Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –II Examination Dec. - 2011

Subject code: 1720109 **Date: 19/12/2011**
Subject Name: Object Oriented Programming
Time: 02.30 pm – 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** What are data types? What are different data types supported in Java? **07**

(b) **07**

(i) What is the effect of the effect of following expressions if i=1 and j=5? **04**

(a) i++ (b) j=j++; (c) c=++j; (d) i+++j;

(ii) Why is switch case better than multiple if else statement? **03**

Q.2 **(a)** **07**

(i) Give difference between class and object. **04**

(ii) Write benefits of object programming. **03**

(b) Write an interactive program to read ages of all members of a family, stores them in a one-dimensional array, and displays the age of the oldest and the youngest persons. **07**

OR

(b) Write a Java class student to meet the following specifications: The class should be able to support a 5 digit student ID, student name, marks of 3 subjects. Write methods to set and get each of the attributes and calculate average for the student. **07**

Q.3 **(a)** What is inheritance? Explain the need of inheritance with suitable examples. Discuss various forms of inheritance with examples. **07**

(b) What are packages in Java? Assume that there are two different companies: one develops a Student package and the other develops a staff package containing relevant classes. Implement a simple University system that makes the use of classes/capabilities provided by these two packages. **07**

OR

Q.3 **(a)** What are base and derived classes? Can base class access members of a derived class? Give reasons. Create a base class called Stack and derived class called MyStack. Write set of lines that show use of these classes for manipulating objects. **07**

(b) What role do interfaces play in Java? What are the similarities and differences between classes and interfaces? **07**

Q.4 **(a)** What are exceptions and how are they handled in Java? Give an example. What happens if unspecified exception is raised? **07**

(b) Implement a class that checks whether a given number is a prime using both the Thread class and Runnable interface. **07**

OR

Q.4	**(a)**	Write a program that counts number of characters, words, and lines in a file. Use exceptions to check whether the file that is read exists or not.	**07**
Q.4	**(b)**	What are threads? Explain the differences between a thread and a process. Describe two possible ways to create threads in Java.	**07**
Q.5	**(a)**	Discuss drawing methods of the Graphics class.	**07**
	(b)	Write a simple GUI application that traces the user's action such as keyboard action(any one) and the mouse action(any one).	**07**

OR

Q.5	**(a)**	What is the major difference between the radio button and checkbox button. Explain with an example.	**07**
	(b)	How Java applet program differs from the normal standalone application? Explain life cycle of Applets.	**07**

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