Seat No.: _____ Enrolment No._____

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.	**07**
	(b)	Explain the two ways in which downward recursion proceeds.	**07**
Q.5	**(a)**	(i) What is a layered system? Layered architectures come in which two forms?	**04**
		(ii) Is all hardware and software objects are concurrent? Which model will help in identifying concurrency with two objects?	**03**
	(b)	Which prototypical architectural styles are common in existing systems?	**07**

OR

Q.5	**(a)**	(i) How synchronization of concurrent activities can be done in state modeling?	**04**
		(ii) Write the characteristics of a state Alarm Ringing.	**03**
	(b)	Explain the tasks involved in design optimization.	**07**

****