Charotar University of Science and Technology [CHARUSAT]
Faculty of Technology and Engineering
Devang Patel Institute of Advance Technology and Research
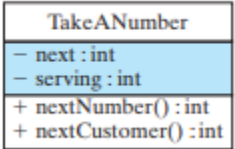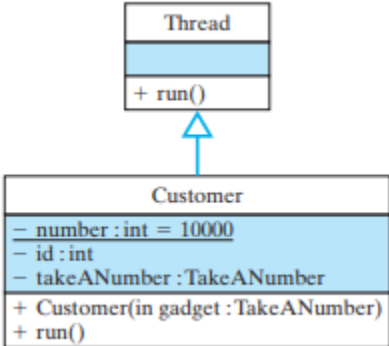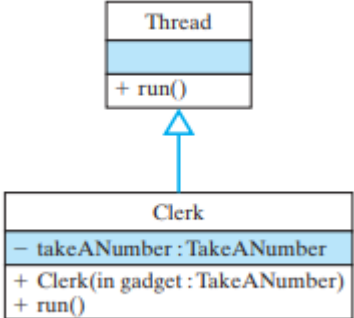## Department of IT
Subject: IT242 Java Programming
Unit Test- II

Semester: 3ʳᵈ Sem B. Tech. (IT)   Maximum Marks: 16
Date: 03/10/2019 Thursday   Time: 1 Hour

Problem-1 (6 Marks)

Let's simulate **take-a-number** devices that are used in **bakeries** to manage a **waiting line**. Customers take a number when they arrive, and the clerk announces who's next by looking at the device. As customers are called, the clerk increments the "next customer" counter by one. Your task is to build a multithreaded simulation that uses a model of a take-a-number device to coordinate the behavior of customers and a (single) clerk in a bakery waiting line. Write a Java program to simulate the all below classes and get the result.

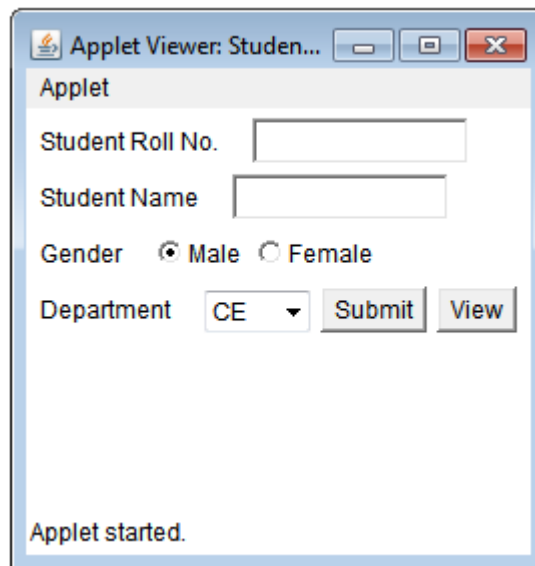|			
TakeANumber − next : int − serving : int + nextNumber() : int + nextCustomer() : int Figure 1: The TakeANumber object keeps track of numbers and customers.	**Thread** + run() △ **Customer** − number : int = 10000 − id : int − takeANumber : TakeANumber + Customer(in gadget : TakeANumber) + run() Figure 2: The Customer thread.	**Thread** + run() △ **Clerk** − takeANumber : TakeANumber + Clerk(in gadget : TakeANumber) + run() Figure 3: The Clerk thread.	The Bakery Class contain main method

Output-

```
Starting clerk and customer threads
Customer 10001 takes ticket 1
  Clerk serving ticket 1
Customer 10003 takes ticket 2
Customer 10002 takes ticket 3
  Clerk serving ticket 2
Customer 10005 takes ticket 4
Customer 10004 takes ticket 5
  Clerk serving ticket 3
  Clerk serving ticket 4
  Clerk serving ticket 5
```

Program-2 (6 Marks)

Write a GUI application in java, which enter the details of a student and on the submit display the details of the student. (Student details contains Roll Number, Name, Gender, Department etc.) Create two buttons in the applet like submit, and view. When the user click the submit button it stores the information of the student in the text file named "**studentInfo.txt**". When view button pressed it shows all the details of a students from "studentInfo.txt" to the text area.

Problem-3 (4 Marks)

Create a class **JavaPackageArrayList** having main method. Performing following functionality:

- Create an **generic** ArrayList having all 14 java package name of type **String**.
- Store all package name and also add duplicate package names.
- Print all package names.
- Create another ArrayList of java **Data Types** and add into the package list
- Print the size of new ArrayList
- Remove a particular package name and data types from new ArrayList and print the size of ArrayList again.