**Karachi Institute of Economics and Technology College of Computing and Information Sciences - North Campus**

**DAA**

**Assignment - 1**

**Instructions :**

* Perform above all in tabular format.
* Handrwitten assignment on neat A4 paper or notebook pages.
* Must specify each calculative step with comments - according to your understanding.
* Donot copy from each other , this assignment is important for Exam purpose.

Submission deadline : 20/7/2022 – Wednesday in class timings only.

What is the worst-case complexity of the each of the following code fragments?

1. Two loops in a row:

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

**sequence of statements**

**}**

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

**sequence of statements**

**}**

How would the complexity change if the second loop went to N instead of M?

1. A nested loop followed by a non-nested loop:

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

**for (j = 0; j < N; j++) {**

**sequence of statements**

**}**

**}**

**for (k = 0; k < N; k++) {**

**sequence of statements**

**}**

1. A nested loop in which the number of times the inner loop executes depends on the value of the outer loop index:

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

**for (j = N; j > i; j--) {**

**sequence of statements }**

**}**