TOPIC
Computers

QUESTION
Given the following algorithm
$$SUM = 1$$
$$FOR\ I = 1\ TO\ 10$$
$$SUM = SUM+I$$
$$NEXT\ I$$
The value of SUM at the end of the loop is
   (A) 1
   (B) 10
   (C) 55
   (D) 56

HINT
Arithmetic progression formula for $1 + 2 + 3 + ... + n$ is
$$\frac{n(n+1)}{2}$$

SOLUTION
Since we are adding 1 to 10 as
$$1 + 2 + 3 + ... + 10$$
The arithmetic progression formula gives
$$1 + 2 + 3 + ... + 10 = \frac{n(n+1)}{2}$$
$$= \frac{10(10+1)}{2}$$
$$= 55$$
But SUM was initialized as 1, so this will be added to the value of 55. Hence the value of SUM is
$$SUM = 55 + 1 = 56$$

ANSWER
(D)

CONTRIBUTOR
This question of the day was provided by the courtesy of [Professor Autar Kaw](), a contributor of the [Fundamentals of Engineering Examination Question of the Day]() site at the University of South Florida.