

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER-III • EXAMINATION – SUMMER • 2014**

**Subject Code: 2630001**

**Date: 27-05-2014**

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

**Time: 02:30 pm - 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)** Mark the statement as True / False with justification (No justification, no mark) **07**
1. ESS (Executive Support System) Depends on the information provided by TPS/ MIS.
  2. New system development and other activities require 60% time of the total time spent on system project.
  3. Open ended questions provide more ease of analysis compared to Close ended questions.
  4. Efficiency is one of the reasons for partitioning Data Flow Diagram.
  5. Process specifications are required to represent simple data validation.
  6. XSLT can be used to transform XML file into different formats in place of CSS.
  7. Cipher codes can be used to reveal the information.
- (b)** Define the following: **07**
1. Swimlanes
  2. Generalization set name
  3. Reification
  4. Active class
  5. Qualified association
  6. Guard condition
  7. Derived attribute
- Q.2 (a)** List different requirement gathering techniques. Explain any one in detail with advantages and disadvantages. **07**
- (b)** Define SDLC with its importance. Explain stages of analysis and design of system in SDLC. **07**
- OR**
- (b)** 1. Differentiate Open Ended and Closed Ended questions. **03**
2. List different algebraic notations used in data structure. Explain their meaning with example. **04**
- Q.3 (a)** List different steps for developing DFD. Prepare context flow and level – 0 diagram for Purchase system. It is involving entities like inventory department, receiving department and supplier. Make assumption about the processes involved in purchasing items from supplier and providing to receiving department. **07**
- (b)** 1. List and explain factors affecting selection of output technology. **05**
2. List different feedbacks provided by system for user. **02**

**OR**

- Q.3 (a)** 1. Study following conditions and draw a decision table and decision tree. **04**  
If product code=A And customer type=1 And the order amount<=700  
Then 5% discount allowed  
If product code=A And customer type=2 And the order amount<=700  
Then 7.5% discount allowed  
If product code=A And customer type=1 And the order amount>=700  
Then 7.5% discount allowed  
If product code=A And customer type=2 And the order amount>700  
Then 10% discount allowed  
A flat discount of 5% on product code=B regardless of customer type and the order amount  
2. Discuss two codes that reveal the information. **03**
- (b)** 1. Explain different guidelines for good display design. **04**  
2. Discuss the effect of fit on performance and well being in HCI. **03**
- Q.4 (a)** Define generalization. Discuss generalization with multiple inheritance and problems in that case. **07**
- (b)** Define event. Explain types of event with example. Also differentiate event with state in brief. **07**
- OR**
- Q.4 (a)** Explain the following with example: **02**  
1. Association class **03**  
2. Constraint **02**  
3. Bag and sequence
- (b)** 1. List and explain different viewpoints to model a system ( Models of system ) **04**  
2. Explain the concept of concurrency among objects in state modeling. **03**
- Q.5 (a)** 1. List three building blocks of vocabulary of UML. Explain any one of these in detail. **04**  
2. Explain different extensibility mechanisms of UML. **03**
- (b)** A company wants to prepare an automated system to maintain inventory management. The request for material is generated by different departments of organization. Inventory dept. checks for the stock. If item is available, will be provided to demanding department. Otherwise dept. will generate request for purchase of item. The suppliers will provide quotations of rates with the system, which will be sorted by dept. and then the best suitable quotation will be selected for supply. The items will be added to stock on receiving and provided to demanding department then. Prepare use case and sequence diagram for the said system. **07**
- OR**
- Q.5 (a)** 1. Explain include and extend relationship in use case diagram with example. **04**  
2. Define interaction. List and explain interaction diagrams in brief. **03**
- (b)** Consider the case 5 (b) and prepare activity and collaboration diagram for the system. **07**

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