

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(OLD) • EXAMINATION – WINTER 2016

Subject Code:140703

Date:22/11/2016

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) Describe in detail the stages of Object Oriented methodology. **07**
- (b) Is UML a programming language? Is it process dependent or independent? **07**
Pen down the names all the UML Diagrams. Identify each of the UML diagrams belong to structural and which of these belong to behavioral group.

- Q.2**
- (a)
- (i) What is the difference between multiplicity and cardinality? **04**
What is the effect of underestimating or overestimating multiplicity?
- (ii) Explain nested states with appropriate diagram. **03**
- (b) A customer decides to upgrade her PC and purchase a DVD player. She begins by calling the sales department of the PC vendor and they tell her to talk to customer support. She then calls customer support and they put her on hold while talking to engineering. Finally, customer support tells the customer about several supported DVD options. The customer chooses a DVD and it is shipped by the mail department. The customer receives the DVD, installs it satisfactorily and then mails her payment to accounting. **07**
Construct an activity diagram for this process. Use swim lanes to show the various interactions.

OR

- (b) List all kinds of control information represented by Dynamic model. Prepare State chart diagram for Two Party Phone Call. **07**
- Q.3**
- (a) What is software development process? Enlist steps of software development process? Differentiate iterative process model from waterfall model. **07**
- (b) Prepare a class diagram for the dining philosopher problem. There are 5 philosophers and 5 forks around a circular table. Each philosopher has access to 2 forks, one on either side. Each fork is shared by 2 philosophers. Each fork may be either on the table or in use by one philosopher. A philosopher must have 2 forks to eat. **07**

OR

- Q.3**
- (a) Consider online auction system. Elaborate the following high level questions and explain your answer **07**
1. Who is the application for?
 2. Who are the stake holders?
 3. Identify two features that should be omitted
- (b) Differentiate the following **07**
- Query and Operation - Event and State
 - Activity and Operation - Association and Aggregation
 - Abstract class and Interface - Inheritance and Multiple Inheritance
 - Fork and Join

- Q.4 (a)** Explain waterfall development and Iterative Development life cycle styles for Object Oriented approach to software development. **07**
- (b)** What is the importance of use case diagram? Explain relationships between use cases with suitable example and proper UML notations. Draw use case diagram for an ‘Online railway ticket reservation system’. **07**

OR

- Q.4 (a)** Draw the state diagram for a telephone line. At the start of a call, the telephone line is idle. When the phone is removed from the hook, it emits a dial tone and can accept the dialing of digits. Upon entry of a valid number, the phone system tries to connect the call and route it to the proper destination. The connection can fail if the number or trunk are busy. If the connection is successful the called phone begins ringing. If the called party answers the phone, a conversation can occur. When the called party hangs up the phone disconnects and reverts to idle when put on hook again. **07**
- (b)** Draw the use-case diagram for Hotel Information System. There are two types of customers: Tour-group customers and Individual customers. Both can book, cancel, check-in and check-out of a room by Phone or via the Internet. There are booking process clerk and reception staff who manages it. A customer can pay his bill by credit card or pay utility bill. **07**

- Q.5 (a)** Explain the tasks involved in design optimization **07**
- (b)** (a) Define scenario, sequence diagram. Explain with suitable diagram **04**
- (b) Discuss data storage management in system design **03**

OR

- Q.5 (a)** What are the similarities/dissimilarities between a sequence diagram and collaboration diagram? Draw the Interaction diagram for an ATM – used for card based banking system. **07**
- (b)** Explain the tasks involved in design optimization **07**
