions need special attention while solving.

TEST – 13

Directions for Qs. 1 to 10: *In the following questions, one question is followed by a set of statements. You have to determine that which of the given statements is not required to solve the question.*

1. Ramu, Kallu and Billu are running for a race of 100 m. Who will win the race?
   (A) Ramu can beat Kallu by 10 m. in a 1000 m. race.
   (B) Speed of Kallu is twice of that of Billu.
   (C) Ramu can beat Billu by 10 sec. in a 100 m. race.
   (a) Either statements B or C are redundant.
   (b) Either statements A or C are redundant.
   (c) Only statement C is redundant.
   (d) Either of the three statements is redundant.

2. Is m divisible by 6?
   (A) m + 6 is an even number
   (B) Sum of digits of m is 18
   (C) m can be written in the form of 6k+1 where k is a whole number.
   (a) Both statement (A) and (B) together are redundant.
   (b) Statement (C) is redundant.
   (c) Any of the three statements is redundant.
   (d) Either statement (A) and (B) or statement (C) is redundant.

3. How much water is needed to fill a bucket?
   (A) Bucket has a uniform cross sectional area.
   (B) Cross section area of bucket is 14 sq. m.
   (C) Height of the bucket is 10 m.
   (a) Statement (A) is redundant.
   (b) Statement (C) is redundant.
   (c) All the statements are needed to solve the questions.
   (d) Question cannot be solved even if we use all the statements.

4. What is the probability of picking a red ball from a bag which contains certain number of red and black balls?
   (A) There are total of 100 balls in the bag
   (B) Ratio of balls of different colours is 4:6
   (C) Red balls are 20 % more than the black balls
   (a) Statement (A) and statement (B) together are redundant or statement (C) alone is redundant.
   (b) Both statement (A) and statement (B) together are redundant.
   (c) Statement (C) and statement (B) together are redundant.
   (d) All the statements are needed to solve the question.

5. What is the speed of Ramu in still water while boating?
   (A) Ramu can boat 12 Km upstream in 3 hours.
   (B) Ramu can boat only 9 Km downstream in 2 hours.
   (C) Ramu sings whenever he boats.
   (a) Statement (A) is redundant
   (b) Statement (B) is redundant
   (c) Statement (C) is redundant
   (d) Question cannot be solved even if we use all the three statements.

6. Which day of the week will be this year's 15th August.
   (A) This year's 1st January was Sunday.
   (B) There was a leap year exactly four years back.
   (C) This is not a century year.
   (a) Statement (A) is redundant.
   (b) Statement(B) is redundant.
   (c) Statement(C) is redundant.
   (d) All the statements are required to answer the question.

7. What is the probability of getting a sum that is a multiple of 7 in a throw of certain dices?
   (A) All the dices are fair.
   (B) There are total of 3 dices.

(C) Dices are being thrown one by one.

(a) Statement (C) is redundant.
(b) Both statement (A) and statement (C) are redundant.
(c) We require all the statements to answer the question.
(d) Question cannot be answered even if we use all the statements.

8. Who is a faster cyclist: Ramu or Kallu?
(A) Ramu can cycle 50 km in 15 hours.
(B) Kallu can cycle 20 km in 8 hours.
(C) Ramu's speed can increase by 10% if cycle is serviced properly.

(a) Statement (C) is redundant.
(b) Statement (B) is redundant.
(c) Statement (A) is redundant.
(d) All the statements are required to answer the question.

9. What is the ratio of savings of Ramu and Kallu

(A) Ratio of their salaries is 4:5
(B) Ratio of their expenditure is 4:5
(C) Ramu saves Rs 200 more than Kallu.

(a) Statement (C) is redundant.
(b) Both statements (A) and (B) are redundant.
(c) All the statements are required to answer the question.
(d) Question cannot be solved even if we use all the statements.

10. What is the value of x? Assume x and y are natural numbers.
(A) $3x + 2y = 42$
(B) $x < 4$
(C) x is an even number

(a) Statement (C) is redundant.
(b) Statement (A) is redundant.
(c) Either Statement (A) or statement (C) is redundant.
(d) All the statements are required to answer the question.

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TEST – 14

Directions for Qs. 1 to 10: *In the following questions, one question is followed by a set of statements. You have to determine that which of the given statements is not required to solve the question.*

1. Who is the biggest all-rounder of all times.
   (A) Kapil Dev is the biggest all-rounder of all times for India.
   (B) Imran Khan is biggest al-rounder of all time for Pakistan
   (C) India and Pakistan are known for having maximum number of all-rounder.
   (D) India had more all-rounder than Pakistan.

   (a) Statement (A) and statement (B) are both redundant.
   (b) Statement (C) and statement (D) are both redundant.
   (c) All the statements are to be used to answer the question.
   (d) Question cannot be answered even if we use all the statements

2. Ramu, Kallu and Billu went to a picnic with some amount of money with them and all of them finished their picnic with having left with only Rs 100 each. Who should be giving how much to whom to settle the accounts? Assume that they decided to bear the cost equally
   (A) Ramu spent Rs 300 more than Kallu.
   (B) Kallu spent Rs 400 more than Billu
   (C) Ramu spent Rs 700 more than Billu.
   (D) They together spend Rs.6000

   (a) Statement (D) is redundant.
   (b) Either of the statement (A), statement (B) and statement (C) can be redundant.
   (c) Statement (D) along with any one on the remaining statements can be redundant
   (d) Question cannot be solved even if we use all the statements.

3. Four friends (Ramu, Kallu, Billu and Lallu), sitting for a discussion gave four different statements. How many of them are speaking truth?
   (A) Ramu claimed that only one of them was speaking truth.
   (B) Kallu claimed that only one of them was speaking truth.
   (C) Billu claimed that only one of them was speaking truth.
   (D) Lallu claimed that only one of them was speaking truth.

   (a) Question cannot be answered even if use all the statements
   (b) All the statements are required to answer the question.
   (c) Question can be answered using any three statements
   (d) Question can be answered using any two statements.

4. Who is saving more: Kallu or Ramu?
   (A) Ratio of their salaries is 4:5
   (B) Ratio of their expenditure is 6:7
   (C) Ramu earns more than Kallu
   (D) Kallu spends more than Ramu

   (a) Both statement (C) and statement (D) are redundant
   (b) Both Statement (A) and statement (B) are redundant.
   (c) All the statements are required to answer the question.
   (d) Either statements (A) and (B) are redundant or statements (C) and (D) are redundant.

5. Who is the eldest employee of Chronicle Publication?
   (A) Nobody has ever joined Chronicle Publication before an age of 25 years.
   (B) Manoj is the most senior employee of Chronicle Publication in terms of years of service.

(C) Murari is the junior most employee of Chronicle Publication in terms of years of service.
(D) There is no retirement age at Chronicle Publication.

(a) Statement (C) is redundant
(b) Statement (A) is redundant
(c) Question cannot be answered even if all the statements are used.
(d) All the statements are required to answer the question.

6. Which is the smallest of three positive integers: a or b or c.
(A) $a \times b = 6$
(B) $a \times c = 8$
(C) $b \times c = 12$
(D) $a \times b \times c = 24$

(a) Only statement (D) is redundant.
(b) All the statements are required to answer the question.
(c) Question cannot be answered even if we use all the statements.
(d) None of the above.

7. Who among the four friends is tallest?
(A) A is taller than at least two of his friends.
(B) B is not shorter than at least two of his friends.
(C) C is not the tallest among them.
(D) D is taller than A.

(a) Statement (C) is redundant.
(b) Both statement (B) and (C) are redundant.
(c) All the statements are required to answer the question.
(d) Question cannot be answered even if we use all the statements.

8. Tiles are laid on the floor of a room. Some tiles are already laid and some more are needed to be laid to complete the flooring of the room. How many more tiles are required to complete the flooring of the room?
(A) There are 450 tiles laid on the floor.
(B) A total of 600 tiles were bought for lying on the floor.
(C) Half of the remaining required tiles were broken on the way and all the unbroken tiles are already laid.
(D) 150 tiles were broken on the way from shop to home.

(a) Both Statement (A) and Statement (B) are redundant.
(b) Statement (D) is redundant.
(c) All the statements are required to answer the question.
(d) Both options (a) and (b) are correct.

9. How many sides are there in the polygon?
(A) There are more than three sides in the polygon.
(B) There are less than six sides in the polygon.
(C) The polygon has at least one of its angle as 120 degrees.
(D) The polygon does not have two diagonals.

(a) Statement (C) is redundant.
(b) Statement (D) is redundant.
(c) All the statements are required to answer the question.
(d) Question cannot be answered even if we use all the statements.

10. What is the value of x?
(A) $x^2 + y^2 = 5$
(B) x and y are positive integers.
(C) $- x < - y$
(D) $|x^2 - y^2| = 3$

(a) Statement (A) is redundant.
(b) Statement (D) is redundant.
(c) All the statements are required to answer the question.
(d) Either statement (A) or Statement (D) is redundant.

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TEST – 15

Directions for Qs. 1 to 10: *In the following questions, one question is followed by a set of statements. You have to determine that which of the given statements is not required to solve the question.*

1. What is the strength of the class present today?
   (A) There are 20 students absent in the class.
   (B) The ratio of boys to girls enrolled in class is 3:2.
   (C) There are 32 girls present in the class.
   (D) There are 12 boys absent from the class.

   (a) Statement (C) is redundant.
   (b) Statement (B) is redundant.
   (c) All the statements are required to answer the question.
   (d) Question cannot be answered even if we use all the statements.

2. Ramu, Billu, Lallu and Kallu took a 1 km cycle race among themselves. Who among them won the race?
   (A) Ramu cycled at an average speed of 10 m/sec
   (B) Kallu took 50 seconds to complete the race.
   (C) Lallu was among the top two and cycled at a speed of 18 m/sec.
   (D) Billu came third in the race.

   (a) Statement (D) is redundant.
   (b) Statements (A) and (D) are redundant.
   (c) All the statements are required to answer the question.
   (d) Question cannot be answered even if we use all the statements.

3. A train started moving from Mumbai towards Delhi. At what time will it reach Delhi?
   (A) It moves with an average speed of 50 km/hr including stoppages.
   (B) The distance between Mumbai and Delhi is 840 km.
   (C) The train started from Mumbai at 0600 Hrs.
   (D) The train has 5 stoppages of 10 minutes each.

   (a) Statement (D) is redundant.
   (b) Statement (A) is redundant.
   (c) All the statements are required to answer the question.
   (d) Question cannot be answered even if we use all the statements.

4. In a fun-fair, there is a game in which one has to drop a coin in a glass of water containing a ring such that the coin gets inside the ring. The one who gets the coin inside the ring wins Rs 100. The ticket for dropping one coin is Rs 20. Will the owner be able to gain through the game (as per probability) if the game continued for at least 100 times?
   (A) The probability of getting the coin correctly inside the ring is 1/6.
   (B) He was at a gain of Rs 100 till the 10th game.

   (a) Statement (B) is redundant.
   (b) Statement (A) is redundant.
   (c) Both statements are required to answer the question.
   (d) Question cannot be answered using both the statements together.

5. Four friends are standing facing North. Who among them is on the extreme left?
   (A) A is on the extreme right.
   (B) B and C are not adjacent to each other.
   (C) A and B are adjacent to each other.
   (D) C and D are adjacent to each other.

   (a) Statement (C) is redundant.
   (b) Statement (D) is redundant.
   (c) Either statement (C) or (D) is redundant.
   (d) All the statements are required to answer the question.

6. How is Mohan related to Rohan?
   (A) Mohan is the son of Sohan.
   (B) Sohan is the brother of Aman.
   (C) Aman is the son of Rohan.

(D) Mohan is the son of Aman.

(a) Statement (D) is redundant.
(b) Statement (B) is redundant.
(c) Either Statement (A) and (B) are redundant or statement (D) is redundant.
(d) All the statements are required to answer the questions.

7. Who was on the third place in the Gulli Danda world cup?
(A) 12 countries participated in Gulli Danda world cup this year.
(B) Pakistan was ahead of the at least 3/4th teams participated.
(C) India and America played the Gulli Danda World Cup finals.
(D) India was the Gulli Danda world cup winner.

(a) Statements (A) and (D) are redundant.
(b) Statements (C) and (D) are redundant.
(c) Statement (D) is redundant.
(d) Question cannot be answered using all the statements together.

8. A dishonest milkman sells milk at Rs 20 per litre. What is his profit percentage?
(A) He mixes 10 litres of water in 50 litres of milk.
(B) He sells 200 litres of milk every day.
(C) He buys pure milk at Rs 18 per litre.

(a) Statement (A) is redundant.
(b) Statement (B) is redundant.
(c) Statement (A) and (B) both are redundant.
(d) Neither of the statements are redundant.

9. What day is on the 13th of August?
(A) The 14th of Feb of the same year is Tuesday.
(B) The year is a divisible by 4.
(C) The 15th of March is Thursday.

(a) Statement (B) is redundant.
(b) Statement (A) and (B) are redundant.
(c) Statement (C) is redundant.
(d) Either statements (A) and (B) are redundant or statement (C) is redundant.

10. How many passengers are there in the bus?
(A) The bus has a seating capacity of 50 passengers.
(B) The bus has 20% more empty seats than occupied seats.
(C) The bus has 30 empty seats.

(a) Statement (B) is redundant.
(b) Statement (C) is redundant.
(c) Either Statement (B) or Statement (C) is redundant.
(d) None of the statements are redundant.

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TEST – 16

Directions for Qs. 1 to 10: *In the following questions, one question is followed by a set of statements. You have to determine that which of the given statements is not required to solve the question.*

1. A person has some jeans and some t-shirts. In how many distinct ways can he be dressed.
   (A) He has 2 more jeans than t-shirts.
   (B) The number of Jeans he has is an even number.
   (C) The number of T-shirts he has is a prime number.

