

## **Question Set 1**

### **Guidelines:**

1. All the questions should be answered strictly using Java
2. While giving questions, request not to use any collection (java).
3. Please answer all 3 questions.
4. Request you not to use Google or any other reference books for solving this paper.
5. Please attach this PDF file along with answers & share it back within 24 hours from receipt of this paper.

**Q1:** There is an array of non-negative integers. A second array is formed by shuffling the elements of the first array and deleting a random element. Given these two arrays, find which element is missing in the second array. Here is an example input, the first array is shuffled and the number 5 is removed to construct the second array

First Array = [4,1,0,2,9,6,8,7,5,3]

Second array = [6,4,7,2,1,0,8,3,9]

**Q2:** Write a function that takes two parameters, a string and an integer. The function will return another string that is similar to the input string, but with certain characters removed. It's going to remove characters from consecutive runs of the same character, where the length of the run is greater than the input parameter.

Ex: "aaab", 2 => "aab"

Ex: "aabb", 1 => "ab"

Ex: "aabbaa", 1 => "aba"

**Q3:** Modify this class' definition (by adding or changing code) to make it behave as a Singleton:

```
public class Counter {  
  
    private int num;  
  
    public Counter() {  
  
    }  
  
    }  
  
    this.num = 0;
```

Are there any issues while multi-threading? How would you solve it?