

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E –IIst SEMESTER–EXAMINATION – JULY- 2012****Subject code: 1720105****Date: 10/07/2012****Subject Name: Object Oriented Methodology & Design****Time: 10:30 am – 13:00 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) Define the following **07**
i) Aggregation ii) Discriminator iii) States iv) Event
v) Activity vi) Actor vii) Sheet
- (b) Prepare a class diagram for an interactive diagram editor. A sheet is collection of lines and boxes. A line is series of line segments that connect two boxes. Each line segment is specified by two points. A point may be shared by a vertical and a horizontal line segment in the same line. A selection is a collection of lines and boxes that have been highlighted. A buffer is collection of lines and boxes that have been cut or copied from the sheet. Use generalization to express constraint by creating a super class for the classes buffer, selection and sheet. Discuss its merits. **07**
- Q.2** (a) Consider a software system for supporting checkout of materials at a public library. **07**
i) List four actors. Explain the relevance of each actor.
ii) Explain use case to borrow library item.
iii) Prepare sequence diagram for library checkout system.
- (b) Explain the state diagram for phone line with activities. **07**
- OR**
- (b) Discuss the activity diagram for computing a restaurant bill. There should be a charge for each delivered item. The total amount should be subject to tax and service charge of 18% for groups of six or more. **07**
- Q.3** (a) Discuss relationship between functional modeling, object modeling and dynamic modeling. **07**
- (b) Prepare a data flow diagram for computing volume and surface of area of cylinders. Inputs are height and radius of cylinders. **07**
- OR**
- Q.3** (a) Consider a situation where a library wants to add a feature that enables the librarian to print out a list of all the books that have been checked out at a given point in time. Construct a sequence diagram for this use case. **07**
- (b) A hotel reservation system supports the following functionality: room reservation, customer check-in, customer check-out. Prepare system use cases for the above functionality. **07**
- Q.4** (a) What are the distinguishing features of Singleton design pattern .How the subclassing of singletons implemented? **07**
- (b) Abstract factory pattern different from simple factory pattern. Justify your answer with proper example. **07**
- OR**
- Q.4** (a) Develop a simple factory example for any case example. Discuss its applicability. **07**
- Q.4** (b) Explain standard Swing object Model and show the LookAndFeel Object in Swing Object model with its associated swing object. **07**
- Q.5** (a) Explain finite state modeling for microwave oven. **07**
- (b) How the observer pattern useful in microwave oven design. **07**
- OR**
- Q.5** (a) What is MVC architectural pattern and also discuss the benefits of MVC pattern. **07**
- (b) Assume we have library system as desktop application. For deploying the library system on the world wide web list out the essential system and user interface requirements. **07**