   (a) Statement (B) is redundant.
   (b) Statement (C) is redundant.
   (c) All the statements are required to answer the question.
   (d) The question cannot be answered even after using all the statements together.

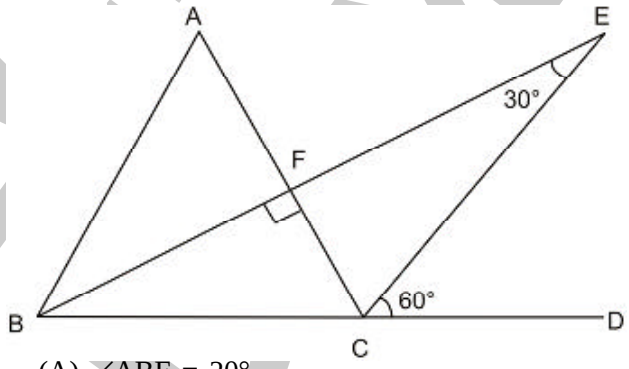
2. Amar, Akbar and Anthony are three friends. They went for a picnic on a bike. Who was riding the bike?
   (A) Amar is a coward and couldn't see the traffic coming from the front.
   (B) Akbar doesn't know to ride a bike.
   (C) Anthony is a specialist biker.

   (a) Both Statement (A) and Statement (B) together are redundant.
   (b) Statement (C) is redundant.
   (c) Either statement (A) and (B) is redundant or statement (C) is redundant.
   (d) Question cannot be solved using all the statements.

3. How many pages are there in the book?
   (A) There are 25 page numbers that are prime.
   (B) There are equal numbers of page numbers that are odd and that are even.
   (C) The last page number is a perfect square.

   (a) Statement (B) is redundant.
   (b) Statement (B) and (C) are redundant.
   (c) Question cannot be solved using all the statements together.
   (d) Question can be solved by using all the statements together.

4. Consider the figure. What is measure of the angle ABC?



   (A) ∠ABF = 20°.
   (B) ∠FCE = 60°.
   (C) ∠BAC = 40°.

   (a) Statements (A) and (B) are redundant.
   (b) Statements (B) and (C) are redundant.
   (c) Either statements (A) and (B) are redundant or statements (B) and (C) are redundant.
   (d) All the statements are necessary to answer the questions.

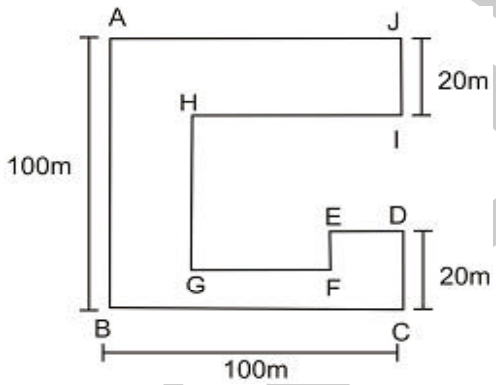
5. A cow is tethered with a rope inside a rectangular park where this cow is not allowed to go outside the park. What percent of area of the part that will be left ungrazed?
   (A) The length of the rope is 20m.
   (B) The length of the park is 1.5 times that of its breadth.
   (C) The length of the park is equal to that of the length of the rope.

   (a) Statement (B) is redundant.
   (b) Statement (A) is redundant.
   (c) All the statements are required to solve the question.
   (d) The question cannot be solved using all the statements together

6. There are three pipes connected to a tank. How many hours will it take to fill an empty tank completely?
   (A) Pipe A takes 6 hours to fill the tank completely.
   (B) Pipe B takes 10 hours to empty a completely filled tank.
   (C) Pipe C takes 4 hours to fill the tank completely.
   (D) All the pipes are opened at the same time.

   (a) Statement (D) is redundant.
   (b) Statement (D) with any of the three remaining statements is redundant.
   (c) All the statements are necessary for solving the question.
   (d) Some more information is required for solving the question.

7. Consider the following figure. What is the area enclosed in the figure? All the adjacent sides are perpendicular to each other and AJ = BC.



   (A) Length ED is 20m.
   (B) Length EF is 10m.
   (C) Length HI is 80m.
   (D) Length GH is 70m.

   (a) Statement (D) is redundant.
   (b) Statement (B) is redundant.
   (c) All the statements are required to solve the problem.
   (d) Either statement (B) or statement (D) is redundant.

8. Chunmun went for shopping having only 54 one rupee coins. After shopping, how many coins are left with him?
   (A) He bought a book worth Rs. 10.
   (B) He saved 50% of what he spent in the market.
   (C) He spent Rs. 36 in the market.
   (a) Statement (A) is redundant.
   (b) Statement (A) and (B) is redundant.
   (c) Statement (A) and (C) is redundant.
   (d) Statement (A) along with any of the remaining statements is redundant.

9. Chacha Chaudhary and Sabu were sitting in a garden. There were certain Dogs and Peacocks in the garden. Chacha asked Sabu to count the no. of legs and number of heads. Sabu made some statements. On the basis of these statements can Chacha Choudhary tell the correct no. of Dogs and Peacocks? (We know that Chacha Choudhary's brain works faster than a computer). The statements made by Sabu are:
   (A) "Chachaji there are 30 legs overall."
   (B) "Chachaji the ratio of Heads and Legs are in the ratio 1:3."
   (C) "Chachaji there are equal no. of dogs and the peacocks."

   (a) Statement (B) is redundant.
   (b) Statement (C) is redundant.
   (c) Either statement (B) or (C) is redundant.
   (d) All the statements are required to answer the question.

10. How many MBA colleges are there in India?
   (A) MBA colleges are categorized in two groups. Group A and Group B.
   (B) Group A has 4000 MBA colleges.
   (C) Group B has $1/5^{th}$ the total MBA colleges in India.
   (D) There are 15000 colleges in India.

   (a) Statement (B) is redundant.
   (b) Statement (D) is redundant.
   (c) All the statements are necessary for answering the question.
   (d) Question cannot be answered using all the statements together.

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TEST – 17

Directions for Qs. 1 to 10: *In the following questions, one question is followed by a set of statements. You have to determine that which of the given statements is not required to solve the question.*

1. What is the value of x?
   (A) x is a three digit number.
   (B) The first and the last digit of the number are same.
   (C) x is a perfect square less than 200.

   (a) Statement (A) is redundant.
   (b) Statement (B) is redundant.
   (c) All the statements are required to find the answer.
   (d) The question cannot be solved using all the statements together.

2. When the order of digits of a 4 digit number is reversed we get another 4 digit number. What was the original 4 digit number?
   (A) The first and the last digits were same.
   (B) The second and the third digits are also same.
   (C) The original number and the number obtained are both same.
   (D) The number is <1500 but >1400.

   (a) Statement (A) and (B) are redundant.
   (b) Statement (C) is redundant.
   (c) Either statement (A) and (B) or statement (C) is redundant.
   (d) The question cannot be solved using all the statements together.

3. There are two bags containing certain number of balls. There are only two colored balls- Red and White. One ball is picked from one of the bag at random. What is the probability that the color of the ball is Red?
   (A) 1st bag contains 5 Balls of which 3 are White.
   (B) 2nd bag contains 6 balls of which 3 are White.
   (C) There are total 11 balls of which 6 are white.

   (a) Statement (C) is redundant.
   (b) Statement (A) and (B) is redundant.
   (c) Either statement (C) is redundant or statements (A) and (B) are redundant.
   (d) All the statements are necessary to answer the question.

4. A 51% majority in an election is required for making a government. Which party makes the government?
   (A) Congress had the maximum number of seats in the parliament and the lead was 20% of total seats over the closest party.
   (B) BJP came second in the election by getting 1/3rd of the total seats.
   (C) RJD and SWP got 10% seats each.

   (a) Statement (B) and (C) are redundant.
   (b) Statement (C) is redundant.
   (c) All the statements are required for answering the question.
   (d) Question cannot be answered by using all the statements together.

5. What percentage of the population of the country Mamamia is Illiterate?
   (A) The total population of Mamamia is 1,90,000.
   (B) The sex ratio of Mamamia is 1000 : 900
   (C) There are total 15000 illiterate men in Mamamia.
   (D) There are total 80000 literate women in Mamamia.

   (a) Statement (B) is redundant.
   (b) Statement (A) is redundant.
   (c) All the statements are required to answer the question.
   (d) The question cannot be answered even after using all the statements together.

6. Amarkantak express has 10 stoppages in between Bhopal and Jabalpur. The stop timings at each station is a consecutive multiple of y such that the last stop is of 10y minutes. How much time does

the train take to reach the last station?

(A) The train travels at a speed of 60 km/hr.

(B) The distance between Bhopal and Jabalpur is 360 km.

(C) The train has a total stoppage of 2 hours.

(a) Statement (A) is redundant.
(b) Statement (B) is redundant.
(c) The question cannot be solved using both the statements together.
(d) All the statements are necessary for solving the question.

7. If 'I can win' is coded as 'zinga binga tinga', then what is the code for 'he can and must win'?

(A) 'He can win' is coded 'linga binga tinga'.

(B) 'He should win' is coded 'linga singa tinga'.

(C) 'He and I must win' is coded 'linga dinga zinga kinga tinga'

(a) Statement (A) is redundant.
(b) Statement (B) is redundant.
(c) Statement (A) and (B) both are redundant.
(d) Question can not be answered using all the statements to together.

8. A and B working together can do a work in 20 days. Both of them started the work one fine day and after 6 days B left the work. How many more days will A require to finish the work alone?

(A) A can complete the whole work in 60 days.

(B) B is twice as efficient as A.

(C) A and B working on alternate days can complete the work in exactly 40 days.

(a) Statements (B) and (C) are redundant.
(b) Statements (A) is redundant.
(c) Either statement (A) or (B) along with the statement (C) is redundant.
(d) Any of the three statements can answer the question individually.

9. A salesman can give a discount of x% on the Marked Price of the item. He tries and finds some logic to make the discount attractive by giving the same discount in 75% + y% format. What is the value of y?

(A) He gives a total discount of Rs 80 on the Marked Price.

(B) The value of x is 80.

(C) The selling price is Rs 20.

(a) Statement (A) is redundant.
(b) Statement (B) is redundant.
(c) Statements (A) and (C) are redundant.
(d) Either (A) and (C) or (B) is redundant

10. Santa and Banta went on an All India Tour. Santa concluded that they went to 20 cities and 33 villages. Banta knows that Santa doesn't know counting and he makes an error of one number exactly every x numbers. What is the value of x if Banta is expert in counting and never does a mistake in same?

(A) Banta said that they went to 45 places.

(B) Banta said that Santa can count correctly at least till 4.

(C) Santa misses all the multiples of the first number he misses.

(a) Statement (B) is redundant.
(b) Statement (C) is redundant.
(c) Both statements (B) and (C) are redundant.
(d) Question cannot be solved using all the statements together.

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DATA COMPARISON

In data comparison a statement or a paragraph is given in terms of x and y and is followed by four options. The options are:

Mark (a) if x > y

Mark (b) if x < y

Mark (c) if x = y

Mark (d) if a relation between x and y cannot be established.

In such types of questions we need to focus on the relative values of x and y. It may not be necessary to find the exact values of x and y, if the relation between x and y can be compared. These types of question are not very common but has appeared in some entrance exams. These type of questions tests the ability of the candidate to compare two unknown values with the help of some statements, which is a crucial and very important aspect of a manager. These questions covers almost all the topics of quants such as Numbers, Algebra, Arithmetic, Geometry etc. The questions basically tests the quantitative skills along with the comparative skills of the student.

For example:

There are two numbers x and y such that x + y = 4, and x – y = 1. Mark:

(a) If x > y
(b) If x < y
(c) If x = y
(d) A relation between x and y cannot be established.

Sol.: One way of doing it to solve both the equations and find the value of x and y. The value of x comes out to be 3 and the value of y comes out to be 1. From these values we can easily compare and find that x > y.

Now, the another and the simplest method would be that ignore the first equation. From the second equation we find that x > y. So, even without solving or finding out the values of x and y we found the exact answer for the question. This is the method of doing such problems.

So, do not sit and try finding the values of x and y. We need only the relative values of x and y. From reading the question you must be able to identify whether the values of x and y are comparible or not. These questions do not take much time and are usually very easy and quickly solvable. But, some questions, as usual, are tricky and need proper attention while being read. So, keep your mind open and brain alert for pointing out such questions and handling them the way they deserve.

Let us take another example:

There are x cups and y plates. If 20% of the cups and 15% of the plates break, then the ratio of cups to plates is 6:5. Mark:

(a) If x>y
(b) If x<y
(c) If x=y
(d) A relation between x and y cannot be established.

Sol.: The percentage of cups broken is more than that of plates. And after breaking, the ratio of Cups to plates is larger. So, it is clear that x > y.

In this example if we sit on finding the values of x and y, we will end up finding nothing. So, always try to solve these questions mentally without much of paperwork and the main funda is to Think Logically !!!

TEST – 18

Direction : *Mark your answers according to following codes*:

(a) If x>y
(b) If x<y
(c) If x=y
(d) A relation between x and y cannot be established.
(e) Data given in the question is inconsistent.

