Data Sufficiency

Concept:

Data Sufficiency questions are designed to test the student's ability to reason with a limited set of data and to reach a valid conclusion. In most of the cases, a data sufficiency question will have the following structure:
Q. A question will be asked.
Statement 1 – One set of information will be given.
Statement 2 – Another set of information will be given.

Important Points:

- Understanding the options.
- General awareness/assumptions are not allowed.
- Answer should be unique.
- Concern for the answer, and not the technicalities.

Set I

Mark (1) If the question can be answered using one of the statements alone but not using the other alone.
Mark (2) If the question can be answered using any of the statements alone.
Mark (3) If the question can be answered using both the statements together but not using either statement alone.
Mark (4) If the question cannot be answered even by using both the statements together.

1. What profit percentage does the shopkeeper make on chocolates?
   I. By selling twelve chocolates, he makes a profit of the cost price of 1 chocolate.
   II. By selling thirteen chocolates, he makes a profit of the selling price of 1 chocolate.

2. What is the ratio of speeds of A and B?
   I. When A takes 7 steps, B takes 5 steps.
   II. The distance covered by A in a step is $\frac{2}{3}^{rd}$ of that covered by B in a step.

3. A group of people consists of smokers and non-smokers. How many non-smokers are there?
   I. The number of smokers exceeds the number of non-smokers by 3.
   II. The total number of people exceeds the number of smokers by 12.

4. How many brothers and sisters are there in the Adams family?
   I. Each boy in the family has twice as many brothers as he has sisters.
   II. Each girl in the family has thrice as many brothers as she has sisters.

5. In a running race, P beats Q by 50 m. When P completes the race, Q is 100 m ahead of R. If all, P, Q and R, run at a uniform speed, what is the length of the racetrack?
   I. In the same race, P completes the race 10 seconds before R.
   II. R takes, in all, 120 seconds to complete the same race.

6. Is $a = b$?
   I. $(a + b) = 9$.
   II. $(a–4)^2 - (b–4)^2 = 0$.

7. What is the area of a rectangle with sides p and q?
   I. $p^3 - 3p^2q + 3pq^2 - q^3 = 8$.
   II. $(p + q)^2 = (p - q)^2 + 96$.

8. What is the last digit of m^n?
   I. Last digit of m is 7.
   II. Last digit of n is 9.

9. Peter bought buns (at Rs. 7 each) and cakes (at Rs. 11 each) from a shop. How many buns did he buy?
   I. Peter spent a total of Rs. 115.
   II. Peter spent a total of Rs. 116.

Set II

Mark [1) if the question can be answered using statement I alone but not using II alone.
Mark [2) if the question can be answered using statement II alone but not using I alone.
Mark [3) if the question can be answered using either statement alone.
Mark [4) if the question can be answered using statements I and II together but not using either alone.
Mark [5) if the question cannot be answered even by using both statements I and II together.

1. ABCD is a kite inscribed in a circle of radius 5 cm. What is the area of ABCD?
   I. BD is the diameter of the circle.
   II. l(AB) = 4 cm.

2. Is integer N a prime number?
   I. $N = p! + 1$ for some prime number p.
   II. $q! + 1 < N < q! + q$ for some prime number q.

3. Can three sticks of length a, b and c form a triangle?
   I. a is the Arithmetic Mean of b and c.
   II. a is the Geometric Mean of b and c.

4. The cost of 22 transistors, 25 resistors and 7 LEDs is Rs. 142. What is the cost of one transistor, one LED and one resistor?
   I. The cost of 7 transistors and 6 LEDs is Rs.23.
   II. The cost of 5 transistors and 6 resistors is Rs.31.

5. A rectangle is cut along a diagonal to get two triangles. What is the area of each triangle?
   I. The perimeter of the rectangle is 14 cm.
   II. Two sides of one of the triangles are 3 cm and 4 cm.

6. In a chess tournament, every child in the club played exactly one match against every other child. How many children were there in the club?
   I. The number of matches between two girls was 8 more than the number of matches between two boys.
   II. The number of matches between one boy and one girl was 72.

7. A function g is defined as $g(n) = g(n–1)–g(n–2)$. What is the value of $g(2001)$?
   I. $g(999) = 11$.
   II. $g(1000) = 13$.

Answers:

Set I

1. 2, 2. 3, 3. 1, 4. 3, 5. 3, 6. 3, 7. 1, 8. 4, 9. 1

Set II

1. 2, 2. 2, 3. 4, 4. 2, 5. 4, 6. 4, 7. 1, 8. 1