Assignment 3: IT Workshop I

Total Marks =10

1) Suppose we want to write a function that calculates the number of odd and even number present in an array. The array forms a test case for a user. Consider a scenario where a user wants to provide 'n' test cases to calculate the number of odd (even) numbers for each test case and the overall count of odd/even numbers considering all the test cases. The user has a restriction that it has to submit all the test cases at one go (not one by one). Write a Java program to solve the given problem. The user can give input to the program in three steps as below. **(Marks =5)**

   Input 1: value of n.

   Input 2: An array (of size n) that includes the number of elements in each of the test cases.

   Input 3: Values of n different test cases.

   Note that the length of the test cases should not be uniform.

2) Consider a Library Management System and implement the following in Java. The variable/method names indicate their usual meanings. The methods (issue, return, etc.) will be invoked for one object at a time and this will be identified by the book ID which is passed as a parameter or can also be taken from the user. **(Marks =5)**

Book
-bookId: int -bookTitle:String -yearOfPublication:int - authorName: String - publisherName: String - numberOfAvailableCopies: int - totalCopies: int
<<constructor>> Book () <<constructor>> Book (totalCopies: int) + setDetails () + setDetails (id: int, title: String, year: int, author: String, publisher: String, count: int) + getDetails (id: int) + issue (id: int) + return (id: int)

a) Create an array of objects (at least 5) for the Book class and set the details for each book object.
b) Design a menu-driven interface for the user. Users will choose an option from 1. Set Details, 2. Get Details, 3. Issue, 4. Return, 5. Exit etc. Based on the option entered by the user, the appropriate operation should be performed by calling the appropriate method of the class. [Hint: getDetails(int) shall be used to display the details of the object identified by bookId]
c) You can assume additional instance variables, additional methods, static fields, etc. if needed / to make the application more realistic.

Note : You can use the following syntax to create an array of objects.

```
Book[] bookArray=new Book[5];

bookArray[0]=obj1;

bookArray[1]=obj2;

……..

…….
```

Wheras obj1, obj2,…. are the book objects.