1. A man sees some animals in the farm. He counted to find a total of x eyes and y legs in the farm.
2. According to his will, Ishwar Chandra had to give Rs. 5,000 to all his sons and Rs 17,000 to all his daughters. He had x sons and y daughters. His a had a total of Rs 49,000 which was exactly divided among all his children.
3. Ramu has scored x% marks more than Kallu and Kallu has scored y% marks less than Ramu.
4. A cricket batsman scored x runs in y balls with a strike rate of 100.
5. One day a flight took off from Delhi to London at 6AM local time. The flight landed there at 10AM local time. The flight took x hours to reach there. On returning, the flight took off at 2PM local time and reached India at 9 PM local time. The flight took y hours to reach Delhi.
6. In an examination containing 50 questions, a student scored 32 marks. For each correct answer, student was awarded 1 marks, for each wrong answer, there was a penalty of 1/3 mark and for any unattempted question, a penalty of 1/6 marks was to be deducted from the score. That student left x questions and attempted y questions wrongly.
7. Abhinav and Prashant went to a restaurant for having lunch. Abhinav had Rs. x and after contributing for the bill he was left with Rs. y. Prashant had Rs. y and after contributing for the bill he was left with Rs. (x-y). Both of them paid the same amount of Bill.
8. In a match between Argentina and Spain, Argentina scored x goals before half time and Spain scored y goals in the match. Argentina won the match by 1 goal.
9. Total cost of a party was fixed and was to be distributed among all the members enjoying the party. If number of members increased by 25%, average cost per person decreased by x%. And if number of members decrease by 25% then average cost per person increased by y%.
10. A weighs x kg more than B and B weighs y kg more than C. B is geometric mean of A and C.

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TEST – 19

Direction : *Mark your answers according to following codes* :

(a) If x > y
(b) If x < y
(c) If x = y
(d) A relation between x and y cannot be established.

1. There are two integers x and y. The product of x and y is 12. x is a prime number.
2. A car crosses a platform of certain length in x seconds. Whereas it overtakes a train in y seconds. Length of the train is 20% less than the length of the platform and it's speed is 20% of the speed of car. Assume car and train were moving in the opposite directions. The length of the car is negligible.
3. $\frac{1}{x} > \frac{1}{y}$
4. An escalator ascends with a speed of x steps/sec. A boy moving in a hurry ascends the escalator with a speed of y steps/sec and reaches the top in 10 seconds. If the boy would have stood still he would have reached the top in 25 sec.
5. A boy buys toffees at the rate of Rs. x per score and sells it at the rate of Rs. y a dozen with a profit of 20%.
6. A two digit number xy when reversed becomes yx such that the difference between the two is minimum.
7. A has x candles and B has y candles. All the candles are of same length but A's candles are 20% thicker than that of B's. There is a power cut on both of their houses and they lit their candles. B's candles lasted 20 % less time than that of A.
8. A boy writes certain natural number starting from 1. He rubs a number x from the list and calculates the average of the remaining number which comes out to be y.
9. A building was constructed on a land and with time, it was realized that the value of land appreciated by certain rate every year where as the value of building depreciated at the same rate every year. After five years, it was realized that both of them accounted for the same cost. Land appreciated by Rs x and building depreciated by Rs y across all these years.
10. There was a milk water solution and a % of the solution was replaced with water and finally milk concentration in the solution reduced to x%. But if we would have added a% water to it and then would have removed same quantity of the solution, then milk concentration shall reduce to y%.

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TEST – 20

Direction : *Mark your answers according to following codes*:

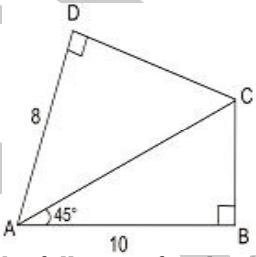
(a) If $x > y$

(b) If $x < y$

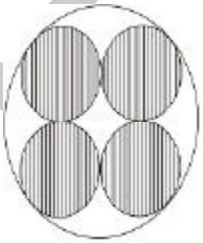
(c) If $x = y$

(d) A relation between x and y cannot be established.

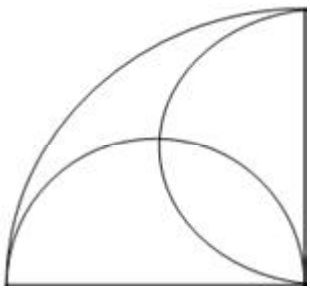
1. On an essay competition there is an exact word limit of 600 words. Every word carries 1 mark and the maximum mark is 600. For every extra word there is a deduction of 0.5 marks and for every less word there is a deduction of 0.5 marks. A boy got y marks for writing x words in the essay. A perfect 600 words attract 600 marks. No, one scored a perfect 600.
2. On a temple, there is a tradition that everyone goes inside the temple one by one forming a queue and each one of them had to offer flowers one more than the number of flowers offered by the previous person. Ramu, Kallu and Billu went to the temple with a total of x flowers but were unaware of the tradition of the temple. So, they thought to buy some flowers. They saw that the last person on the queue had y flowers less than they had altogether. They calculated and bought y more flowers so that they can follow the tradition and worship.
3. In the given figure, the area of $\Delta ABC = x$ and the area of $\Delta ADC = y$.



4. In the following fig. the diameter of the bigger circle is 10. The ratio of shaded region to that of the unshaded region is x : y



5. There are x ways of going from city A to B and there are y ways of going from city B to city C. There are total 10 ways of going from city A to C, but there is no direct route from A to C. Anyone going to city C from A has to go via city B. It is seen that most of the times at least two of the routes from B to C are blocked by traffic jam but then also there is at least 1 route that is functional from A to C.
6. There are two milkman Babloo and Dabloo. Babloo mixes x litres of water in y litres of milk and Dabloo mixes y litres of water in x litres of milk. They buy and sell the milk at the same rate. But Dabloo notices that Babloo is getting more profit than he is.
7. The remainder when x^{201} is divided by 7 is y. $x > 6$
8. x % of A = y % of B and A < B
9. A non-leap year has x Sundays and y Thursdays.
10. In the given figure, overlap of the two semicircles is x and the area of the quarter-circle which is not covered by any of the semicircles is y. Both the semi-circles are drawn with radius of the quarter circle as diameter.



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Answer Keys ANSWER KEYS Answer Keys

Test - 1	Test - 2	Test - 3	Test - 4	Test - 5
1. D	1. C	1. C	1. C	1. C
2. B	2. B	2. A	2. C	2. D
3. A	3. B	3. B	3. B	3. D
4. C	4. D	4. B	4. D	4. A
5. C	5. D	5. C	5. C	5. B
6. B	6. B	6. D	6. C	6. A
7. B	7. D	7. B	7. B	7. A
8. B	8. C	8. C	8. B	8. A
9. D	9. A	9. A	9. D	9. D
10. C	10. B	10. A	10. D	10. A
11. D	11. A	11. A	11. A	11. C
12. C	12. C	12. C	12. B	12. C
13. A	13. B	13. D	13. B	13. D
14. A	14. A	14. A	14. A	14. C
15. B	15. A	15. B	15. D	15. A

Test - 6	Test - 7	Test - 8	Test - 9	Test- 10
1. C	1. C	1. A	1. C	1. E
2. D	2. A	2. C	2. A	2. D
3. D	3. C	3. B	3. C	3. A
4. B	4. C	4. B	4. D	4. C
5. A	5. C	5. C	5. D	5. A
6. B	6. C	6. B	6. B	6. E
7. A	7. D	7. C	7. D	7. D
8. A	8. B	8. B	8. A	8. A
9. C	9. C	9. D	9. B	9. D
10. C	10. B	10. A	10. B	10. C
11. A	11. A	11. A	11. D	11. B
12. C	12. B	12. A	12. D	12. D
13. B	13. A	13. C	13. A	13. D
14. B	14. C	14. B	14. A	14. E
15. C	15. C	15. C	15. C	15. B

Test- 11	Test- 12	Test- 13	Test- 14	Test- 15
1. E	1. E	1. A	1. D	1. C
2. B	2. B	2. D	2. C	2. B
3. D	3. B	3. C	3. B	3. A
4. B	4. E	4. B	4. D	4. A
5. E	5. E	5. C	5. C	5. B
6. E	6. E	6. D	6. D	6. C
7. E	7. E	7. A	7. B	7. C
8. E	8. D	8. A	8. D	8. B
9. D	9. E	9. A	9. A	9. B
10. D	10. E	10. C	10. D	10. C
11. D	11. C			
12. D	12. D			
13. D	13. E			
14. E	14. E			
15. D	15. A			

Test- 16	Test- 17	Test- 18	Test - 19	Test - 20
1. C	1. A	1. D	1. B	1. A
2. D	2. C	2. A	2. A	2. A
3. A	3. C	3. A	3. D	3. A
4. C	4. B	4. C	4. B	4. A
5. B	5. A	5. D	5. A	5. B
6. C	6. D	6. D	6. C	6. A
7. D	7. C	7. E	7. A	7. A
8. D	8. C	8. D	8. D	8. A
9. C	9. D	9. B	9. B	9. D
10. B	10. C		10. B	10. C

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Solutions — Test - 1 (4 - Options DS) — Solutions

1. [D] x can take any value from 0 to 9 as it is a digit of a number.
I) 2x25x6 is divisible by 3.
Sum of digits 15+2x is divisible by 3.
x can be - 0, 3, 6, 9.
Hence statement I alone is insufficient.
II) x can take any value from 0 to 4.
Hence statement II alone is insufficient.
Combining the conditions given in statement I and II,
x = 0 or 3.
Therefore, we are not able to determine a unique value of x.

2. [B] Let S be the speed of the bus..
I) S = 25/3. Hence statement I alone is sufficient.
II) S = (25 + 20)/10. Hence statement II alone is sufficient.

3. [A] I) Both b = $\frac{1}{2}$, a = $\frac{1}{4}$ and b = 2, a = 4 satisfy. Hence I alone is insufficient.
II) Put any value of b, a's value will always be more than b. Hence II alone is sufficient.

4. [C] I) ab < 0 $\Rightarrow$ either a is negative or b is negative.
II) $a^2b > 0$ $\Rightarrow$ b is positive but cannot say anything about a.
Combining I and II, we get that a is negative and b is positive.

5. [C] I) a = 11, Not sufficient.
II) $\frac{3}{2}(2a + 2d) = \frac{9}{2}(2a + 8d)$
$\Rightarrow$ 2a = - 11d. Hence, statement II alone is not sufficient.
Combining, we have a = 11, d = -2.
Hence I and II together are sufficient

6. [B] I) If a, b and c are distinct positive integers and successive terms in an A.P. then, a + b + c = (a + c) + b = 2b + b = 3b which is not prime. Hence, statement I suggests that [a + b + c] is not prime. Hence I is alone sufficient.
II) From this we get the same result. Hence II is alone sufficient.

7. [B] I) PQ = 2 $\Rightarrow \frac{QS}{PQ}$ = Sin 45°. Hence I is sufficient
II) PR = $2\sqrt{2}$. Since Δ is isosceles QS bixcts PR. Hence we get PS and then by QS. Hence II is sufficient.

8. [B] (I) The ratio of efficiencies of Varun and Sameer is 1:3 Therefore we can find Sameer's share in Rs. 5000. Hence I is sufficient.
II) We can calculate his work done per day and hence the amount of work done in 25 days and thereby Varun's share and hence Sameer's. Hence II is sufficient.

9. [D] I) a + b + c = 40; Not sufficient.
II) Insufficient.
Combining, a + b + c = 40
$a^2 + b^2 = c^2$ Which is all insufficient.

10. [C] I) $\frac{20}{x-y} = \frac{30}{x+y}$. Not sufficient, as there are two variables and one eequation.
II) x + y = $\frac{30}{6} = 6$ not sufficient as there are two variables and one equation..
Combining, we have two equations in two variables. Hence both the statements are required

11. [D] I) Statement I tells us that Amit scored 16 marks. But doesn't tell us anything about scoring. So I is not sufficient
II) Statement II tells us about scoring. Suppose he gets x correct and y wrong, then
his score is $1 \times x - \frac{1}{4} \times y = 16$ ...(1)
Also $x + y \leq 25$
From both we get,
For (1) to be satisfied y must be divisible

by 4.

Hence y = 0 or y = 4. Not unique. Hence both statements combined are also not sufficient. So option [D]

12. [C] You cannot assume that $\angle R$ is a Right angle.

I) PQ = 7, QR = 3 but since we do not know whether PQR is right angled or not, so we cannot use Pythagoras.

II) Statement II alone is also insufficient.

By combining I and II, we can calculate AC by sine or cosine law.

13. [A] Using statement I,

$12x + 18y = 18a$

$\Rightarrow 2x + 3y = 3a$

$\therefore$ It has integral solutions (eg: x = 0, y = a)

$\therefore$ Statement I alone is sufficient.

Using statement II,

$c^2 + 4c - 396 = 0$

$(c - 18)(c + 22) = 0$

If c = 18, there are integral solutions.

If c = -22, there are no integral solution.

$\therefore$ Statement II is not sufficient.

Hence option (A) is the answer.

14. [A] I) p is a prime number between 20 and 30. So p is either 23 or 29. But a unique value can't be determined. Hence statement I alone is not sufficient.

II) $p^3 = 35937$. We don't need to actually calculate p from this. Knowing that $p^3 = 35937$, we can find a unique value of p and hence a unique value for p^7, statement II alone is sufficient. Note that we might be tempted to see whether after solving $p^3 = 35937$, p comes between 20 or 30. But that is not required as we are in no need to carry information of statement I into statement II. Infact p comes out to be 33.

15. [B] x is an integer greater than zero. We have to ascertain if x = 5

I) Using data given in the question and statement I, x = 5. You can conclude that x = 5 and hence statement I alone is sufficient

II) From statement II, x = 5 or -5. But from question, x is positive. So, x = 5. Hence statement II alone is sufficient.

