

Total No. of Questions : 12]

SEAT No. :

P1434

[4759] - 186

[Total No. of Pages : 4

B.E. (Information Technology)
OBJECT ORIENTED MODELING AND DESIGN
(2008 Course) (Semester - I) (410443)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 from Section I and*
- 2) *Solve Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12 from Section II.*
- 3) *Answers to the two sections should be written in separate books.*
- 4) *Figures to the right side indicate full marks.*
- 5) *Neat diagrams must be drawn wherever necessary.*
- 6) *Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Write a short note on XML. [6]
- b) Explain the following UML concepts with an example: [6]
- i) Difference between association and link.
 - ii) Relation between Interface and Class.
- c) Explain how we can use stereotypes, tagged values, constraints for modeling School Database Management System. Assume suitable data. [6]

OR

- Q2)** a) How class diagram is used to model logical database schema? Explain with suitable example. [6]
- b) Write short note on: Rational Unified Process. [6]
- c) Explain with suitable example following stereotypes: [6]
- i) friend
 - ii) become
 - iii) instance of

P.T.O.

Q3) a) Draw a class diagram for Railway Reservation System using advanced notations. Assume suitable data. [8]

b) Develop the Main and Alternate flows of events of “Withdrawal of Cash from ATM System”. [8]

OR

Q4) a) What type of elements a package can own? Explain ‘importing and exporting’ concept related to package diagram with suitable example.[8]

b) Hospital management system is a platform through which patient’s problems can be advised online. The main idea of hospital management system is to provide treatment to the patient without meeting the doctor. Firstly, there are three main characters: the doctor, the patient and the organizer. Whenever a patient has any problem related to health, he posts online. The organizer logs in and reads the particular Problem and then takes advice from a doctor and sends prescription to the relevant patient. The same prescription can be referred in future. The doctor can login and prescribe solution to the problem. These are viewed by the organizer and post back the advice to the patient. Patient then pays the fees by cheque/cash/credit card to the organizer and it is in turn paid to the corresponding doctor. Organizer itself plays the role of administrator i.e. maintaining the database, updating the system, paying the doctors, collecting the fees & also issue new members unique id and password and keep them updated. Draw Use Case diagram by making use of advanced notations for given context. [8]

Q5) a) Explain different types of relationships that can be used with packages by giving suitable Example. [6]

b) In the context of the composite structure diagram, explain with example the concept and notation for: [6]

i) Port

ii) Connector

iii) Part

c) What is interface? Give notation for an interface in two different ways.[4]

OR

- Q6)** a) Differentiate between. [8]
- i) Instantiate and Instance of
 - ii) Include and Extend
- b) The book club has members. The book club sells books to its members. The member places orders for books, which the book club full fills. Each order contains one or more than one books. The books are written by author(s). The publisher publishes the book. An author can write more than one books and a book can have more than one author. A book is published by a publisher, but a publisher publishes many books. A member can place more than one order. The member also can choose not to place an order. The book club sells may books. Draw a class diagram using advanced notations for given context. [8]

SECTION - II

- Q7)** a) Differentiate between:. [8]
- a) Activity diagram and Flow Chart
 - b) Signal and Call Operation
- b) Draw Sequence diagram for ‘Two Party Telephone Call’. Represent following things: [8]
- i) Timing Constraints
 - ii) Create
 - iii) Self Call
 - iv) Iteration

OR

- Q8)** a) You have to model a software system for controlling a Air Conditioner (AC). The AC can be either ON or OFF. In the ON state there are two possibilities.COOLING mode or HEATING mode. There are buttons to change from one mode to other mode automatically based on room temperature crossing cutoffs (Cooling if temperature > 30 degree centigrade and Heating if temperature < 10 degree centigrade). All buttons work only if Power is in On. Draw a state diagram for given system. [8]
- b) What is the purpose of timing diagram? Explain with example. [8]

Q9) a) OTOS's pharmacy is the distributor of various pharmaceuticals products. They have a huge network of customers. The registered customers can only book orders for the specified products. If the specified products are available, the required quantity is checked against the quantity on hand (QOH). If the required quantity is less than QOH, a deliver challan is prepared by sales person and at the same time an invoice is prepared by accountant which contains the cost of ordered items and previous outstanding balance (if any). Then the products and invoice is sent to the customer. Draw activity diagram with: **[10]**

- i) Swim lanes,
 - ii) Fork and Join,
 - iii) Object Flow
- b) Draw a sequence diagram for 'Issuing a book from College Library'. Represent following things: **[8]**
- i) Alt Operator
 - ii) Return Message
 - iii) Self Call

OR

- Q10)a)** What is history state? Explain with example. **[6]**
- b) Explain advanced features of state machine with example. **[6]**
- c) Draw an Interaction Overview Diagram for a system of your choice. **[6]**

- Q11)a)** What is the relation between component and interface? Explain the concept of import and export interface with example. **[8]**
- b) Draw component diagram for Railway reservation system. **[8]**

OR

- Q12)a)** How to model an Embedded System using deployment diagram? Explain with example. **[8]**
- b) Explain the concept of Pattern and Frame with suitable example. **[8]**

