University of Azad Jammu & Kashmir

(King Abdullah Campus)

Submitted To:

Dr. wajid Aziz

Submitted By:

Malom nahi

Roll No:

Malom nahi

Semester:

BSCS-04

Section:

Malom nahi

**Task 1**

**Consider The code segment**

Int funct1(int n)

{

Int I,j,x=0;

for(i=1;i<=n;i++)

{

for(int i=1;i<=n;i++)

{

X++;

}

}

}

**Question:An algorithm A runs in O(n^2)time.for input size of 4 ,the algorithm takes 10 milliseconds .How much time it will take for input size of 16.**

**Solution**

• Time complexity of the algorithm A is O(n^2).

• For an input size of 4, the algorithm takes 10 milliseconds.

To calculate the estimated time for an input size of 16, use the following proportion:

**(time for input size 4) / (input size 4)^2 = (time for input size 16) / (input size 16)^2**

**10 ms / (4)^2 = (time for input size 16) / (16)^2**

**10 ms / 16 = (time for input size 16) / 256**

**(time for input size 16) = 10 ms / 16 \* 256**

**so**

**Estimated time for an input size of 16 is 160 milliseconds.**