**DataStructure Introduction assignments**

1. Refer the code below and estimate the time complexity.

for(i= n ; i > 0; i++){

   for(j = 0; j<n;j\*2){

      cout<<i;

   }

}

A: The overall time complexity of the given code is **O(n log n)**.

The **outer loop** runs n times.

The **inner loop** runs approximately log2(n) times for each iteration of the outer loop.

Therefore, the total time complexity is the product of the number of iterations of the outer loop and the inner loop:

T(n)=n×log2​(n)

b.

for(i= n ; i > 0; i++){

//some operation here

}

//m > n

for(j = 0; j<m;j++){

//some operation here

A: The time complexity of the given code is **O(n + m)**, where n and m are the lengths of the two loops.