

[5254]-182

B.E. (Information Technology)

OBJECT ORIENTED MODELING AND DESIGN

(2008 Pattern)

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 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 Reverse Engineering vs Forward Engineering. [6]
b) Explain the concept of Generalization and Inheritance with suitable example. [8]
c) Draw the object diagram for College Laboratory LAN network. [4]

OR

- Q2)** a) How to apply constraints in Class Diagram. Explain it with suitable example. [6]
b) With the help of sample class model, explain the following : [8]
i) Attributes and associations
ii) Qualified association
iii) Multiplicity
iv) Association end names
c) Describe the software development life cycle of UML. [4]

- Q3)** a) Write a short note on Behavioral Diagrams in UML. [8]
b) Draw a class diagram for FILE MANAGEMENT SYSTEM (FMS). Make suitable additional assumptions about scope and working of your system (write down the scope too). The FMS has concepts of directories, subdirectories. FMS keeps information of directories as well as files for example file creation date, size of file, entries in directory etc. One also needs operation to move, delete, create etc. Your class diagram must show relevant attribute, methods and relationships. [8]

P.T.O.

OR

- Q4)** a) Write a short note on Role of Stereotypes in UML Diagram. [8]
b) Draw the Use Case diagram for Physical Bookstore Checkout System. Make the suitable assumptions. [8]

- Q5)** a) Draw UML Use Case diagram for Medical Insurance System using advanced notations. The various participants of the same are Owner, Agents and Claimer. The corresponding use cases for these actors are Hire Agent, Fire Agent, Pay Salary, Make Policies, Make new clients, Describe Policy to Clients, Collect Policy Checks, Check details when policy is Claimed By Claimer, Check Medical Claim Papers, Fill Form To Take Policy, Pay Policy Checks, Claim Policy, Receive Money Of Policy Etc. [8]
b) Draw a class diagram for an "Online Movie Ticket Booking System" make suitable additional assumptions about scope and working of the system. [8]

OR

- Q6)** a) Write a note on Composite Structure Diagram. [4]
b) Does the actor always represent a human user? Justify with suitable example. [4]
c) Draw a class diagram for Online First Year Engineering Admission System using advanced notations. Assume suitable data. [8]

SECTION - II

- Q7)** a) Differentiate between: [8]
i) Sequence diagram and collaboration diagram
ii) Action State and Activity State
b) Draw the collaboration Diagram for Cancel Booking at the Restaurant Management System. [8]

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 modes. 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 On. Draw a state diagram for given system. [8]
b) What is the purpose of timing diagram? Explain with for example. [8]

- Q9)** a) How an activity diagram differs from traditional flowchart? Draw an activity diagram using swimlanes for 'Purchasing Books from Book Stall'. Represent object flow. [10]
- b) Draw a sequence diagram for 'Withdrawal of money from ATM System'. 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 the concept of Advanced states with example. [6]
- c) Draw an Interaction Overview Diagram for a system of your choice. [6]
- Q11)** a) How do you model the Tables, Files, and Documents using components? Explain with example. [8]
- b) What is signal? How signals are modeled in UML? Explain with suitable example. [8]

OR

- Q12)** a) What is node and Artifact. Explain how to deploy an artifact to a node. [8]
- b) Explain the concept of Pattern and Frame with suitable example. [8]

