

TOPIC

Computers – Section IV – Question 6

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 $1 + 2 + 3 + \dots + n$ is $\frac{n(n+1)}{2}$

SOLUTION

Since we are adding 1 to 10 as

$$1 + 2 + 3 + \dots + 10$$

The arithmetic progression formula gives

$$\begin{aligned} 1 + 2 + 3 + \dots + 10 &= \frac{n(n+1)}{2} \\ &= \frac{10(10+1)}{2} \\ &= 55 \end{aligned}$$

But SUM was initialized as 1, so this will be added to the value of 55. Hence the value of SUM is

$$\text{SUM} = 55 + 1 = 56$$

ANSWER

(D)

CONTRIBUTOR

Autar Kaw