**Assignment - 1**

**Question 1**

**What is the time, space complexity of following code:**

int a = 0, b = 0;

for (i = 0; i < N; i++) {

a = a + 1;

}

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

b = b + j;

}

**Answer:**

**Time complexity:** The first loop with O(N) and second loop with O(M) and finally the total time complexity is O(N+M).

**Space complexity:** Here the space complexity of the program is **constant.**

**Question 2**

**What does it mean when we say that an algorithm X is asymptotically more efficient than Y?**

a) X will be a better choice for all inputs

b) X will be a better choice for all inputs except possibly small inputs

c)X will be a better choice for all inputs except possibly large inputs

d)Y will be a better choice for small inputs

**Answer:**

b) X will be a better choice for all inputs except possibly small inputs.

Because X takes smaller time than y for all input size