

CHAPTER 5

DATA SUFFICIENCY

Data Sufficiency has become another important area in many of the Campus recruitment tests as well as management entrance exams. The questions asked in this section are mostly based on Mathematics. A firm grasp over the basics of all topics being covered under the Quantitative Ability section is an essential prerequisite for doing well in the Data Sufficiency section. There will also be questions on Data Sufficiency which are based on simple reasoning or logic.

Data Sufficiency, as the name suggests, tests your ability to identify whether the data given are sufficient to answer the question or not. Hence, in all the questions in Data Sufficiency, you must stop at the stage of determining the sufficiency of the data and need not solve the problem completely. For certain questions, you are not required to do any calculation but can answer the question by mere observation. However, in some cases, it is difficult to say whether the data are sufficient or not unless complete calculations are done.

Structure of Data Sufficiency Questions

In Data Sufficiency questions typically, there will be a question followed by some data. The data are given in the form of two or three statements. (Statements I, II and III or statements A, B and C). You have to decide the answer choice for the question depending on whether the data given in the statements are sufficient to answer the questions or not. The directions are provided to you as to how to arrive at the correct answer choice. While, as mentioned above, there can be three statements, giving data, it is questions with two statements that are very common. So, for the purpose of this discussion, we will take questions with data given in two statements only.

The directions for questions on Data Sufficiency as they appear in different exams can be of five types. We will look at all these five types – designated Set – I, Set – II Set – III Set – IV and Set – V. You must read the directions carefully before you start answering the questions.

DIRECTIONS - SET I

"Each problem contains a question and two statements, A and B, giving certain data.

You have to select the correct answer from (1) to (4) depending on the sufficiency of data given in the statements to answer the question.

Choose 1 if statement A alone is sufficient and statement B alone is not sufficient to answer the question.

Choose 2 if statement B alone is sufficient and statement A alone is not sufficient to answer the question.

Choose 3 if statements A and B together are sufficient but neither statement alone is sufficient to answer the question.

Choose 4 if both statements A and B together are not sufficient to answer the question and additional data specific to the problem are needed."

DIRECTIONS - SET II

"Each problem contains a question and two statements, A and B, giving certain data. You have to select the correct, answer from (1) to (5) depending on the sufficiency of data given in the statements to answer the question.

Choose 1 if statement A alone is sufficient and statement B alone is not sufficient to answer the question.

Choose 2 if statement B alone is sufficient and statement A alone is not sufficient to answer the question.

Choose 3 if statements A and B together are sufficient but neither statement alone is sufficient to answer the question.

Choose 4 if each statement alone is sufficient to answer the question.

Choose 5 if both statements A and B together are not sufficient to answer the question and additional data specific to the problem are needed."

DIRECTIONS - SET III

"Each question is followed by two statements giving certain data. You have to decide whether the information provided in the statements is sufficient for answering the question.

Choose 1 if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Choose 2 if the question can be answered by using either statement alone.

Choose 3 if the question can be answered by using both statements together, but cannot be answered by using either statement alone.

Choose 4 if the question cannot be answered even by using both the statements together"

Note that choices (1) and (2) of Set – II are both taken care of by choice (1) in set III, while choice (4) of Set II is equivalent to choice (2) of Set III.

DIRECTIONS - SET IV

"Each question is followed by two statements, A and B giving certain data. Answer each question using the following instructions:

Choose 1 if the question can be answered by using statement A alone but not by using B alone.

Choose 2 if the question can be answered by using statement B alone but not by using A alone.

Choose 3 if the question can be answered by using either statement alone.

Choose 4 if the question can be answered by using both the statements together but not by either statement alone.

This set of directions does not allow for the "cannot be answered even by using both the statements" case.

DIRECTIONS - SET V

Each problem contains a question and two statements, A and B, giving certain data. You have to select the correct answer from (1) to (5) depending on the sufficiency of data given in the statements to answer the question.

Choose 1 if statement A alone is sufficient and statement B alone is not sufficient to answer the question.

Choose 2 if statement B alone is sufficient and statement A alone is not sufficient to answer the question.

Choose 3 if each statement alone is sufficient to answer the question.

Choose 4 if statements A and B together are sufficient but neither statement alone is sufficient to answer the question.

Choose 5 if both statements A and B together are not sufficient to answer the question and additional data specific to the problem are needed."

Rules for solving Data Sufficiency questions

- 1. Only a unique answer from a single statement is acceptable.*
- 2. Two different answers from two different statements are acceptable.*
- 3. 'NO' is an answer in Data Sufficiency*

4. Always try to see whether the statements taken independently can solve the question. Combine them only when it is certain that statements taken independently cannot answer the question.

