

Total No. of Questions : 12]

NOV - Dec - 2012

SEAT No. :

P1205

[Total No. of Pages : 3

[4264] - 712

B.E. (IT)

OBJECT ORIENTED MODELLING & DESIGN

(2008 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:-

- 1) Answers to the two sections should be written in separate books.
- 2) Figures to the right indicate full marks.
- 3) Answer (Q1 or Q2) and (Q3 or Q4) and (Q5 or Q6) from Section - I and (Q7 or Q8) and (Q9 or Q10) and (Q11 or Q12) from Section - II.
- 4) In the questions based on Design you are encouraged to make further suitable assumptions depending upon scope of the system.

SECTION - I

- Q1) a) What are the activities carried out in construction phase of RUP? [6]
- b) Why we need OCL? How does one model a constraint on class attributes in OCL. [6]
- c) Write a short note on Common Mechanism in UML. [6]

OR

- Q2) a) What is a Model Driven Architecture? Explain in detail giving its applications. [6]
- b) What are the salient features of RUP? How is it different from waterfall model? [6]
- c) Why object oriented approach is superior to procedural approach. [6]

- Q3) a) Explain the change in Activity Diagram from UML 1.4 to UML 2.0. [8]
- b) Consider a website which displays daily News. The website has various sections in the news like: Political, Educational, Sports, Social, Entertainment, Astrology etc. Draw use case diagram for this considering other relevant details and using full UML notation for use case diagram. [8]

P.T.O.

OR

- Q4)** a) Explain 4+1 view architecture in detail. [8]
b) Consider a system like "Admission System". A user selects "Accept information" to fill up the detail information. "View information" to view his detail information by giving his id number, "Test eligibility" to test his eligibility for the various courses like Engineering, Pharmacy, Medical etc. and "Allot admission" to check whether he/she gets a seat to the course of choice as per the merit. Draw use case diagram for this considering other relevant details and using full UML notation for use case diagram. [8]
- Q5)** a) Compare access, import, export stereotype of package diagram. [4]
b) Show how Composite Structure can best represent Refrigerator & its internal parts like freezer, compressor, doors, etc. [6]
c) Explain in detail different type of advance relationships & class required for class diagram with suitable example. [6]

OR

- Q6)** a) Draw object diagram for Library System with two classes Member & Librarian and further the member may be of type student or staff. Assume suitable attributes for the classes & values for objects. [8]
b) Draw CRC card for any two classes of an Purchase Management System. [4]
c) What is the purpose, need & uses of Structural Modeling. [4]

SECTION - II

- Q7)** a) Consider a use case in Banking System namely "Money Transfers" where a customer selects for NEFT payment in which specification of amount to be transferred, account number of beneficiary needs to be given. After completion of transaction, updation in balance, transaction details etc needs to be done as well as intimation of transaction on registered mobile of customer is done. Identify correct objects and messages and draw a detail Sequence diagram for this scenario. [8]
b) Compare Interaction Diagram and Interaction Overview Diagram. [4]
c) In context of sequence diagram explain with example the terms: [6]
i) Lifeline ii) Stereotype iii) Message

OR

- Q8)** a) Consider a Use Case "Removing an Employee on a Project". The HR Manager interacts with the Use case to choose the employee from the list of existing employees. The employee is informed about his removal from a project and also his record is updated whenever removed from a project. Make relevant and suitable assumptions where ever necessary. Draw the Sequence diagram by identifying the classes, actors needed and making best use of UML Notations. [8]

- b) A college has different student chapters like ISTE, CSI, IEEE, IETE, etc. A student logs in to college website, looks at the various available chapters, and choose one of them to join. All the chapters look for valid students as members and have different conditions for providing membership, for example only Computer and IT students can be members of CSI. The Chapters organize various events like Debate, Quiz, Group discussion, for which members can register online for free while nonmembers have to pay fees by credit card for registration. Each one who registers gets a confirmation of registration via email. Draw a Activity diagram for the above mentioned system. [10]

- Q9) a) Draw a state machine diagram for a vending machine which gives tea when two coins of two rupee are inserted, coffee when first coin of two and second coin of five rupee are inserted, while it gives cold drink if both the coins of five rupee are inserted. Assume suitable data. [8]
b) Explain purpose and application of Deployment Diagram to made Three Tier Architecture. [8]

OR

- Q10) a) Draw neat fragment on state machine diagram to represent the following. Explain the concept. [8]
i) Concurrent sub state & Sequential sub state.
ii) Composite sub state.
b) A water purifier can be in either ON or OFF state. In the ON state it can be in RO or UV mode. There are buttons to change from one mode to another or this mode gets set automatically based on the hardness of the input water (if PH value < 2.0 RO mode and if PH value > 2.0 UV mode). User can manually override any mode by pressing appropriate button. All the buttons function only if power is on. Draw a state transition diagram for the above described system. [8]

- Q11) a) What is Architecture modeling? What are the elements needed for modeling architecture? [8]
b) Explain with example how UML can be used in modeling web applications. [8]

OR

- Q12) a) Explain how deployment diagram can be used for modeling embedded systems. [8]
b) Explain with example how design patterns and Architectural patterns be modeled. [8]