Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–III • EXAMINATION – WINTER 2013

Subject Code: 630001 **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)** Define the following terms : Metadata, HCI, Qualifier, Dependency **08**

(b) Fill in the blanks : **04**

1. _____ are being written by corporate users for both internal as well as external communication.
2. When two or more APIs are used together they form a _____.
3. Relationship between two classes is known as _____.
4. _____ class can be directly instantiated.

(c) State whether the following statements are true or false. Justify your answer. No justification no marks : **02**

1. Participating in JAD sessions leads to creative development of designs.
2. Behavioural thing represent the statics view of a system.

Q.2 **(a)** What are CASE tools ? Why are they used ? Describe in brief the components of CASE tools, indicating the function performed by each. **07**

(b) List the five general purposes for effective coding. Also explain the general guidelines for establishing a proper coding system. **07**

OR

(b) List four situations that make the use of questionnaires appropriate. What are the two basic question types used on questionnaires ? List two reasons why a system analyst would use each of the two question types on a questionnaire. **07**

Q.3 **(a)** What are the ways in which presentations of output are unintentionally biased? How can the analyst avoid bias in the design of output ? **07**

(b) Draw a Context Flow Diagram and Level-1 data flow diagrams for a Library Management System. State any assumptions made. **07**

OR

Q.3 **(a)** Explain the guidelines to be followed while designing good display and Web forms. **07**

(b) State and explain the situations that require feedback for users. **07**

Q.4 **(a)** What are interactions? How do we model interactions in UML? Explain giving suitable examples. **07**

(b) Write a short note on concurrency in states giving suitable example. **07**

OR

Q.4 **(a)** Distinguish between binary and N-ary association. **07**

(b) Explain common mechanisms in Unified Modeling Language. **07**

P.T.O

Q.5 **(a)** Petrol station is to be set up for fully automated operations. Drivers swipe their credit card through a reader connected to the pump, the card is verified **07**

by communication with a credit card company. The driver may then take the fuel required. When fuel delivery is complete and the pump hose is returned to its holster, the driver's credit card account is debited with the cost of the fuel taken. The credit card is returned after debiting. If the card is invalid, it is returned by the pump before the fuel is dispensed. Draw activity and state diagrams.

(b) 1. Discuss "Modeling as a design technique". **04**

2. Explain scenario giving suitable example. **03**

OR

Q.5 **(a)** The following case represents the dining philosopher's problem. There are 5 philosophers and 5 forks around a circular table. Each philosopher has access to 2 forks on either side. Each fork is shared by 2 philosophers. A philosopher must have 2 forks to eat. Draw object and class diagrams. **07**

(b) 1. Explain Link and Association **04**

2. What is Reification? Explain giving suitable example. **03**

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