



COMSATS University Islamabad, Lahore Campus

Assignment #1 – SPRING 2021

Course Title:	Design and Analysis of Algorithms	Course Code:	CSC301	Credit Hours:	3
Course Instructor:	Dr. Hasan Jamal	Date:	03/03/2021		
Deadline:	08/03/2021	Maximum Marks:	10		

Important Instructions / Guidelines:

- Handwritten strictly.
- Maximum three persons per group are allowed for submission.
- No late submission allowed

Question:

[Marks: 4 + 4 + 2]

For the following code snippet, provide line-by-line analysis and construct function $T(n)$ that give the runtime of this code snippet as a function of “n”. Also determine the big-Oh of for this code snippet.

```
for (int i = 1; i <= n; i++) {  
    if (x < i)  
        sum += foo(i) + foo(i+1);  
        system.out.print(sum);  
    else if (x > i)  
        sum += foo(i) - foo(i-1);  
        system.out.print(sum);  
    else  
        for (j = 1; j <= i; j++)  
            system.out.print(i);  
    system.out.println();  
}
```

```
foo(a) {  
    for (int i = 0; i < n; i++)  
        sum += a * i;  
    return sum;  
}
```