No. of Printed Pages : 4

MCS-032

00301

MCA (Revised)

Term-End Examination

December, 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 as either a class, an instance of a class, inheritance relationship, an aggregation relationship, association relationship. **5**

(i) Person - Student

(ii) Car - Driver

(iii) Class - Student

(iv) Computer - Keyboard

(v) Vehicle

(b) Draw a state diagram of a process state (a program in the running state). **5**

(c) A Computer Science Department wants to schedule meetings. There may be different kinds of meetings as School Board Meeting, faculty meeting, print committee meeting and budget planning committee meetings. There is a list of members along with their addresses and other details about different meetings schedule of meeting needs booking of a conference room, fixing date and time and informing members through e-mail/ telephone. Members are also paid honorarium and transport allowances for attending meeting. Do the following tasks for the above system.

(i) Draw a class diagram 5

(ii) Draw an object diagram 5

(iii) Draw a use case diagram 4

(iv) Draw a generalization and association diagrams. 6

(d) How do you map external and conceptual schemes of RDBMS inform of object models ? 6

(e) Discuss any option for mapping one to many associations to table. 4

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

(a) Collaboration diagram and an interaction diagram.

(b) Generalization and inheritance

(c) Class diagram and object diagram

(d) Conceptual scheme and external scheme

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

(i) Integrity constraints

(ii) Abstract class

(iii) Metaclass

(iv) Data Flow Diagram

(v) Data Dictionary

(b) Draw an instance diagram for part of your family. 5

(c) Write DFD for issuing out a book from a Library and returning a book to the library. 2½+2½=5

4. (a) A and B are starting a paying guest accommodation scheme in a small town. They will have three bedrooms for guests. They want a system to manage the reservation and to monitor expenses and profits When a customer calls for reservation, they will check the calendar and if there is a vacancy, they will enter the

customer name, address, phone number, dates, agreed upon price, credit card number and room number (s). Reservation must be guaranteed by 1 day's payment. Identify all the objects and draw an object model. 3+5=8

(b) Define state charts. Explain the two strategies to implement it. 4

(c) What is an event in UML ? 3

(d) Draw an activity diagram for on-line reservation of a Railway ticket. 5

5. (a) What is multiplicity association ? Explain with example. 5

(b) What are the steps in constructing a functional model ? Explain through an example. 6

(c) What are the advantages of two way association ? How do you implement association of objects. 5

(d) What is the serialization ? Where it is used and why ? 4