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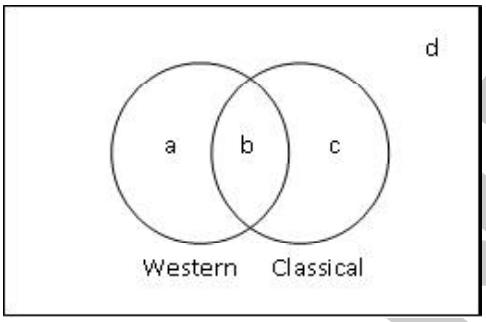
Solutions — Test - 2 (4 - Options DS) — Solutions

1. [C] I) A is next to C. B can be either opposite or adjacent to A. Hence not sufficient.
   II) Not sufficient (Same reason as above)
   Combining, A is next to both C and D.
   B cannot be next to A. Hence both statements together are sufficient.
2. [B] From the fig,



   a + b = 28, a + b + c + d = 50
   So, c + d = 22
   I) b = d
   So, c + b = 22. Hence, (I) alone is sufficient.
   II) c = a - 6
   So, a = c + 6
   Hence, a + b = c + 6 + b = 28. So, c + b = 22. Hence, (II) alone is sufficient.
3. [B] I) A is grandson of D, I alone is sufficient.
   II) A is grandson of D. II alone is sufficient.
4. [D] In both the options only ratios are given and no absolute values are provided. Hence, we cannot determine the number of male children.
5. [D] $(x - 11)(x - 6) < 0$
   $\Rightarrow \quad 6 < x < 11$
   I) From I, we can't get a unique value. Hence insufficient
   II) From II, we get x = 9, but we don't know whether x is an integer or not.Hence II alone is insufficient.
   Note - we should get a unique solution.
6. [B] As OA = OB = OC, the shaded region is a semi-circle.
   I) AB = 10. OA = OB = 5
   O is the centre. Hence, r = 5.
   Area of shaded region = $\frac{p\,r^2}{4}$.
   Hence I is sufficient
   II) Area of $\Delta ABC = 25$

$$\Rightarrow \quad \frac{1}{2} \times AB \times OC = 25$$

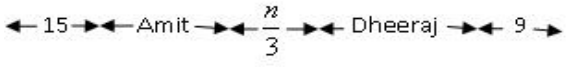
$$\Rightarrow \frac{1}{2} \times (OA + OB) \times OC = 25$$

$$\Rightarrow \frac{1}{2} \times (OA + OA) \times OA = 25$$

$$\Rightarrow OA^2 = 25 \Rightarrow OA = 5$$

$$\therefore \text{ Area } = \frac{p\,r^2}{2}$$

   Hence II is sufficient
   Hence option (B)
7. [D] I) There can be any number of students between Amit and Dheeraj.
   Hence I alone is not sufficient.
   II) II alone is not sufficient.
   By combining and II, there can be two arrangements.
   The first one is:

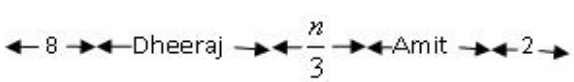


   Now $15 + 1 + 1 + 9 = \frac{2}{3}n$

   $n = 39$

   $\frac{n}{3} = 13$

   The other case is:



$8 + 1 + 1 + 2 = \frac{2n}{3} \Rightarrow n/3 = 6$.
Unique answer cannot be obtained. Hence [D]

8. [C] I) We do not know the speeds of ship and rickshaw and hence cannot be determined.
II) By knowing only ratios, we can't find speed.
Combining, let speed of ship, train and rickshaw be 4x, 15x and x respectively

Given, $\frac{12}{4x} + \frac{45}{15x} + \frac{6}{x} = 2$

So speed of train can be found.
Hence option [C]

9. [A] I) Interest collected for second year on Rs 10,000 at 11% SI yields Rs 1100 and CI at 10% for second year yields Rs 1100. So I is not sufficient.

II) Interest collected at SI $\rightarrow$ 1500 × 10% × 2 = 3000.
From CI $\rightarrow$ 15000 $(11)^2$ - 15000 = 3150.
Hence II is sufficient.
So option [A]

10. [B]Given abc = 40 $\Rightarrow$ at least one of them is even.

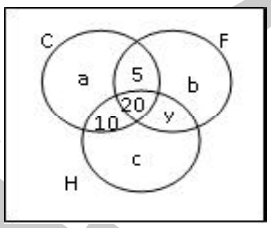
I) a + b + c is odd $\Rightarrow$ 1 odd or 3 odd. As at least one is even. Hence, 1 is odd. Hence I is sufficient

II) ab + bc + ca is odd $\Rightarrow$ 2 odd or 3 odd. As at least 1 is even, hence 2 odd. Hence II is sufficient. Option [B]

11. [A] I) Sibling of Kumar implies that Kumar is not the only child. Hence I is sufficient.

II) As Raj's sister may or may not have niece. So we can't answer. Hence option [A]

12. [C]



I) y = 10. Doesn't know b, so not sufficient.

II) b = 20. Doesn't know y, so not sufficient.
Combining, football = 5 + 20 + y + b = 5 + 20 + 10 + 20 = 55.
Hence option [C]

13. [B] I)x = 10. So, working together they will take $\frac{1}{10} + \frac{1}{15} = 6$ days. Whenever two workers take an integral number of days to complete a job, they would take twice the number of days to complete it working on alternate days. irrespective of who starts the job.
$\therefore$ time required can be found. Hence I is sufficient

II) Similarly, II is sufficient.
Hence option [B]

14. [A] I) Ratio of densities = 5 : 2 : 7
Ratio of volume = 1 : 2 : 2
Weight = Density x volume.
Ratio of weights = 5 × 1 : 2 × 2 : 7 × 2 = 5 : 4 : 14
Statement I is sufficient.

II) Weight of mercury - 136gm
Weight of iron - ?
Weight of aluminium - ?
Hence not sufficient.
Option [A]

15. [A] I) CP of one dozen banana = $\frac{x}{12}$

SP of one dozen banana = $\frac{x}{8}$

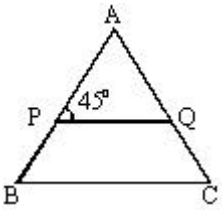
So we can find percentage.
Hence I is sufficient.

II) Let cost price be y. So
(x × x) - (x × y) = 300 $\Rightarrow$ x (x - y) = 300.
Hence II is not sufficient. Hence option [A]

Solutions — Test - 3 (4 - Options DS) — Solutions

1. [C] I) A must be a liar, because if he is a truth teller then instead of two there will be only one liar i.e. C.
So A $\rightarrow$ liar, C $\rightarrow$ Truth teller.
Hence I is not sufficient.
II) If B is a truth teller, then
B $\rightarrow$ truth teller, then : C $\rightarrow$ Truth teller
If B is a liar, then
B $\rightarrow$ liar : C - liar
Hence A & D are truth tellers.
Hence II is also not sufficient.
Combining, we can sea that only possible solution is B - Truth teller, C $\rightarrow$ truth teller
A $\rightarrow$ liar, D $\rightarrow$ liar
Hence Option [C]

2. [A]



I) $\angle ACB = \angle AQP$ which mean PQ and BC are parallel. But without knowing $\angle A$ it is not possible to solve for $\angle ACB$. Hence I is not sufficient.
II) PQCB is a cyclic quadrilateral
$\angle QPB = 135°$
$\angle QCB = 180° - \angle QPB = 45°$
Hence II is sufficient.
Hence, Options [A]

3. [B] I) $\left(\frac{x}{y}+\frac{y}{x}\right)^2 = 25$

$\Rightarrow \frac{x^2}{y^2}+\frac{y^2}{x^2}+2\frac{x}{y}\times\frac{y}{x} = 25$

$\Rightarrow \frac{x^2}{y^2}+\frac{y^2}{x^2} = 23.$

Hence statement I is sufficient.

II) $\left(\frac{x}{y}-\frac{y}{x}\right) = 7$

$\Rightarrow \left(\frac{x}{y}-\frac{y}{x}\right)^2 = 49.$

Solving as above, we will get and answer.
Hence II is sufficient.
Hence option [B]

4. [B] I) We have $5^a + 2^{b+2} = 253$.
By hit and trial, we see that this is possible only when a = 3 and b = 5.
$\therefore$ a + b can be found
Hence I is sufficient.
II) $5^{a+1} + 2^{b-2} = 633$
Possible only for a = 3 and b = 5
Hence II is sufficient.
Hence option [B].

5. [C] I) Since 4 is not odd. Hence I is not sufficient.
II) $f(4) = 4^3-1 = 63$. But since f(4) is odd we can't calculate f(f(4)) using $f(x) = x^3-1$. Hence statement II is also not sufficient.
Combining, we have f(4) = 63 from II and f(f(4)) = f(63) = 135 from I.
Hence both statements are required
Hence option [C].

6. [D] I) OP : PQ = 1 : 2 doesn't give us actual values of OP or PQ.
Hence I alone is insufficient.
II) P is the mid-point of AB implies that AP = PB and ΔAOP is similar to ΔBOP. But still we can't calculate AP or PB.
Combining I and II also, we still cannot calculate OA or OB.
hence option [D].

7. [B] The units digit in $(832)^{64}$ is 6. The unit's digit in $(294)^x$ is 6 (for even values or x) or 4 (for odd values of x)
I) x is odd. Hence statement I is sufficient.
II) x is either 4 or 8 and hence even. Hence II is sufficient.

8. [C] I) The number has only five multiples

less than 1000. i.e. it is less than 200.

$\therefore$ x can be { 190, 191, ----- 199}

This statement alone does not determine x. Hence not sufficient.

II) The number is odd and does not end in 5. x can have infinite values. Hence not sufficient.

Combining, there are 4 possible values of x which are - 191, 193, 197, 199. Since all these numbers are prime, so x is definitely a prime.

Hence both statements together are required. Hence Option [C]

9. [A] I) As we can easily see, statement I alone is not sufficient.

II) The hand coincides every 67 minutes. We can find that after how much time the hands coincide in a correct clock. Subtracting that from 67, we can find how much clock loses in 67 minutes. So we can calculate for 1 day. Hence II is sufficient.

10. [A] I) $x^3 + x^2 - 6x > 0$

$\Rightarrow$ $x(x - 2)(x + 3) > 0$

So x can be integer, fraction. Hence not sufficient.

II) $6x^2 + 11x + 3 = 0$

$\therefore$ $x = -\frac{1}{3}$ or $-\frac{3}{2}$. Hence, x is not an integer. Hence II alone is sufficient.

11. [A] I) Cost price of mixture in Rs = $\frac{100}{120} \times 36 = 30$. As we know the cost of stainless Steel and wrought iron nuts, we can find the required ratio. Statement I is sufficient.

II) Not sufficient.

12. [C] I) Highest runs in a test match is 40. So 30 + 10 is are combination

Other combinations should be less than 40 i.e., (24, 15) and (17, 20). But we do not know how many runs be scored in 1st innings and how many in 2nd. Hence I is insufficient.

II) Statement II is insufficient.

Combining, we get first innings scores as 10, 15, 17,

Hence sufficient. Hence option [C].

13. [D] Individual statements are insufficients as number of student not known Using both the statements together we can neither find the no. of students nor the average of the class. Hence, both the statements together are not enough to answer the question.

14. [A] I) Not relevant. Hence insufficient.

II) R = 6400. We can calculate circumference and hence distance.

Hence II alone is sufficient.

15. [B] I) $5(a + 4d) = 23(a + 22d)$

Solving we get, $a + 27d = 0$

So 28^{th} term $[a + (28-1)d]$ is 0

Hence sufficient.

II) $a + (a + 54d) = 188$

$\Rightarrow$ $a + 27d = 94$

Hence sufficient.

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Solutions — Test - 4 (4 - Options DS) — Solutions

1. [C] I) Flow rates of taps are not mentioned. Hence insufficient.

II) Number of taps in not given. Hence insufficient.

Combining I and II, each tap can fill a 20 litre tank in 1 hour i.e. in half an hour it can fill 10 litres. using 1 hour i.e. in half an hour it can fill 10 litres. Using this data and data in statement I, we can find the time required as 4 hours.

2. [C] I) not sufficient as into given about Biswa and Alok beat not about Arif.

II) Not sufficient - same situation as above

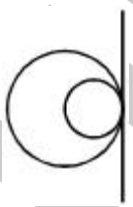
Using both statement,

$$\frac{\text{Biswa}}{\text{Alok}} \times \frac{\text{Arif}}{\text{Biswas}} = \frac{400}{370} \times \frac{760}{800}$$

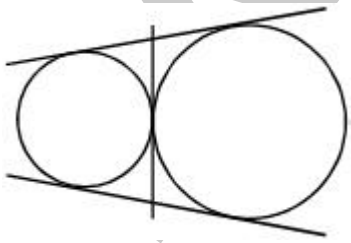
$$\Rightarrow \frac{\text{Arif}}{\text{Alok}} = \frac{380}{370}.$$

From this we can find the required information. Hence sufficient.

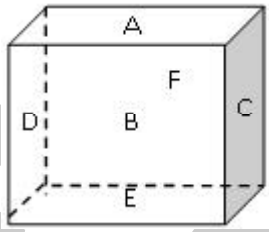
3. [B] I) Two circles have only one common tangent therefore one circle lies inside the other. Hence, dustance = 20 - 10 = 10



II) When two circles have only three common tangents the circles touch each other externally. Hence distance between centres = 20 + 10 = 30. Hence sufficient.



4. [D]



Given, A = Red, E = Blue.

I) B = White, D/C = orange.

Hence I alone is insufficient.

II) Statement II alone cannot answer the question.

Even both statements together are also not sufficient. Hence, option [D]

5. [C] $\dfrac{(y)}{(x)+(y)} = \dfrac{1}{1+\dfrac{(x)}{(y)}}$

I) Since we don't know any thing about y. Hence not sufficient.

