MCS-032

03762

MCA (Revised)

Term-End Examination

June, 2011

MCS-032 : OBJECT ORIENTED ANALYSIS AND DESIGN

Time : 3 Hours *Maximum Marks : 100*

Note : *Question no. 1 is* **compulsory.** *Attempt* **any three** *questions from the rest.*

1. (a) Classify each of the following relationship   5
        as either a class, an instance of a class,
        inheritance relationship, an aggregation or
        association relationship.
        (i) Employee
        (ii) Computer Science Department
        (iii) University - Teacher
        (iv) Father - Son
        (v) Book - Copy

    (b) Draw a state diagram for a graphical user   5
        interface that has main menu, a file menu,
        with a file open command and quit
        commands at each menu. Assume that one
        file can be open at a time.

(c) An university wants to computerize its admission process. The system should accept application (on-line) for different kinds of programs offered during the admission cycle, verify the eligibility criteria, offer admission letter accept fee through draft /cash/credit cards, allocate study centre dispatch course materials, you can make more assumptions.

Perform the following tasks for this system.

(i) Draw a class diagram   5

(ii) Draw an object diagram   5

(iii) Draw an use case diagram   4

(iv) Draw a generalization and an association diagram.   6

(d) How do you map object classes in the form of tables ?   5

(e) What is persistence ? How will you make your data persistent ?   5

2. Differentiate between the followings with examples :   4x5=20

(a) Generalization and Specialization

(b) Aggregation and Association

(c) A sequence diagram and a collaboration diagram

(d) Data flow and State diagram

3. (a) Define the following terms : 5x2=10

   (i) Object identity

   (ii) Concurrency

   (iii) Polymorphism

   (iv) Deployment diagram

   (v) Multiplicity

   (b) Draw a class diagram for a simple 5
   arithmetic expression.

   (c) Draw a Data Flow Diagram (DFD Level 1 5
   and Level 0) for the problem defined in
   Question 1 (c).

4. (a) A tourist company has many branches
   across the country. It also has tie up with
   top hotels, restaurants and holiday resorts
   to provide different types of services to its
   customers (both foreign and national). It
   also provides on-line registration facility.
   The payment can be accepted through a
   credit card, cheque as well as cash (both
   national and foreign currency). Booking is
   done during the tourist season (June and
   December). The company gives 20%
   discount in case the booking is done in a
   group (not less then 10). Identify all objects
   and draw an object diagram. 3+5=8

(b) What is the use of object IDs ? Explain. **4**

(c) Explain how do you will find actors in a **3** system.

(d) What is activity diagram ? Draw an activity **5** diagram for compression of a file and send through an e-mail attachment.

5. (a) Draw a sequence diagram for sending an **5** e-mail to your friend.

(b) What is component diagram ? Show the **5** UML notations for components and relationship between components.

(c) What are the important design optimization **1+4** issues for a designer ? Discuss an issue in detail.

(d) How do you implement constraints ? **5**

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