Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER–III • EXAMINATION – WINTER 2013

Subject Code: 2630001   **Date: 07-12-2013**
Subject Name: Structured and Object Oriented Analysis
and Design Methodology
Time: 02:30 pm TO 05:00 pm   **Total Marks: 70**

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

Q.1 **(a)** Justify whether following statements are true or false. No Justification   **07**
No marks.
   i.   External entities in DFD may be source of input data only.
   ii.   Building block of UML are Things, Behavior and Diagrams.
   iii.   Sequence and Class are the kind of interaction diagrams.
   iv.   Decision table are preferred when sequencing of condition is preferable.
   v.   Data Dictionary is useful as a documentation aid.
   vi.   Case Tool is used by industry to automate system analysis.
   vii.   Use Case modeling discusses how system does the functionality.

(b) Answer the following questions: **07**
   i.   What are the major tools for dataflow strategy?
   ii.   Give any two benefits of open-ended questionnaires?
   iii.   Give major difference between class and object diagram.
   iv.   Discuss Bags and ordering technique in class diagram.
   v.   Give any two rules for UML.
   vi.   Give major difference between Aggregations and Composition.
   vii.   List down seven steps of SDLC.

Q.2 **(a)** Discuss various mistakes found in drawing DFD with example   **07**

(b) Discuss the concept of Interviewing method in Information Gathering   **07**
Techniques.(process of interview, advantages of interview, disadvantages of interview, type of questionnaires asked in interview)

OR
(b) Answer the following questions   **07**
   i.   Discuss the function of Office Automation System, Knowledge Work System, Management Information System and Decision Support System.
   ii. What are the benefits of using Object Orientated methodology?

Q.3 **(a)** Draw proper Decision Tree and Write the Structured English for the   **07**
given Decision Table.

```
C1      Y     N     Y
C2      N     N     Y
       ┌──┬──────────────
A1   │ │  X     —     —
A2   │ │  —     X     —
A3   │ │X       —     X
```

(b) Discuss methods for ensuring data quality through input validation. **07**

<center>OR</center>

Q.3 **(a)** Answer the following questions **07**
i. Discuss general guidelines for designing good Form Design.
ii. Discuss various types of Query methods giving example.

(b) Discuss the need for creating Data Dictionary. Also Discuss the Data **07**
Structure categories like Data Element and Data Structure with
example.

Q.4 **(a)** Draw the Use Case Diagram and Class Diagram of Banking System. **07**
The development of a computer system is required by a "Peoples bank
of Commerce". A system is required where by customers may open
accounts and perform the transactions like credit the account, debit the
account, and obtain current balance on these accounts. Account can be
two types- saving account or current account. The bank manager is
required to maintain its total assets annually.

(b) Explain all components of Activity diagram giving example. **07**
<center>OR</center>
Q.4 **(a)** List down actors and use cases for the following systems. **07**
i. Computer Email System.
ii. Online Train Reservation System.

(b) Draw State Chart Diagram for Bank ATM machine. **07**

Q.5 **(a)** Discuss Three models of Object Oriented Methodology. **07**
(b) Discuss association end names, visibility and multiplicity of Class **07**
Diagram giving example.
<center>OR</center>
Q.5 **(a)** Discuss Dependency, Association and Generalization Relationships in **07**
UML with example.
(b) For a Library management system, Draw Sequence Diagram for the **07**
use case " issue book " .

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