II) Not sufficient

Combining, $\dfrac{(y)}{(x)+(y)}$ will be minimum when $\dfrac{(x)}{(y)}$ will be negative

$$\Rightarrow \frac{(x)}{(y)} = \frac{-4}{2} = -2$$

So minimum value is -1. Hence sufficient.

6. [C] I) a:c::b:d $\Rightarrow$ ad = bc.

But we cannot calculate a numerical value for given ratio. Hence I alone is insufficient.

II) $(2d + b) \times b = b^2 + d^2$.

$\Rightarrow d^2 = 2bd$

$\Rightarrow d = 0$ or $d = 2b$.

Hence II alone is insufficient since no unique solution.

Combining, d cannot be zero otherwise the

proportion

a : c :: b : d will become indeterminate. Therefore d = 2b.

From statement I, 2ab = bc $\Rightarrow$ c = 2a, as b can also not be equal to zero. Putting values of C and d in the required ratio we get the value of the ratio as 2. Hence, I and II together are sufficient.

7. [B] Only the smallest number is a single digit number

I) From the given info, numbers are 9, 12 and 15. Hence sufficient

II) $\frac{x+y}{2}=10.5 \Rightarrow x+y=21$

Also $\frac{x+y+z}{3}=10 \Rightarrow x+y+z=30$.

Hence z = 9

As x > y > z. Hence y will be 10 (since mean of two greatest numbers is 10.5 and hence one number should be less than 10.5 but more than 9). Therefore $x \rightarrow 11$

Hence II is also sufficient.

8. [B] I) Statement I alone is sufficient as we can find N from given info and hence N^2 - 30N + 200.

II) Again from the given info, we can find N

Hence sufficient.

9. [D] I) This tells us only about 10 numbers. Rest 50 numbers are unknown. Hence I alone is insufficient.

II) Again, for same reason, II is insufficient.

even combining the two statements doesn't tell us about all the 60 numbers.

10. [D] Neither of two statements alone is sufficient as each of them gives info of monthly profit only for months with 30 or 31 days. Even by combining, we do not know the answer as we don't know the monthly profit for month with 29 days.

11. [A] I) $945 = 3^3 \times 5 \times 7$ (breaking into prime factors)

Therefore the number of divisions of 945 is (3 + 1)(1 + 1)(1 + 1) = 16.

So we can have various combinations of three numbers whose products is 945.

hence I is insufficient.

II) Average of 3 numbers = 10.33

Hence, sum of number = 10.33 × 3 = 31.

Hence II alone is sufficient.

12. [B] I) $\frac{1}{b-a}+\frac{1}{b-c}=\frac{1}{a}+\frac{1}{c}$

$$\frac{1}{b-a}-\frac{1}{c}=\frac{1}{a}+\frac{1}{c-b}$$

$$\frac{c+a-b}{(b-a)c}=\frac{c+a-b}{a(c-b)}$$

bc - ac = ac - ab

So, 2ac = ab + bc

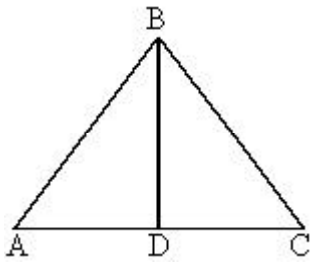
$\Rightarrow \frac{2}{b}=\frac{1}{a}+\frac{1}{c}$. So, a, b and c are in H.P.

Hence I is sufficient.

II) 2ac = ab + bc

$\Rightarrow \frac{2}{b}=\frac{1}{a}+\frac{1}{c}$. Hence II alone is also sufficient.

13. [B]



I) DB is perpendicular to AC

$\Rightarrow \angle BDA = \angle BDC = 90^0$. AD = DC and BD is common. Therefore by SAS congruence, hence ΔADB and ΔCBD are congruent. Hence I alone is sufficient.

II) AB = BC, AD = DC (given) and BD is common. Therefore by SSS congueerence rule, ΔADB and ΔCBD are congruent. Hence II is sufficient.

14. [A] Let the length of the race be d and speed of Susanthika and Anju be x and y respectively.

We know that $\frac{d-40}{y}=\frac{d}{x}$

I) $x = y + 4$

$$\frac{d-40}{y}=\frac{d}{y+4}$$

$\Rightarrow$ $4d - 160 - 40y = 0$

There are 2 unknowns and 1 equation. Hence insufficient.

II) $\frac{d-40}{v}=\frac{d}{1.5v}$

$\therefore$ $1.5d - 60 = d$

$\Rightarrow$ $d = 120m$

Hence II alone is sufficient.

15. [D] I) $a > c$. Combining this with the equation given in the question, $d > b$. But we haven't been given any relationship between c and d or c and b or a and d. Hence I is insufficient.
II) $b < d$, gives us $a > c$.
Hence same as above. Hence II is also insufficient.
Combining both the statements also doesn't solve the problem. Hence, insufficient.

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Solutions — Test - 5 (4 - Options DS) — Solutions

1. [C] Let the number of students in the class be x.

I) Statement I is insufficient.

II) x is a perfect square and x is odd [raju has y boy classmates and y girls. Hence total - y + y + 1(raju)].
Statement II is also insufficient.
Using both statements $100 < x < 125$, x is odd and a perfect square.
Hence x = 121.
Both statements required.

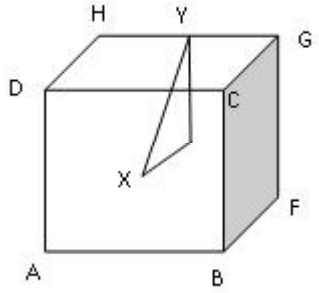
2. [D] I) The given ratio doesn't tell us anything about the various angles of the Δ.
Statement I is insufficient.

II) AC is a diameter of the circumcircle.
$\Rightarrow \angle B = 90^0$. But angles A and C can be anything. Hence II alone is insufficient.
Combining I and II doesn't tell us anything about angles A and C or their ratio Hence even both statement, together are insufficient.

3. [D] I) We do not know who is youngest or who is the eldest.
Hence I is insufficient.

II) B did not get the mango. But we do not know what C got.
Hence II is insufficient.
By combining I and II, C got neither Banana nor Orange.
$\Rightarrow$ C got either Mango or Apple
Hence both together are also not sufficient.

4. [A]



I) ABCDEFGH is a cube
$\Rightarrow a^3 = 216 \Rightarrow a = 6$.
From fig., it is clear that XY = $\sqrt{a^2 + (a/2)^2}$
Therefore, we can determine distance between point, X and Y.
Hence I alone is sufficient.

II) Just the length of diagonal BH is insufficient. Hence II is insufficient.

5. [B] We know that for any positive real numbers, A.M. $\geq$ GM

$$\Rightarrow \text{A.M.}\left(x, \frac{1}{x}\right) \geq \text{G.M.}\left(x, \frac{1}{x}\right)$$

$$\frac{x + \frac{1}{x}}{2} \geq \sqrt{x, \frac{1}{x}}$$

$$\Rightarrow x + \frac{1}{x} \geq 2$$

So minimum value of $x + \frac{1}{x}$ is 2 for any positive real number x. Hence either statements alone are sufficient.

6. [A] I) Since $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ so no unique solution.

II) Since $\frac{a_1}{a_2} = \frac{b_1}{b_2}$, so we can get a unique solution. Statement II alone is sufficient. Hence [A]

7. [A] I) Since we don't know selling price, we can't find the discount.
II) Let selling price be 5x and marked price be 8x. Hence discount = $\frac{8x - 5x}{8x} \times 100$
Hence statement II alone is sufficient. Hence [A].

8. [C] Let the terms be a - d, a, a + d.
I) 3a = 36 $\Rightarrow$ a = 12. But since we done

+ be how d, hence I is insufficient.

II) (a - d) a (a + d) = 1428.

1428 can be factorised as a product of three terms of an A.P. in only one way i.e. 7 × 12 × 17. Hence, option (A) is the answer.

9. [D] I) Tells us that Rakesh and Reena are married but nothing about Vivek and Swati. Hence insufficient.

II) Statement is identical to statement I. Hence insufficient.

10. [A] I) $y^2 = 16$

Hence y can be + 4 or -4

x can also be positive or negative.

Hence insufficient.

II) x + y = 0 x = -y

Hence x and y of opposite rights.

Hence, x^3y^3 will be less then 0.

Hence II alone is sufficient.

11. [C] I) Average age of 92 test taper is 14 but no info about other. Hence, insufficient.

II) Again insufficient.

Combining the statements, total age of 92 students = 92 × 14 = 1288. Suppose if the remaining 8 students are of 24 yrs age, then total age of all 100 students = 1288 + 24 × 8 = 1480. Average age = 14.80 < 22. Hence, option [C]

12. [C] I) Statement I implines that today is 15^{th} of a month but the month cannot be determined. Hence insufficient.

II) According to statement II, today can be 15^{th}, 16^{th}, 17^{th} or 18^{th} of a month depending on whether the month has 28, 29, 30 or 31 days. More even month cannot be determined. Hence insufficient.

Combining, we get that today's date 15the and the month has 28 days. Hence the date is 15^{th} of Feb. Hence combined statements are sufficient.

13. [D] If 1 litre solution weighs x kg, the question actually asks where x <1 or not.

I) Mass of beakers has no relation with density.

Hence insufficient.

II) Mass of empty jar is not known and hence the weight of solution is not known. Hence II is insufficient.

Combining, we do not get any additional information.

Hence option [D]

14. [C] (i) b/c=3.

Hence I alone is not sufficient

(ii) -a/c = 4

Hence II alone is insufficient

Combining, we here $\frac{b}{c} = 3$, $\frac{-a}{c} = 4$

Hence $\frac{-b}{a} = \frac{3}{4}$

Hence together they are sufficient.

15. [A] (i) A is the Nephew of B but B can be either Uncle or Aunt of A. Hence, insufficient.

(ii) A is the Husband of B of A.

Hence, II is sufficient. Hence option [A]

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Solutions — Test - 6 (4 - Options DS) — Solutions

1. [C] (i) Statement I along is not sufficient.
(ii) Statement II alone is also not sufficient as we know the total number of green balls.
Combining, we have a from having 12 balls of which 5 are green. Hence probability = $\frac{5}{12}$.
Hence, option [C].

2. [D] I) $x < x^2 \Rightarrow x(x-1) > 0 \Rightarrow x < 0$ or $x > 1$.
Hence I alone not sufficient.

II) $\frac{1}{x} < 2$.
If $x > 0$, the given the quality becomes

$2x > 1 \Rightarrow x > \frac{1}{2} \quad \therefore \quad x > 0$

If $x < 0$, the quality becomes

$2x > 1 \Rightarrow x < \frac{1}{2} \quad \therefore \quad x < 0$

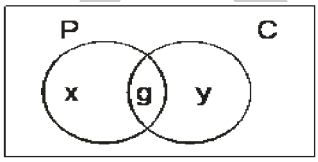
Hence II alone is also insufficient.
Combining, we get $x < 0$ or $x > 1$.
Hence both statements together out also not sufficient.

3. [D] Suppose P denotes profit, D denties selling price and C denties cost price of the article.

I) $\frac{P}{S} = \frac{1}{10}$ So, S cannot be determined. Hence I is insufficient.

II) $\frac{P}{S} = \frac{2}{3} \times \frac{P}{C} \Rightarrow 2S = 3C$ So, S cannot be determined. Hence II is insufficient.
Combining, we have 3 variables and two independent equations. Hence a unique value of s cannot be determined.

4. [B]



Ratio of number of students who passed in physics and chemistry = 3:2. 30 students passed in Physics only.
$\therefore$ The number of students passed in chemistry
$= (30+g)\ \frac{2}{3}$
I) g : y = 1 : 1

Now $\frac{30+y}{g+y} = \frac{3}{2}$

Putting g = y, we can find what is required
Hence I is sufficient.
II) y = 15.
Hence g= 15
Hence II is also sufficient.

5. [A] As $\angle ABD = \angle BCF = 90°$, hence AD and BF are diameter and E is centre.
$\therefore$ $\angle CEB = 2\ \angle CFB$ and $\angle BEA = 2\ \angle BDA$
I) $\angle BDA = 30°$
$\therefore$ $\angle BCA = 60°$
Hence I alone is sufficient.
II) $\angle CFB = 30°$
$\therefore$ $\angle CEB = 60°$
But we cannot find $\angle BEA$.
Hence II alone not sufficient
Hence option [A]

6. [B] $w^6-1=(w^3-1)(w^3+1) = (w-1)(w^2+w+1)(w^2-w+1)(w+1)$
I) Since $1 + w + w^2 = 0$. Hence, $w^6 - 1 = 0$.
Hence I alone is sufficient.
II) Since $w^3+1 = 0$
$\Rightarrow$ $w^6 - 1 = 0$. Hence, II is sufficient.

7. [A] The inequality can be reduced to $\frac{a}{b} + ab > 0$

I) If $ab > 0$ then $\frac{a}{b}$ is also greater than 0.

Hence $\frac{a}{b} + ab > 0$. Hence I alone is sufficient.

II) $a < b$ but given of a and b are not known.

Hence II is not sufficient.

8. [A] Let Mohan and Sohan take m days and s days respectively to complete the work.

If m = s, then Mohan and Sohan will take $\frac{48}{7}$ days = 7.71 days.

As Mohan is more efficient, the time taken to complete the job will be less than 7.71 days if Mohan starts and more than 7.71 days if Sohan starts.

I) $x \geq 7.5$

But x may or may not be greater than 7.71. Hence I alone is insufficient.

II) As Sohan started, time taken is more than 7.71 days i.e. x > 7.5. Hence II is sufficient.

9. [C] I) The distance and percentage of speed it loses are known but not the speed. Hence I is insufficient.

