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|  | **Design & Analysis of Algorithm**  **BSCS – 5 A**  **Department of Computer Science**  **Bahria University, Lahore Campus** |

**Assignment: 1** Date: Week [3], \_\_\_\_ [Feb 2024**]**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Roll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Evaluation of CLO** | **Question Number** | **Marks** | **Obtained Marks** |
| **CLO1:** Analyze algorithm (estimate upper and lower bounds without coding and running the algorithm) | 1 | 5 |  |
| **Total Marks** | | **5** |  |

**Q1: Find out the growth rate using asymptotic analysis for the following pseudo segments, and write the Worst Case analysis.**

**a) [1 mark]**

for (int i = n; i > 1; i = fun(i)) {

// some O(1) expressions

}

**b) [1.5 mark]**

for (int i = 1; i <=m; i += c) {

// some O(1) expressions }

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

// some O(1) expressions }

**c) [2.5 mark]**

**bubbleSort(array)**

**for i <- 1 to indexOfLastUnsortedElement-1**

**if leftElement > rightElement**

**swap leftElement and rightElement**

**end bubbleSort**