

Total No. of Questions : 12]

SEAT No. :

P841

[4458]-792

[Total No. of Pages : 4

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

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

SECTION - I

- Q1)** a) Give notation for an interface in two different ways and show how it relates to components and classes. **[6]**
- b) Explain the need of XML. **[4]**
- c) What do you mean that some UML diagrams show behavior of system? Explain with example. **[6]**

OR

- Q2)** a) Discuss when will you model a entity such as 'bank account' as **[4]**
- i) attribute
- ii) class
- b) Model the associations that a 'Employee' can work on at most one 'Project' at a time but a Manager can work more than one projects at the same time. **[4]**
- c) Can we use forward engineering in class diagram? Explain with appropriate example. **[8]**
- Q3)** a) Differentiate between: **[8]**
- i) Aggregation and Composition
- ii) Access and Import

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- b) Draw UML Use Case diagram for Medical Insurance system using advanced notations. The various participants of the same are Owner, Agents, 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]

OR

- Q4)** a) Differentiate between: [8]
i) Instance scope and classifier scope
ii) Include and extend
b) What are the uses of object diagram? Draw an object diagram for ‘Calculating the model of the world in which a Robot moves’ mechanism. [8]

- Q5)** a) Draw the Class Diagram for ‘Purchase of books in Library’ mechanism. The library purchases works like this. A demand list of popular books is maintained, There is a catalog entry for the book title that tells the current number of copies of the books in library. Based on above factors a recommendation for purchase of a title is made. A set of bookshop has been identified from whom the recommended books are purchased. The purchase orders to specific bookshops are maintained in the system. Identify appropriate classes, their attributes, relationships, and operations and show them in class diagram. [8]
b) Explain ‘importing and exporting’ concept related to package with example. [6]
c) How constraints are modeled in UML? Explain with example. [4]

OR

- Q6)** a) In the context of the composite structure diagram, explain with example of your own choice the concept and notation for: [6]
i) Port
ii) Connector
iii) Part
b) Draw the class diagram for Banking System. Make suitable assumption and use advanced notations in UML. [8]
c) Write short note on: Rational Unified Process. [4]

SECTION - II

- Q7)** a) Draw a simple sequence diagram fragment for a system/example of your own to show good use of following : **[8]**
- i) Alternative
 - ii) Iteration
 - iii) Self call
 - iv) Return value
- b) Consider an ‘Professional Seminars Organizing System’. Students organize seminars by professionals. System helps students in selecting topics, identifying area-wise experts, approach experts through emails. While experts are being approached, you could parallel arrange for getting sponsorship, preparing venue, printing brochures. Once all above is done, students are registered for seminars, then seminars are conducted and finally a report is generated about seminars completed. Draw an activity diagram for given mechanism. **[8]**

OR

- Q8)** a) What is sequence? Explain various types of sequence with example. **[8]**
- b) Draw a sequence diagram for a usecase ‘Buy a Insurance Policy’. Key steps of usecase are:
- Get customer details, get customer needs, offer policy list and detail of various policies available. Based on customer’s choice of policy, he is made policy member and first premium is paid by the customer by credit card(validation is needed). Make suitable assumptions. Use the sequence diagram notation to its full extend. **[8]**
- Q9)** a) Explain the need of timing diagram. Draw timing diagram for any real time application. **[6]**
- b) A temperature controller has been interfaced with a manufacturing unit in a factory which maintains the moderate temperature of 50°C. If the temperature goes beyond/below the moderate temperature the unit activates cooling/heating units respectively and indicates through different signals. Draw a state diagram for the above. **[8]**
- c) Differentiate between time event and change event. **[4]**

OR

- Q10)** a) What are swimlanes? Draw an activity diagram for ‘Purchasing Items from Mall’ using swimlanes and represent object flow. **[10]**
- b) Differentiate between: **[8]**
- i) Signal and call event
 - ii) Action state and activity state

- Q11)** a) What is history state? Draw a state chart diagram using sequential states for ATM system. [7]
b) Explain the concept of pattern and framework in UML in brief [4]
c) Draw a deployment diagram for modeling embedded system. [5]

OR

- Q12)** a) What is the relation between a usecase and collaboration? Explain with example. [4]
b) Draw a component diagram for modeling source code. [6]
c) Write short note on Interaction overview diagram. [6]