II) This gives us time but not the distance. Hence

II is also insufficient.

Combining, the speed of train = $\frac{800}{10}$ =80km/ h. The speed gets reduced to 64 km/h

Now $80 \times x = 64(x+1) \Rightarrow x = 4$ hrs.

Hence Distance between Delhi and Calcutta is $80 \times 14 = 1120$ km.

Hence both statements together are required.

10. [C] I) A $\Rightarrow$ not E and E $\Rightarrow$ not A

As nothing is mentioned about others, so I is insufficient.

II) D $\Rightarrow$ not C and C $\Rightarrow$ not D.

Hence II is also not sufficient.

Combining, as only one of A/E and only one of C/D can be selected, B must be selected.

11. [A] Each triangle requires 3 non-collinear distinct points. If n points are distinct and non-collinear ${}^nC_3$ distinct triangles can be drawn using them. But since same sets of three points out of the given 10 points may be collinear, hence we can not conclude that ${}^{10}C_3$ triangles can be formed using them.

I) Exactly 4 points are collinear and therefore we cannot draw any triangle using any 3 of them 4 points together as vertices. Hence the number of triangles that can be formed is ${}^{10}C_3 - {}^4C_3$. Hence I is sufficient.

II) The info. does not tell us about the other 5 points. Hence II is insufficient.

12. [C] I) x is a prime number between 15 and 25.

Hence it could be 17, 19 or 23.

Hence not sufficient.

II) $(x - 22)^2 + 4x = 93$.

Solving we get, $(x - 17)(x - 23) = 0$

It is given that x is not a solution to this equation. Therefore x can neither be 17 not 23 but can be any other position integer. Hence II alone is also not sufficient.

Combining, we get x = 19, which is a unique solution. Hence option [C].

13. [B] $\sqrt[x]{\sqrt[4]{\sqrt[3]{\sqrt{2^{9(216)}}}}} = (2^{9\times216})^{\left(\frac{1}{2}\right)\left(\frac{1}{3}\right)\left(\frac{1}{4}\right)\left(\frac{1}{x}\right)} = 2^{81/x}$

If x is a factor of 81, then the given term to an integer.

I) x is a multiple of 10. Hence x is not a factor of 81. Hence I is sufficient.

II) $x = 3^n$. Since x: 100, the possible volumes of n are 1, 2, 3 and 4. x = 3, 9, 27, 81 only

Hence $2^{81/x}$ is definitely an integer

Hence II is sufficient. Hence, option [B]

14. [B] Let time taken by Ramesh and Suresh to complete the job individually be r days and s days respectively. So, $\frac{2}{r}+\frac{3}{s}=\frac{1}{x}$

$$2\left[\frac{1}{r}+\frac{1}{s}\right] < \frac{2}{r} + \frac{3}{s} < 3\left[\frac{1}{r}+\frac{1}{s}\right]$$

$$\therefore \frac{1}{9} < \frac{1}{x} < \frac{1}{6}.$$

$\therefore 6 < x < 9$.

I) Only the info that x is prime, we get x = 7. Hence I is sufficient.

II) From this, again we get x = 7.

Hence II is also sufficient.

15. [C] I) Nothing is known about Tony

But number of person in the row = 20+14-1 = 33. Hence I alone is insufficient

II) Tony is at the middle. Hence, II alone is also insufficient.

Combining, we get, Tony is 17th from left end.

Hence both statements together are required.

Solutions — Test - 7 (4 - Options DS) — Solutions

1. [C] I) Possible combination for (x,y) are (2,6), (3,4), (4,3), (6,2). Hence I alone is insufficient.
II) Y can be any number between 4 and 6. Hence, II alone is insufficient.
Combining we get y = 4 or 6.
In either case, units digit of $(5xy)^6$ will be 6.
Hence forth statements together are required.

2. [A] I) Cost of fuel is not in any way required. Hence I is insufficient.
II) Rate of fuel consumed, r = 3/7 gallons per HP per hour.
Therefore total fuel consumption = h × t × r
$= 110 \times \frac{110}{60} \times \frac{3}{7}$. Hence II alone is sufficient.

3. [C] Let the number be a and b
I) $\frac{a+b}{2} = \sqrt{ab} + 0.5$ ------ (1)
We cannot determine the two numbers as we have just one equation in two variables. Hence not sufficient.
II) a - b = 5 [assumes a > b]
Here also we have one linear equation in two variables which cannot give values of a and b
Hence II alone is insufficient.
Combining, we have
Putting a's value in equation (1)

$$\left(\frac{2b+5}{2}\right) = \{(b+5)b\}^{0.5} + 0.5$$

$\Rightarrow (b+2)^2 = b(b+5)$
$\Rightarrow 4b + 4 = 5b \quad \Rightarrow b = 4$ and $a = 9$.
Hence both statements together are sufficient.

4. [C] I) Sowmya is older than two persons. But nothing is said alout Ramya. Hence not sufficient.
II) We can compare only Ramya and Sowmya. Hence II alone is also not sufficient.
Combining, Ramya is not younger than Sowmya who is older than 2 person. Hence Ramya is the oldest among the four.

5. [C] I) $|a| > |b|$
$\Rightarrow$ a > b or a < b
Hence I alone is not sufficient.
II) $\frac{a}{b} > 1$
$\Rightarrow$ a > b [When a, b---+ve]
Or a < b [When a & b --- -ve]
Hence II alone is not sufficient.
Combing, we get |a| > |b| so only a > b satisfy hence.

6. [C] I) Number of girls = 10 + 12 - 1 = 21
But nothing us specified about boys. Hence, I is not sufficient.
II) Number of boys = 16 + 21 - 1 = 36.
For the same reason as above, II is also not sufficient.
Combining, total students = 21 + 36 = 57.
Hence both together are necessary.

7. [D] I) 1485 is divisible by xy
$\Rightarrow$ 1485 = 3 × 3 × 3 × 5 × 11
$\Rightarrow$ Two digit divisons of xy could be, 15, 27, 33, 55, 45, 99.
But since x and y are prime, xy could only be 27, 15, 33, 55. Hence I alone is not sufficient.
II) xy can be 22, 33, 55, 77. Hence II alone is not sufficient.
Combining, xy can be 33 or 55. Hence no unique solution.

8. [B] I) Amit alone completes $\frac{7}{56}^{th}$ of the work.

$$\therefore 7 \times \left(\frac{7}{56}\right) + x\left(\frac{9}{280}\right) = 1 \Rightarrow x = \frac{245}{9}$$

Hence I alone is sufficient.
II) Together they complete $\left(\frac{5}{84}\right)^{th}$ of the work in one day. This means Amit complete $\left(\frac{2}{84}\right)^{th}$ of the work in a day.

$$\therefore 7\left(\frac{2}{84}\right) + x\left(\frac{5}{84}\right) = 1$$

$\Rightarrow$ x = 14. Hence II alone is sufficient.

9. [C] I) Only price of petrol is known. Hence not sufficient.

II) From this, it follows that the cost of k (rupees) is 22.5-x and that of P (also in rupees) is 22.5+11x. But x may be anything. Hence insufficient.

Combining, we get $11x = 27.5 \Rightarrow x = 2.5$

Hence we can get the pieces and the ratios. Hence both together are required.

10. [B]

As D, E, F one the mid points of AB, AC and BC respectly, the triangles AED, ECF, DFB and FDE are congruent.

$\therefore \angle FCE = \angle AED = 33°$

I) $\angle FEC = 78°$

$\therefore \angle BFE = \angle FEC + \angle FCF$

$\Rightarrow \angle BFE = 111°$.

Hence I alone is sufficient.

II) $\angle BAC = 78°$

$\therefore \angle FEC = \angle BAC = 78°$

We can find $\angle BFE$. Hence II alone is sufficient.

11. [A] I) In a regular hexagon, the distance of the center from any of the vertex is equal to the length of the sides. This is because each side subtends on angle of 60° at the centre thus dividing the hexagon into 6 identical equilateral triangle with length of each side being equal to the radius of the circumscribed circle.

I) Circumference of the circle is equal to 1.0475 × perimeter of hexagon = $2\pi r = 1.0475 \times 6r$

Since r gets cancelled from both sides of the equation, I alone is not sufficient.

II) Area of the circle is πr^2 and area of Hexagon is $6\frac{\sqrt{3}}{4}r^2$. Hence as per the statement $\pi r^2 - 6\frac{\sqrt{3}}{4}r^2 = 100$ and thus valuee of r can be calculated.

Hence II alone is sufficient.

12. [B] I) $2x + 3y + 2z = 420°$

$\Rightarrow y + 2(x + y + z) = 420°$

$\Rightarrow y + 2 \times 180° - 420° = 0 \Rightarrow y = 60°$.

Hence I is sufficient.

II) $y = 3x$ and $z = 2x$

$x + y + z = 180° \Rightarrow x + 3x + 2x = 180°$

Hence we can get all of x, y, z.

Hence II is also sufficient.

13. [A] I) $2^{6x - 3y} \times 3^{4x - 2y} = 2^{18} \times 2^{36} \times 3^{36}$

$\Rightarrow (2^3)^{2x - y} \times (3^2)^{2x - y} = 2^{54} \times 3^{36}$

$\Rightarrow (2^3 \times 3^2)^{2x - y} = (2^3 \times 3^2)^{18}$

$\Rightarrow 2x - y = 18$. Hence I is sufficient.

II) II is insufficient.

14. [C] I) $x = \log p$, $y = \log q$, $z = \log r$.

But we do not know the relationship between p, q, r. Hence I is insufficient.

II) $\frac{p}{q} = \frac{q}{r}$ But we do not know how they are related to x, y, z. Hence II is insufficient.

Combining, we have, $pr = q^2$

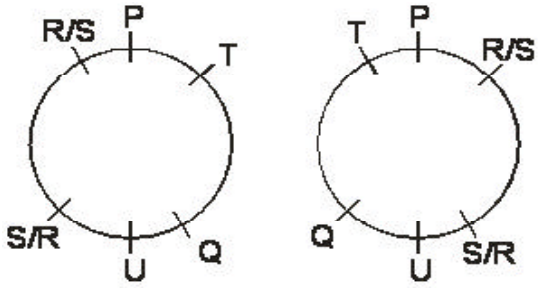
Applying log,

$\log p + \log r = 2 \log q \Rightarrow x + z = 2y$

Hence x,y and z are in A.P.

Hence both statements together are required.

15. [C] I) The arrangement can be



The person adjacent to S can be P and R or R and U. Hence I alone is not sufficient.

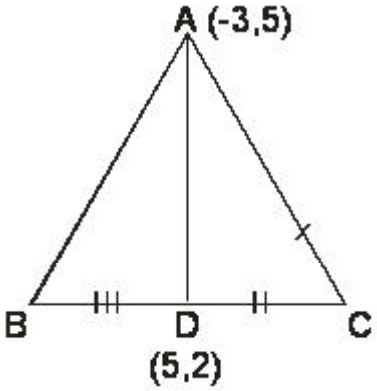
II) Nothing is said about S. Hence not sufficient.

Combining, the person adjacent to S are R and U.

Solutions — Test - 8 (4 - Options DS) — Solutions

1. [A] We know that
If n is odd, $x^n > 0 \Rightarrow x > 0$.
If n is even, $x^n > 0 \Rightarrow x > 0$ or $x < 0$.
Hence, I alone is sufficient.
II alone is not sufficient.

2. [C] I) Statement I is not sufficient.
II) Statement II alone is also not sufficient.
Combining, ΔABC is an equilateral triangle and the vertex is A (-3,5) and mid-point of BC is D (5,2).



So, AD = $\sqrt{64+9} = \sqrt{73}$
Now, in an equilateral triangle,
Area = $\frac{\sqrt{3}}{4}a^2$ (Where a is side)
Also, side a = $\frac{2}{\sqrt{3}}h$
Hence, Area = $\frac{\sqrt{3}}{4}\left(\frac{2}{\sqrt{3}}h\right)^2 = \frac{\sqrt{3}}{4}\left(\frac{2}{\sqrt{3}}\sqrt{73}\right)^2$
Hence both I and II together are sufficient.

3. [B] At 7:45 the minute hand points towards the digit 9 in the clock.
I) 12 is towards North-West. 9 is towards South-West. Hence I alone is sufficient.
II) 6 is towards South-East. Thus 9 is towards South-West. Hence II alone is sufficient.

4. [B] I) Phani's brother's father-in-law's only daughter will be Phani's brother's wife and her brother-in-law is either Phani or Madhu. So, Madhu is the brother of Phani. Hence I is sufficient.
II) Madhu is the brother of Phani. Hence II is sufficient.

5. [C] I) Let population be x. So $\frac{4}{7}$ x are males. But we do not know about the ratio between married and unmarried. Hence insufficient.
II) We do not know about the percentage of males.
Combining, $\frac{4}{7}$x are males. 60% are married.
Hence out of x, $\frac{4}{7}$x × 0.6 are married males.
Hence both together are required.

6. [B] I) Sumit can type 2250 words in $\frac{2250}{4800}$ hours. i.e. in $\frac{2250}{4800}$ ×60 minutes
Hence I alone is sufficient.
II) He can type 1200 words in 15 min
So in 25min, he can type 1200 × $\frac{25}{15}$.words.
Hence II alone is also sufficient.

7. [D] Let the wt. of bodies x, y and z be x kg, y kg and z kg and their total wt. be T kg.
I) x = $\frac{1}{2}$(y + z)
$\Rightarrow$ x = $\frac{1}{2}$ (T - x)
$\Rightarrow$ x = $\frac{1}{3}$T.
But we don't know about y's wt.
Hence I is not sufficient.
II) y = $\frac{1}{2}$(x+z) from this also, we will get, y = $\frac{1}{3}$T. Hence II alone is also not sufficient.
Combining, x = y = z = $\frac{1}{3}$ T.
Hence both together are sufficient.