5.1 WORKED OUT EXAMPLES

Q1 What is the value of $2x + 7$, where x is an integer?

Statements:

A. $x > 3$

B. $x < 5$

Solution

We need to find the value of $2x + 7$. Clearly, to find this value we need x . The question only states that x is an integer.

Step I:

Take only statement A and try to solve the question. Here, $x > 3$

So x can take the values 4, 5, 6, 7...

$\Rightarrow 2x + 7$ can be 15, 17, 19, 21...

Thus, we cannot find a unique value of $2x + 7$ using statement A alone.

Step II:

Take only statement B and try to solve the question. Here, $x < 5$

So x can take values 4, 3, 2, 1, 0, 1, 2...

$\Rightarrow 2x + 7$ can be 15, 13, 11, 9...

Thus, we cannot find a unique value of $2x + 7$ using statement B alone.

Step III:

Since step I and step II have failed to give an answer, let's consider statements A and B

together. Now, we have $x > 3$ and $x < 5$ i.e. $3 < x < 5$. This gives $x = 4$

$\Rightarrow 2x + 7 = 15$

We get a unique value of $2x + 7$ by considering both the statements together.

Hence, the correct answer is option 3.

If we were unable to get the answer even after using both the statements A and B together, then the data would have been insufficient to solve the question.

Q2. What is the value of $x + y$?

Statements:

A. $x + 2y = 7$

B. $2x + 4y = 10$

Solution

It is very obvious that, using statement A alone or using statement B alone, we cannot find the value of $x + y$.

But when we use both the statements A and B together, we get two equations which are inconsistent. Thus, we cannot find out the

values of x and y and thus, the value of $(x + y)$ cannot be found out even by combining statements A and B together.

So, the question can be answered using neither statement A alone nor statement B alone and also cannot be answered using both the statements together.

Q3. What is the LCM of 3 and x ?

Statements:

A. HCF of 3 and x is 1.

B. x is a positive composite number less than 5.

Solution

Using statement A alone:

HCF of 3 and x is 1. This means that 3 and x do not have any common divisors other than 1 and hence, 3 and x are relatively prime numbers. But, this does not give us a unique value of x . So, we cannot find the LCM of 3 and x . Statement A alone is not sufficient to answer the question.

Using statement B alone:

The only composite number less than 5 is 4.

So we get the unique value of x as 4. LCM of 3 and 4 is 12. Statement B alone is sufficient to answer the question.

Q4. What is the value of x ?

Statements:

A. $x + 2 = 5$

B. $x + 2 = 6$

Solution

These two statements will give two different answers. Using statement A alone we get $x = 3$, but using statement B alone we get $x = 4$. The two answers are different, but we are not concerned about the answers. What is important is whether the data is sufficient to solve the question or not. In this case both the statements A and B are individually sufficient to solve the question.

Q5. Is x a prime number?

Statements:

A. $x + y = 5$

B. $x + 12 = 18$

Solution

Using statement A alone, we do not get any unique answer as y is not given.

Using statement B alone, we get $x = 6$ which is not a prime number, hence the answer to the question "Is x a prime number?" is "No".

Although, the answer is “No”, we still have an answer and the data is sufficient to solve the question.

5.2 Class Work Problems

Each problem contains a question and two statements, A and B, giving certain data. You have to select the correct, answer from (1) to (5) depending on the sufficiency of data given in the statements to answer the question.

Choose 1 if statement A alone is sufficient and statement B alone is not sufficient to answer the question.

Choose 2 if statement B alone is sufficient and statement A alone is not sufficient to answer the question.

Choose 3 if statements A and B together are sufficient but neither statement alone is sufficient to answer the question.

Choose 4 if each statement alone is sufficient to answer the question.

Choose 5 if both statements A and B together are not sufficient to answer the question and additional data specific to the problem are needed."

Q1. What is the pass percentage for an exam conducted by ABC University?

A. A candidate scoring 25% of the total marks fails by 30 marks.

B. A candidate scoring 50% of the total marks gets 20 marks more than pass marks.

Q2. A scooter was parked in a parking lot for 10 days. For the first seven days, what was the average cost per day for parking?

A. The total cost for parking for 10 days was Rs. 30.50, which included the rate of Rs. 2 per day for each day after the first seven days.

B. The average cost per day for parking, all 10 days was Rs. 3.05.

Q3. The number of soldiers in a parade is less than 250. How many soldiers are there?

A. The soldiers can arrange themselves in rows of 3, 5 and 7.

B. The number of soldiers is an even number.

Q4. For a company xyz, were the profits of 1981 greater than those 1982?

A. Company's sales, in 1982 were greater than the sales in 1981.