Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012

Subject code: 140703   **Date: 28/12/2012**
Subject Name: Object Oriented Analysis Design and UML
Time: 02.30 pm - 05.00 pm   **Total Marks: 70**
Instructions:
  1. **Attempt any five questions.**
  2. **Make suitable assumptions wherever necessary.**
  3. **Figures to the right indicate full marks.**

Q.1 (a)   **07**
     (i) Is association class same as ordinary classs? Explain with **04**
         example.
     (ii) Explain aggregation. Is it same as association? **03**
(b)   **07**
     (i) Define **04**
     a. state
     b. guard condition
     (ii) Write use case summaries for a vending machine. **03**

Q.2 (a) Describe in detail the stages of Object oriented methodology. **07**
(b) Consider software that manages electronic music files. Prepare a use **07**
    case diagram and include the appropriate relationships for the use
    cases.
       a. Play a song
       b. Play a library
       c. Randomize order
       d. Delete a song
       e. Destroy a song
       f. Add a song.

OR

(b) A customer decides to upgrade her PC and purchase a DVD player. **07**
    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.
             Construct an activity diagram for this process. Use
    swimlanes to show the various interactions.

Q.3 (a)   **07**
     (i) Prepare a class diagram for each group of classes. Add at least **04**
         10 relationships (associations and generalizations) to each
         diagram.
    File system, file, ASCII file, binary file, directory file, disc, drive,
    track, sector
     (ii) How signals can be organized into generalization hierarchy **03**
         with inheritance of signal attributes?

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(b) Draw state diagram for the control of a telephone answering machine. **07**
The machine detects an incoming call on the first ring and answers the call with a prerecorded announcement. When the announcement is complete, the machine records the caller's message. When the caller hands up, the machine hangs up and shuts off. Place the following in the diagram: call detected, answer call, play announcement, record message, caller hangs up, announcement complete.

OR

Q.3 **(a)** **07**

      (i) What does one shot diagram represent? Show one shot **04**
           diagram for chess game.

      (ii) Explain with state diagram how an object can perform **03**
           activities concurrently?

(b) In a personal computer, a disk controller is typically used to transfer a **07**
stream of bytes from a floppy disk drive to a memory buffer with the help of a host such as the central processing unit(CPU) or a direct memory access(DMA) controller. Draw state diagram for the control of the data transfer. Add the following to the diagram: reset, indicate data not available, indicate data available, data read by host, new data ready, indicate data lost.

Q.4 **(a)** Explain waterfall development and Iterative Development life cycle **07**
styles for Object Oriented approach to software development.

(b) Write in detail the different criteria for discarding unnecessary and **07**
incorrect classes while constructing domain class model.

OR

Q.4 **(a)** Explain the following steps while constructing an application **07**
interaction model.
      a. Find use cases
      b. Find initial and final events.

Q.4 **(b)** Why reuse is considered an advantage of object oriented technology? **07**
One of the reusable thing, is library. Describe qualities of "good" class libraries.

Q.5 **(a)** What kind of data is suitable for files? What kind of data is suitable **07**
for databases? Does ATM (Automatic Teller Machine) use relational or object oriented database?

(b) What steps should be performed while designing algorithms? **07**

OR

Q.5 **(a)** Give the list of common architectural styles. Explain batch **07**
transformation in detail.

(b) What tasks are involved in design optimization? **07**

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