8. [B] Let r be radius of circle. Area of circle = πr^2 and area of each section would be $\pi r^2/4$ square units.

I) $\frac{p r^2}{4} = p \Rightarrow r = 2$ Hence I alone is sufficient.

II) Perimeter of each section = $2r + \frac{2\pi r}{4} =$

$r(2 + 0.5\pi) \Rightarrow r(2 + 0.5\pi) = (1.5x + 6)$.

Hence II is also sufficient.

9. [D] I) $\frac{2a(1-r^R)}{1-r} = \frac{a}{1-r}$

$\Rightarrow r = \frac{1}{2^{1/R} r}$

Since R is unknown, we can't find r and a. Hence I is insufficient.

II) Statement II alone is also not sufficient.

Combining, we still can't get any anwer.

Hence option [D].

10. [A] Roots of the equation,

$ax^2 - (a + 1)x + 1 = 0$ are

$\frac{(a+1) \pm \sqrt{(a+1)^2 - 4a}}{2a}$ i.e. 1 or $\frac{1}{a}$

I) Since $|a| \neq 1$, Hence $a \neq 1, -1$.

Hence $a = \frac{1}{a}$. So, the roots of the equation is an integer. Hence I is sufficient.

II) $-5 < a < 0$ for $a = -1$, we have two integral roots. For other values, we have no integeral roots. Hence, not sufficient.

11. [A] I) We have $(121)_x = x^2+2x+1 = (x+1)^2$

So, 121 is a perfect square in any system whose base is greater than 2. Hence I alone is not sufficient.

II) We know that there are 30 two digit number in the base 6 system. Hence base is 6.

Statement II alone is sufficient.

12. [A] I) X or Y is not at any extreme end. from this we cannot say whether X and Y are adjacent or not. Hence I alone is not sufficient.

II) There are three persons between V and W.

$\therefore$ one of V and W is at the exrtreme end.

Now V and Z are adjacent to each other.

U and Z occupy the two places between V and W. And the other place is occurpied by X or Y.

$\therefore$ X and Y cannot be adjacent. II alone is sufficient.

13. [C] I) Without knowing speed of the train when the train is halting, we can't find how long does the train halt in each hour. Hence I alone is not sufficient.

II) II alone is not sufficient as nothing is said about halting.

Combining, to cover 40 km, the train takes

$\frac{40}{50} \times 60 = 48$ min. Hence halting is of 12 mins.

Hence both statements together are required.

14. [B] I) $x^2 + y^2 = 1$

We know $(x - y)^2 \geq 2xy$.

$\Rightarrow x^2 + y^2 \geq 2$

$\Rightarrow x^2 + y^2 + x^2 + y^2 \geq x^2 + y^2 + 2xy$

$\Rightarrow (x + y)^2 \leq 2. \Rightarrow -2 \leq (x+y) \leq 2$

Hence I alone is sufficient.

II) $x = \frac{\log a}{\log b}$; $y = \frac{\log b}{\log a} \Rightarrow y = \frac{1}{x}$

Now we know that for positive x, $x + \frac{1}{x} \geq 2$.

Hence x+y is definitely greater than $\sqrt{2}$

Hence II alone is also sufficient.

15. [C] $K \times 0.xy = K \times \frac{xy}{99}$

I) Let K = 9p

$\therefore \frac{Kxy}{99} = \frac{9pxy}{99} = \frac{pxy}{11}$

Hence I is not sufficient.

II) Let K = 11q

$\therefore \frac{Kxy}{99} = \frac{11qxy}{99} = \frac{qxy}{9}$

Hence I is not sufficient.

Combining, $K = 9 \times 11 \times z$

Hence $K \times \frac{xy}{99} = 9 \times 11 \times z \times \frac{xy}{99} = xyz$

Hence both statements together are sufficient.

Solutions — Test - 9 (5 - Options DS) — Solutions

1. [C] I) The common letters in the given terms are u, q, p and their codes can be 5, 2 and 3. So the code for 's' is 1. Here I is sufficient.
II) The codes for all letters from p to x except s are given as number from 2 to 9 in the two words. Hence s is 1. Hence II is also sufficient.

2. [A] Given Statements -
i) No elephant is a dog.
ii) No dog is a cat.
I) All tigers are dogs
Combining with (i), we get,
No elephant is a tiger. Hence I alone is sufficient.
II) As there is no relation between cat and tiger, so we have to take statement I as well as II. But as there are two negative statements, we cannot conclude anything. Here II is not sufficient.

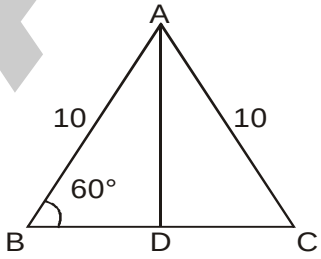
3. [C] I) 10 soldier ants take 6 hrs to build anthill, so 5 soldier will take 12 hrs. As each queen ant works at half the rate, 5 queen ants will take 24 hr. Hence I alone is sufficient.
II) As we know from the initial data the time taken by a soldier ant to build anthill and from the given statement the relationship between the time taken by a soldier ant and a queen ant, the time taken to build the anthill by five queen ants can be determined.
Hence II alone is also sufficient.

4. [D] Air contain O_2 and CO_2 in the ratio 5:3, We need the composition of Smoke.
I) Only ratio of O_2 and CO_2 in exhaust gases is given, but nothing is specified about the ratio of exhaust gases and air in Smoke. Hence I is insufficient. Similarly II is also insufficient.
Combining, we can get the answer as composition of Smoke, in term of air and exhaust gases as well as composition of air and exhaust gases in term of O_2 and CO_2 is given.
Hence both statement together are required.

5. [D] I) Income of A is 30% more than B. But nothing is said about expenditure. Hence I alone is insufficient.
II) Statement II alone is also insufficient.
Combining, if income of B is x then that of A is 1.3x. If expenditure of B is y, then that of A is 1.3y. Hence, B's saving = x - y
A's saving = 1.3(x - y)
Hence A's saving is 30% more than that of B, Hence both statements together are sufficient.

6. [B] I) Neither Q nor R is the spouse of any one of P, S and T. Hence Q is the spouse of R.
But we cannot find the relation for P, S, T and U. Hence I alone is insufficient.
II) P is not the spouse of Q, R, S or U.
$\Rightarrow$ Q is the spouse of R.
$\Rightarrow$ S is the spouse of U.
Hence II alone is sufficient.

7. [D] I) As only one angle is given, so statement I not sufficient.
II) As only two sides are given, hence statement II is also not sufficient.
Combining, $\angle ABC = 60°$; AB= 10 cm



Hence $\angle BCA = 60°$.
$\Rightarrow$ $\angle BAC = 60°$.
Hence equilateral triangle, now we can easily find the area.

8. [A] I) We have SI equal to 40% for 5 yrs.
So rate of interest = $\frac{40}{5}$ = 8% p.a.
II) We only have principal which is not sufficient.

9. [B] I) $-5 < x < -1$ and $1 < y < 2$
If x = -4.4 and y = 1.1, $\frac{x^2}{y^3} > 5$.
But if x = -1.2 and y = 1.7, $\frac{x^2}{y^3} < 5$
Hence I is insufficient.

II) $0 < y < 1 \Rightarrow \frac{1}{y^3} > 1$.

Also $x > 3 \Rightarrow x^2 > 9$.

Hence, $\frac{D}{60} - \frac{D}{40} = 1$

Hence II alone is sufficient.

10. [B] I) The number can be (1), 222, ... or 999. Hence I alone is insufficient.
II) the number is a multiple of 37. Also sum of the digits is 9. Hence it is a multiple of 9 also. Hence the number is a multiple of 37 and 9. L.C.M. of 37 and 9 is 333. Hence the number can be either 333, 666, 999. Since sum of digit is 9. So, the number is 333. Hence II alone is sufficient.

11. [D] From I alone we cannot answer the question as a can be 1 and b can be 6, on which the product is less than 6.
From II alone we cannot answer the question as 2.1 × 2.1 is less than 6 but 3 × 3 is more than 6. Hence, on combining both we get that product is more than 6. Hence, [D]

12. [D] I) we can only tell about the percentage change but not about the absolute change.
II) This statement is not sufficient to answer the question.
Combining the two, we get, if sales of company X was A then sales of company Y was 0.9A. Hence, increase in sales of X was 0.05A and that of B was 0.081A. Hence, both the statements together are required to answer the question.

13. [A] From I we get that X is not a prime number. From II alone we cannot get that X is prime or not.

14. [A] From I we get the value of A = 25 but from II we get the value of A = -25 or 25.

15. [C] I) We get that X is 2 more than the multiple of 3. Hence, it will give a remainder of 2 when divided by 3.
II) We get that X + 5 is divisible by 3, which means X is 5 less than the multiple of 3 or 1 more than the multiple of 3.
Hence, from both the statements alone we can get the answer.

Test - 10 (5 - Options DS)

1. [E] From (I) we cannot get the answer. From (II) alone we cannot get the answer. Also, using both statements does not give any additional information. Hence, question cannot be answered using the statements together.

2. [D] From (I) and (II) together we get the relation that A is wife of B.

3. [A] From (I) we get that a and b are of same signs, but not from (II) alone.

4. [C] From (II) we get that k is a positive number, but not from (I).

5. [C] From (I) we get that a : b = 3 : 2. From

(II) $\frac{a^2+b^2}{a^2-b^2} = \frac{7}{5}$

$5a^2 + 5b^2 = 7a^2-7b^2$

$12b^2 = 2a^2$

$\frac{a^2}{b^2} = \frac{12}{2}$

$\frac{a^2}{b^2} = 6$

$\frac{a}{b} = \frac{\sqrt{6}}{1}$

hance II alone sufficient.

6. [E] from I or II individually we cannot find conclusion now combining I & II We don't know whether Pakistan scored any goal in last 15 minutes.

7. [D] Using both the statements together we can find the answer for the question.

8. [A] From (I) x is an even number. Hence, the remainder will be 0 when divided by 2. From (II) the number can be 2, 3, 5, and so on. So, we cannot find the remainder exactly using (II) only.

9. [C] Using both the statements alone we can find the answer.

10. [C] From (I) we get x = -1/2 and 3. Since, x is a positive number, so x = 3 is a natural number. From (II) x = 2 or 3. Hence, x is a natural number.

11. [B] From [I] we could have found the number

days if we knew that who started the work. From (II) the work will be finished in 16 days irrespective of who started the work. Hence, from (II) alone we can find the answer.

12. [D] Using both the statements together we can find the cost of one chair and table.
13. [D] From (I) there is no unique solution. But from (I) and (II) combined we get a solution that x = 2.
14. [E] From (I) and (II) combined we get the net revenue generated from product ABC, but we cannot get the net profit.
15. [B] From (I) we cannot find the area but from (II) using Hero's formula we can find the area. Hence, [B]

Test - 11 (5 - Options DS)

1. [E] From (I) and (II) together we cannot determine whether he is late or early or on time.
2. [B] From (I) we find that he has at least equal number of shirts and pair of jeans but we can't tell whether the shirts are more or not. From (II) we infer the same thing but we can tell that he doesn't have more shirts than Jeans. Hence, using statement (II) alone we can answer the question.
3. [D] From statements (I) and (II) we get that 1 litre of Petrol costs more than 1 litre of Diesel and hence Diesel is cheaper and the answer is NO.
4. [B] From (II) it is clear that Ramu is not elder than Kallu. Hence, statement (II) alone is sufficient.
5. [E] From (I) and (II) we get that A and B are of same generatuion but we can't say that they are siblings or cousins.
6. [E] From (I) and (II) we get that F is tallest but nothing specifies the gender of F.
7. [E] It might be possible that he didn't go out or he had a rain coat or car or anthing. Nothing specifies about an Umbrella.
8. [E] From (I) and (II) we get that Ramu Prasad Chaurasia might have got richer as per his age, but it doesn't ensures that he is the richest businessman of Delhi.
9. [D] From (I) we get that 3 Idiots was the biggest hit but year is not given so we can not conlude anything from (II) only year is given so we cannot conclude by combining (I) & (II) we can conclude that 3 idiots is biggest let of 2010.
10. [D] From (I) and (II) we get that Aamir is better actor than Shahrukh.
11. [D] Both the statements together tell that Ramu had 9 choclates and Kallu had 19. So, with the help of both satements we can answer the question.
12. [D] From statement (II) we get that x can be 6 or -6.
    Using statement (I) also we get that $x < 0$. Hence, x = -6. So, using both the statements together we can find the answer.
13. [D] Using statement (I) we get that total no. of students were 7.
    Using statement (II) we get that total no. of girls were 4.
14. [E] Using both the sentences together we cannot find the meaning of the word 'lipa' as in both the sentence 'bila' and 'lipa' are used.
15. [D] Since, the triangle is a right angled triangle and the perimeter known so, sides of the triangle will be 15 cm, 20 cm and 25 cm for sure.

Test - 12 (5 - Options DS)

1. [E] Using both the statements together also we cannot find the answer. As we don't know the no. of passengers sitting in the car.
2. [B] From statement (II) we get that 50% of the balls are red. Hence, the probability of picking a red ball is 0.5.
3. [B] From statement (II) we get the distance between A and B, from the equation

$$\frac{D}{60}-\frac{D}{40}=1$$

4. [E] Using both the statements together we cannot find the total no. of children, as Ramu's family may have his mother, grandmother or sister etc. in the female members.
5. [E] We don't know that from where did Ramu tear the pages. Hence, using both the

statements together we cannot find the answer.

