

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV • EXAMINATION – SUMMER 2013

Subject Code: 140703**Date: 12-06-2013****Subject Name: Object Oriented Analysis Design and Uml****Time: 10:30am – 01:00pm****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) (i) In object orientation if two objects are identical, does it mean they are equal? Is Object concrete or conceptual? **04**
- (ii) Is domain model same as application model? In which stage of object oriented methodology this type of modeling is done? **03**
- (b) (i) Prepare a class model to describe geographical map. Map contains roads, rivers and mountains. All components are described by points representing longitude and latitude. **04**
- (ii) Is composition form of aggregation? Give example of composition and aggregation. **03**
- Q.2** (a) (i) Which type of associations provide compelling rationale for association classes? Give example of attributes for one to many associations. **04**
- (ii) What is a qualified association? **03**
- (b) Draw state diagram for the control of a telephone answering machine. The machine detects an incoming call on the first ring and answers the call with a prerecorded announcement. When the announcement is complete, the machine records the caller's message. When the caller hangs up, the machine hangs up and shuts off. **07**
- What changes need to be made if machine answers after five rings.
- OR**
- (b) Describe the criteria for discarding unnecessary and incorrect classes. Give example to justify the answer. **07**
- Q.3** (a) What is a constraint? Explain constraints on objects, constraints on generalization sets and constraints on links. **07**
- (b) Write steps for constructing application interaction model. **07**
- OR**
- Q.3** (a) What is a one shot state diagram? Draw one shot state for chess game with entry and exit points. **07**
- (b) Explain the following steps in constructing an application interaction model with suitable example. **07**
- (i) Determine the system boundary
 - (ii) Find actors
 - (iii) Find use cases
- Q.4** (a) Prepare a use case description for issue a book from the library. **07**
- (b) Prepare an activity diagram for awarding marks to regular students. If the student has attended 80% classes, he is awarded minimum 5 marks. If the student has attended more than 80% classes, he is awarded minimum 10 marks. The students who have completed assignments are given 10 marks. Those who have completed 50% are given 5 marks and rests are given 0 marks. **07**

OR

- Q.4** (a) Prepare sequence diagram for booking a train ticket on line. Also Prepare sequence diagram for booking a train ticket on line that fails. **0**
7
- (b) Explain the two ways in which downward recursion proceeds. **0**
7
- Q.5** (a) (i) What is a layered system? Layered architectures come in which two forms? **0**
4
- (ii) Is all hardware and software objects are concurrent? Which model will help in identifying concurrency with two objects? **0**
3
- (b) Which prototypical architectural styles are common in existing systems? **0**
7
- OR**
- Q.5** (a) (i) How synchronization of concurrent activities can be done in state modeling? **0**
4
- (ii) Write the characteristics of a state Alarm Ringing. **0**
3
- (b) Explain the tasks involved in design optimization. **0**
7

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