

① Loop — for  $i$  in range  $(0, n)$ :  
 $n = n + y$

Space Complexity:  $O(1)$  Time Complexity:  $O(n)$

② Nested loop — for (for)  $\rightarrow$  depends upon no. of input

Space Complexity:  $O(1)$  — Time Complexity:  $O(N^2)$

③ If:

Statement having Complexity (Time):  $O(n)$

Which statement is correct that is the time complexity of program

Else:

Statement having Complexity:  $O(N^2)$

④  $n = y + z$  —  $O(1)$

for  $i$  in range:

Statement 1 —  $O(n)$

While:

Statement 2 —  $O(n)$

$a = a + r$  —  $O(1)$

overall  $\Rightarrow O(1 + n + n + 1)$

$O(2n)$  Constants are  
 $O(n)$  neglected

⑤ for  $i$  in range:

Statement:  $O(n^2)$

for  $i$  in range:

Statement:  $O(n)$

$\approx O(n + n^2)$

$\approx O(n^2)$

neglected because of having  
 smaller value