6. [E] Since, we don't know whether Ramu wrote the remaining words or someone else did or they were already written.
7. [E] We don't know the number of floors in the building.
8. [D] Using both the statements together we get that Arpit is taller than Arpan.
9. [E] Using both the statements together we cannot judge whether the two balls were of same or different colors.
10. [E] India might or might not have lost a match in the world cup and also it is not known that if a team loses any match, then will it be able to make it to finals or not. Hence, we cannot say that who won the match.
11. [C] Using both the statements individually, we can find the answer for the question.
12. [D] Using both the statements together we get that x = 5 and y = 7. Hence, x + y can be calculated.
13. [E] Since, x is a real number, then according to first statement x can take any value like x = $\sqrt{2}$ for n = 12 than 1. From second statement x can take any positive value for a = 100, x = $\frac{100}{500} = \frac{1}{5}$. So, combining both the statements we will get that x is more than 1.
14. [E] Using first statement we get that the word contains 6 letters with a letter repeating twice. Using second statement we get that the word contained only one vowel. But we don't know which vowel is that.
15. [A] From first statement we get the number of runs scored by Sachin. From second statement alone we could have calculated the no. of runs if we knew the no. of matches played by him in the tournament.

Test - 13

1. [a] Answer can be obtained either by using statement A and C or by using statement A and B. Using B and C we cannot find that who among Ramu and Kallu is faster
2. [d] From statements (A) and (B) we get that m is an even number and it is divisible by 3 so, it is divisible by 6. From statement (C) we get that m is an odd number and hence not divisible by 6. Hence, from (A) and (B) or (C) we can get the answer.
3. [c] From (A), (B) and (C) we get the volume of the bucket. Hence, all the statements are required to answer the question.
4. [b] From (C) alone we can find the probability of getting a red ball as it will give us the ratio of different number of balls. But from (A) and (B), we cannot find whether red balls are more than black or black balls are more than red.
5. [c] Obviously statement (C) is redundant and statements (A) and (B) are necessary to find the solution.
6. [d] From (A), (B) and (C) we find that it is a leap year which is necessary to find the answer.
7. [a] From statements (A) and (B) we get that there are 3 fair dices. The probability of getting a multiple of 7 can be found out.
8. [a] Statements (A) and (B) are necessary to find the answer of the question. Statement (C) is not required for answering the question.
9. [a] From (A) and (B) we get the ratio of their savings. Statement (C) is redundant.
10. [c] From (A) and (B) we get only one solution that x = 2. From (B) and (C) also we get the same solution. Hence, either (A) of (C) is redundant.

Test - 14

1. [d] We cannot determine the biggest all-rounder of all time for the whole world as it is not specified in any of the statements
2. [c] From any two of the three statements (A), (B) and (C) the question can be answered. Hence, statement (D) along with any of the other three statement is redundant.
3. [b] From the statements it is clear that none of them is speaking truth as if even 1 of them

is speaking true, the statements of all the other three will automatically become true, which will contradict the statement. Hence, using all the statements we get that none of them are speaking truth.

4. [d] From (A) and (B) we get that Ramu is earning more and spending less in comparison to what Kallu does. So, Kallu saves more. From (C) and (D) we get the same result.
5. [c] In all the statements everything but the eldest employee of Chronicle Publications can be inferred. So, the data is insufficient.
6. [d] From (A) and (B) we get that a = 2, b = 3 and c= 4. Hence, a is the smallest. So, (C) and (D) are redundant. And at the same time, even statement (D) can be redundant as we are getting the same by using all the remaining three statements.
7. [b] From statement (A) we get that either A is tallest or he is the second tallest. From, statement (D) we get that A is smaller than D and hence, D is the tallest.
8. [d] Statement (A), (B) and (C) can solve the question. Statement (D) is not required for solving the question. At the same time, statement (D) is also summarizing Statement(A) and (B), thus statement (C) and (D) can also give us the answer.
9. [a] From statements (A) and (B) we get that the polygon has either four or five sides. From statement (D) we get that the polygon does not have four sides. Hence, statement (C) is redundant.
10. [d] From (A), (B) and (C) or from (B), (C) and (D) we can get the answer that x = 2.

Test - 15

1. [c] Using all the statements we get that there are 40 girls in the class, so, the total strength of the class is 100 out of which 80 are present.
2. [b] From the statements (B) and (C) we can find that Lallu was 2nd and hence, Kallu won the Race.
3. [a] Statement (D) is redundant as the need for that statement is not there as the first statement tells the speed including stoppages.
4. [a] From (A) we get that the probability of winning is 1/6 i.e One out of every 6 people will win. The income from 6 people will be Rs 120 and he will have to give Rs 100 to the winner. So, as per probability he will gain Rs 20 after every 6 games. Hence, (B) is redundant.
5. [b] The statements (A), (B) and (C) are enough to answer the question. The statement (D) is useless.
6. [c] From (D) and (C) we can get that Mohan is the grandson of Rohan. From (A), (B) and (C) we get the same result.
7. [c] From (A) and (B) we get that Pakistan is on top 3. From (C) we get that Pakistan was on third place. Hence, statement (D) is redundant.
8. [b] Statement (A) and (C) are necessary for calculating the profit percentage. Statement (B) however tells the net profit which is not required. Hence, statement (B) is redundant.
9. [b] Statement (A) and (B) can solve question, but if the year is a century year, then it can cause problem. But statement (C) alone is sufficient to answer the questions. Hence, Statement (A) and (B) are redundant.
10. [c] Statement (A) combined with any of the other statement will give the result. Hence, either of the statements (B) or (C) are redundant.

Test - 16

1. [c] From statement (A) we get that the difference between them is 2. From (B) we get that both are even numbers. From (C) we get that the no. of t-shirts is an even prime number which can only be 2. So, number of Jeans is 4. So, total no. of ways he can be dressed can be calculated using all the statements together.
2. [d] All the statements suggest that Anthony might have ridden the bike, but no statement clarifies it clearly. Hence, we cannot answer the question.
3. [a] Statement (A) suggests that there are a minimum of 97 pages and maximum of 100 pages. Statement (C) clarifies that the last page is page number 100. So, statement (B) is redundant.

4. [c] From statement (A) or Statement (C) alone we can find the answer
5. [b] From statement (B) and (C) we can get the ratio of area of Park and the area that this Cow can graze.
6. [c] Using all the statements together only we can solve the question.
7. [d] If we know EF, then we can easily find GH and if we know GH, then we can easily find EF. Hence either of the two statements can be redundant.
8. [d] From (B) alone we can solve the question as he spent 66.66% and saved 33.33% of Rs. 54 and from (C) also we get the same. So, (A) along with any of the two statement is redundant.
9. [c] From (A) and (B) we can get the answer. From (A) and (C) also, we can get the answer.
10. [b] Statement (D) does not tell about number of MBA colleges and thus is useless for the answering the question.

Test - 17

1. [a] Statement (B) and (C) are enough to find the answer that x = 121. Hence, statement (A) is redundant.
2. [c] From statement (A) and (B) we get the information provided in the (C). So, either (A) and (B) or (C) is redundant.
3. [c] Students A and B gives distribution of balls in B boys so we can answer on basis of them. As total number of balls is given in statement C so, knowing either of A or B alongwith C gives the answer.
4. [b] Statement A snd B gives distibution of balls in bags so we can answer on basis of them. As total number of balls is given is statement c so, knowing of A or B along with c gives the answer.
5. [a] Need not to know sex ratio hence statement (B) is reduntant.
6. [d] From (A) and (B) we get that the train travels for 6 hours. From (C) we get the total stoppage time. Hence, we require all the three statements for finding the answer.
7. [c] From statement (C) we get the code for all the required words.
8. [c] Since A and B can finish the work in 20 days, we have one equation about their rate of working. Statements (A) and (B) give the second relation between their rates of working. Statement (C) is the same as stated in the question. Hence, either statement (A) or (B) along with (C) can be redundant.
9. [d] From (B) alone we get that the total discount is 80%, hence, we find that the value of y is 25. From, (A) and (C) combined we get the same result. Hence, [D].
10. [c] We have to use (A) because from this we get that they went 45 places, but according to Santa, they went 53 places. So, Santa is missing 8 numbers till 53. So, the number he misses should be at a difference of 6.
Hence, we donot require either (B) or (C) to determine the answer.

Test - 18

1. [d] Since, we do not know whether the farm animals had 2 legs or four legs. Hence, we cannot say.
2. [a] we get the equation as 5000x + 17000y=49,000. And moreover x and y have to be natural number. Only possible solution is x=3 and y=2. Hence, x>y
3. [a] Since Ramu has scored more marks and Kallu has scored more marks, therefore the value of x in x% more than Kallu will be more than y in y% less than Ramu. Hence, x > y
4. [c] The runs scored and balls faced are equal. Hence, [C]
5. [d] Since, we do not know the time difference between the two cities. Hence, it cannot be determined.
6. [d]. There are two possible solutions which are either x=4, y=10 and either x=12, y=3. And from both of the solutions, we cannot say whether x is more than y or y is more than x.
7. [e] x - y = y - (x - y)
Hence, we get, x/y = 2/3 which is not possible

as one can not be left with Rs 3 if he had Rs 2 before spending.

8. [d] We cannot determine how many goals did Argentina score before the half time. Hence [D].

9. [b] If the number of people increases then the decreased cost per head will be divided equally among all the people which will be less than the cost per head increased when same number of people decrease So, x < y.

10. [b] Assume A, B and C to be a Kg, ak Kg and ak^2 Kg respectively.
Hence, x = a (k-1) and y = ak (k-1). Since, k has to be more than 1, y will surly be more than x.

Test - 19

1. [b] There can be two cases x = 2 and y = 6 or x = 3 and y = 4. In both the cases x < y. Hence, [B]

2. [a] Let the length of the platform be 100 m.
Speed of the Car = $\frac{100}{x}$
Length of the train = 80 m and the speed of the train = 20% of $\frac{100}{x} = \frac{20}{x}$
Relative Speed = $\frac{120}{x}$. Time taken to cross the train = $\frac{80}{120} \times x = y \quad \Rightarrow 2x = 3y$
Hence, x > y

3. [d] On cross multiplication, we get x < y, but this is possible if and only if either both x and y are positive or both are negative. But if x is positive and y is negative then the inequality would not change. Hence no relation can be established

4. [b] Suppose the number of steps be 25. So, the speed of the escalator is 1 step/sec. Now, the boy moving up reaches there in 10 sec. So, his speed was 2.5 steps per second overall. So, he stepped at a speed of 2.5 - 1 = 1.5 m/sec. So, x = 1 and y = 1.5. Hence, x<y

5. [a] Let he buys toffees at Rs. 20 per score. So, price per toffee is Re. 1 Now, on 20% profit, the SP of each toffee = Rs. 1.2 per toffee = Rs. 14.4 per dozen. Hence, x > y

6. [c] In this case both the digits x and y has to be same. In this case the difference will be 0.

7. [a] From the question it is clear that A's candle lasted 20% more than that of B which is not the same as 20% less of A. So, 20% of B < 20% of A. Hence, x > y.

8. [d] Suppose he wrote down 10 numbers. The average of them is 5.5. If he erases 1 his average will become 6. If he erases 10 his average becomes 4.5. hence, we cannot find any relation between the two.

9. [b] From the question it is clear that the price of the land was lesser than that of the building. Since, the rate of appreciation and rate of depreciation is same, we can understand that the net appretiation of Land = x is less than that of the net depreciation of building = y. As a% of Small value < a% of bigger value.Hence, x < y.

10. [b] On carefully reading the statements we get that in first case we are removing solution and then adding water. But in second case we are adding water and then removing solution. So, in first case, in less amount of solution more amount of water is added and in later case, in more amount of solution less amount of water is added. So, clearly, the second case will have higher concentration than that in first case. Hence, x < y.

Test - 20

1. [a] In any case, he would get less mark than the number of words he wrote. Since, he didn't get a perfect 600 he wrote either less or more than 600 words, in either case, he scored less than the number of words. Hence, x > y.

2. [a] Since the last man on the queue had y flowers then they all required 3y+6 flowers total. They already had x and bought y. So, x = 3y + 6 - y = 2y + 6. Hence, x > y

3. [a] Since angle BAC = 45°, AB = BC = 10 and AC = $10\sqrt{2}$. So, obviously, Area of ΔABC > Area of ΔADC and hence, x > y

4. [a] Let the radius of inner circles be r. On joining the centres of the inner circles we get a square of side 2r. Now, the diagonal of the square = $2\sqrt{2}$ r. So, diameter of the of the outer circle = 2r + $2\sqrt{2}$ r = 10

Hence, r = $\frac{5}{1+\sqrt{2}}$

Now, the ratio of shaded area to that of the unshaded area = $\frac{4p\left(\frac{5}{1+\sqrt{2}}\right)^2}{25p-4p\left(\frac{5}{1+\sqrt{2}}\right)^2}<1$

Hence, x > y

5. [b] From the question there are four possibilities, that there is 1 route from A to B and 10 from B to C and vice versa or 2 routes from A to B and 5 from B to C and vice versa. But, it is also stated that 2 routes from B to C are always jam, which clarifies that B cannot be either 1 or 2. So, in the remaining two cases, x < y.

6. [a] Since, Babloo is getting more profit, he is mixing more water in less milk and hence, x> y.

7. [a] x^{201} when divided by 7 leaves a remainder less than 7. So, y < 7 and we know that x > 6. Hence, x > y

8. [a] x will always be greater than y. In the

9. [d] Non comparable, as x and y can vary depending on years.

10. [c] Since sum of the areas of semi-circles is same as area of the quarter circle, overlap of the two circles will be same as the uncovered area.