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[4064]-601

B.E. (IT)

OBJECT ORIENTED MODELING AND DESIGN**(Sem. - I) (2008 Course) (410443)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) 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.
- 2) Answers to the two sections should be written in separate books.
- 3) Figures to the right indicate full marks.
- 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) Write a short note on MDA. [6]
- b) What are the salient features of RUP? How is it different from waterfall model? [6]
- c) In couple of sentences each, give the need in RUP for XML, XMI. [6]

OR

- Q2) a) Illustrate new UML 2.0 feature [6]
- i) I/p & o/p PINS
 - ii) Tagged values.
 - iii) Manifest.
- 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]
- Q3) a) Explain Requirement Workflow. [8]
- b) Consider College Purchase System described below. We can use the system to manage Equipment Purchasing from Suppliers. System can also manage Department Demands for new Equipment they wish the department to possess. The system can also manage Suppliers, Payments, Ordering & Cataloging of Equipments on arrival. Add further assumptions about scope of application if necessary. Draw use case diagram for this description. Using full UML notation for use case diagram. [8]

P.T.O.

OR

Q4) a) Explain the change in Activity Diagram from UML 1.4 to UML 2.0. [8]

b) Draw activity diagram (for software process) to depict user may do with HELP of Hypothetical Software in a PAINTBRUSH kind of picture editor system to create a sketch for a dream house from scratch right up to the final print on color plotter. Assume that the whole process is done over multiple sittings over one or more days. Make suitable assumptions about the scope of your system, software features. [8]

Q5) a) Draw CRC card for any two classes of an Library Management System. [4]

b) Show how Composite Structure can best represents CAR & its internal parts like door, transmission system, illustrate. [6]

c) Draw object diagram for Banking System with two classes Account & Customer and further the account may be of type saving or current. Assume suitable attributes for the classes & values for objects. [6]

OR

Q6) a) Explain in detail different type of advance relationships & class required for class diagram with suitable example. Make some assumptions. [8]

b) Compare access, import, export stereotype of package diagram. [4]

c) What is the purpose, need & uses of Structural Modeling. [4]

SECTION - II

Q7) a) Consider a Use Case "Adding an Employee to a Project". The HR Manager interacts with the Usecase to choose the employee from the list of existing employees. The employee is informed about his addition to a project and also his record is updated whenever added to a project. Make relevant and suitable assumptions where ever necessary. Draw the communication diagram by identifying the classes, actors needed and making best use of UML Notations. [8]

b) Draw a state machine diagram for coffee vending machine which prepare the coffee by adding material of coffee. Assume suitable data. [6]

c) In context of sequence diagram explain the terms : [4]

i) Lifeline.

ii) Stereotype.

OR

- Q8)** a) Draw neat fragment on state machine diagram to represent the following. Explain the concept. [6]
- Concurrent sub state & Sequential sub state.
 - Composite sub state.
- b) Consider a use case in library management system namely "Issue Book from library" the member, book, issue details will have to be updated appropriately. Please identify correct objects and messages and draw sequence diagram for this scenario for use cases. [8]
- c) Compare Interaction Diagram and Interaction Overview Diagram. [4]
- Q9)** a) An academic institution has developed a campus wide network and has implemented Automated system. The student section, library, account section, store, office, department are all connected. All the modules are centrally served through a common server in form of web application. Identify software component required. Make assumption about their environment and depict all this in a deployment diagram. [8]
- b) Explain the common uses of component diagram. [8]

OR

- Q10)** a) Consider a College Registration System, the system allows students to apply for admission. Support the shortlisting process & enrollment to courses & collecting fees to admission. From above system identify the component, the interface it supports and give a UML representation of the same with details of services the component/interface offers. Make suitable assumption about the system. [8]
- b) Explain purpose and application of Deployment Diagram to made Three Tier Architecture. [8]
- Q11)** a) Define Design Patterns. Draw class diagram for Observer Design Pattern. [8]
- b) Explain the structure of Proxy with example. [8]

OR

- Q12)** a) Explain forward and reverse engineering of class diagram. [8]
- b) Explain Singleton pattern with example. [8]

