Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV • EXAMINATION – WINTER 2013

Subject Code: 140703 **Date: 23-12-2013**

Subject Name: Object Oriented Analysis Design and Uml

Time: 02:30 pm to 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)**	i) What is object-orientation? Why model is required in analysis and design?	**03**
		ii) What is OOM? Explain the types of model with their purpose in brief.	**04**
	(b)	i) Define the following terms: abstraction, encapsulation, polymorphism	**03**
		ii) Define the purpose of following terms with suitable example and UML notations. (i) Aggregation (ii) Multiplicity	**04**
Q.2	**(a)**	Assume that vehicle class is defined as base class with price and year of manufacturing. Derive two classes namely bus and truck from base class with bus with seating capacity and truck with loading capacity. Develop classes with necessary member functions to get and put data.	**07**
	(b)	What is inheritance? List the different types of inheritance and explain how it encourages reusability and sharing.	**07**
		OR	
	(b)	What is the purpose of interaction model? Identify the UML diagram used to represent this model and explain the objectives of each.	**07**
Q.3	**(a)**	What is the purpose of class modeling? Explain following concept with example. i) Aggregation versus association ii) Aggregation versus composition	**07**
	(b)	Represent the following relations among classes using UML diagram. 1. Students credit 5 courses each semester. Each course is taught by one or more teachers. 2. Bill contains number of items. Each item describes some commodity, the price of unit, and total on this price. 3. An order consists of one or more order items. Each order item contains the name of the item, its quantity and the date by which it is required. Each order item is described by an item type specification object having details such as its vendor addresses, its unit price, and the manufacturer.	**07**
		OR	
Q.3	**(a)**	What is concurrency? Explain following concept with example. i) Aggregation concurrency ii) Concurrency within object	**07**
	(b)	Design an interaction model for the following system. Software is to be developed for hotel management system in which information is provided for all type of activities conducted in hotel. The major users of the system are hotel staff, people who stay in the hotel and people who visit the restaurant. Information for the billing system, hotel account management, staff salary, hotel menu information, hotel room information is provided by software.	**07**
Q.4	**(a)**	List and explain the steps of constructing application interaction model.	**07**

	(b)	Define the purpose of following terms with suitable example and UML notations. i)state ii) transition iii) event iv) guard condition	**07**
		OR	
Q.4	**(a)**	List and explain the steps of constructing domain class model.	**07**
	(b)	Define the purpose of following terms with suitable example and UML notations i) swimlane ii) use case generalization iii) activity i) effect	**07**
Q.5	**(a)**	What is the importance of adjustment of inheritance? Discus the steps of doing it.	**07**
	(b)	List and explain the steps to design algorithms with respect to class design.	**07**
		OR	
Q.5	**(a)**	List out the decisions you make during system design and briefly explain the objectives of following: i)frame works ii) patterns iii) libraries ii) layers iii) partition	**07**
	(b)	What is the purpose of design optimization? Briefly discuss the tasks of design optimization.	**07**

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