

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-III • EXAMINATION – WINTER • 2015

Subject Code: 630001

Date: 23-12-2015

**Subject Name: Structured and Object Oriented Analysis
and Design Methodology**

Time: 10:30 am - 01:00 pm

Total Marks: 70

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** Answer the following questions in short **14**
- 1) What is meant by MIS?
 - 2) Define Joint Application Design (JAD).
 - 3) What is a Structural Record?
 - 4) List out all the structural diagrams in UML.
 - 5) Define Stereotype with example.
 - 6) Define: Guard Conditions and Association End Name
 - 7) What is the use of Object Flow in Activity diagrams
- Q.2** (a) Comment on:
- (i) The role of System Analyst is limited to analysis only. **03**
 - (ii) In JAD, the analyst has to perform series of interviews with the users. **04**
- (b) List all fact findings techniques and discuss any two of it. **07**
- OR**
- (b) (i) List three reasons for producing Process Specifications **03**
(ii) List four main problems that can occur in developing Decision Tables. **04**
- Q.3** (a) An airline wants to recruit Air Hostesses. The criteria for selection are as follows: **07**
- (i) Select if age is between 18 and 30 and height is more than 165 cms.
 - (ii) Select if age is between 18 and 30 and weight is between 50 and 65 kilograms
 - (iii) Select if height is more than 165 cms and weight is between 50 and 65 kilograms.
- Identify the conditions and actions. Prepare a Decision Table and Decision Tree to help in decision making.
- (b) Explain the factors that must be considered while choosing Output Technology. **07**
- OR**
- Q.3** (a) Draw an Activity and Sequence Diagram for a customer visiting a restaurant for either collecting food by parcel or dining in the restaurant. In the later case, the customer searches for empty table and sits to dine. In both the cases the waiter takes the order, fulfills the order, provides a bill and collects the payment. If the item ordered by the customer is unavailable, then the customer does not place the order. **07**
- (b) Explain in detail the types of Feedbacks used by users. **07**

- Q.4 (a)** What do you mean by Constraints? Discuss Constraints on Objects, Generalization and on Links. **07**
- (b)** Discuss the concept of Modeling Simple Dependency and Simple Inheritance. **07**

OR

- Q.4 (a)** Define the following: **07**
- (i) Swimlanes
 - (ii) Composition
 - (iii) Reification

- (b)** Explain State Diagram. Draw State Diagram for Telephone Line. **07**

- Q.5 (a)** A video central shop wishes to develop an information system to handle following functionalities: **07**

Management (add/update/delete) of video CDs / DVDs, management of customers, return from customers, daily cash summary management reports, reminders to customers etc. Draw Data Flow Diagram (DFD).

- (b)** In Railway Reservation System for booking tickets over internet any customer can book tickets for different trains. Customer can book a ticket only if the tickets are available. Customer searches for the availability of tickets. If the tickets are available, then he books the tickets initially by filling details in the form. Tickets can be booked in two ways i.e. I-ticket or E-ticket booking. **07**

In case of I-ticket booking, customer can book the tickets online and the tickets are sent to the particular customer at his address. For cancellation, the customer has to go at the reservation office, fill the cancellation form and ask the clerk to cancel the ticket. Then the refund is transferred to the customer account.

But in case of E-ticket booking and cancellation, tickets are booked and cancelled online by sitting at home and customer himself has to take print of the ticket. But, in both the cases amount for tickets are deducted from the customer account.

Draw Use Case Diagram and Class Diagram for the above case study.

OR

- Q.5 (a)** Draw a data flow diagram for an inventory system, for a trading company. Consider the following aspects of inventory system: **07**

- Quotations received from vendors against enquiries.
- Purchase order generated by the organization and sent to concerned vendors.
- Receipt of delivery chalan, invoice and physical goods against purchase order
- Updating of inventory.

- (b) A University runs various diploma, graduation and post graduation courses such as DE, DPharm, BE, MBA, MCA, ME, MPharm etc. The courses follow semester pattern and under each course various subjects are taught. Students seek admission to these courses and if found eligible, the student is enrolled for the requested course. There are several faculty members in the university who teach various subjects of these courses. The subject teacher conducts semester examinations for the concerned subjects at the end of the semester and the students' performance is recorded. Even if a student is unable to pass a subject, he is promoted to the next semester, but has to reappear for the backlog subjects again in the forthcoming examination and clear backlogs. **07**

Draw Use Case Diagram and Class Diagram for the above case study.
