Total No. of Questions : 12]

SEAT No. :

P1801

[Total No. of Pages : 3

[4859]-204

B.E. (Computer Engineering)

OBJECT ORIENTED MODELING AND DESIGN

(2008 Pattern)(Semester-I)

Time : 3Hours] *[Max. Marks : 100]*

Instructions to the candidates:

1) ***Answer three questions from section I and three questions from section II.***
2) ***Answers to the two sections should be written in separate answer-books.***
3) ***Neat diagrams must be drawn wherever necessary.***

SECTION-I

Q1) a) Explain in brief: **[8]**

i) RUP

ii) MDA

b) Explain the following in the Basic Building Block of the UML 2.0. **[8]**

i) Things

ii) Relationships

OR

Q2) a) Explain in brief: **[8]**

i) UML metamodel

ii) Extensibility Mechanism

b) Explain 4+1 architecture. **[8]**

Q3) a) Explain different types of relationships used in use case diagram with relevant examples. **[8]**

b) A student applies for admission to a college. He can join one of the engineering branches. The student applications are sorted on merit. Top students are offered and admission on merit order. The joining process involves student being shown available branches. Student's selects branch, chooses optionally a hostel seat. In parallel makes payments, selects memberships to gym and select elective courses to attend. On successful admission he is enrolled, given a admit card and is given a copy of academic calendar. The students not admitted can register their interest in waitlist. Make additional assumptions about scope,use advanced activity diagram 2.0 features if relevant. **[8]**

OR

P.T.O.

Q4) a) What are functional requirements & how are they depicted in use case diagram? Elaborate with example for Library management system. **[8]**

b) Explain control nodes and Object nodes in Activity diagram. **[8]**

Q5) a) Explain the significance of composite structure diagram? **[6]**

b) Explain Aggregation and composition with example? **[6]**

c) Draw a class diagram for Digital Library access system. Use all advanced notations for the same. **[6]**

OR

Q6) a) Explain Importing , Accessing and Merging in the Package Diagram. **[6]**

b) Draw package diagram for multi-layered web architecture representation. It contains several packages like webservers, data servers, business servers. Each packages contains subpackages like exceptions, files etc... Higher level packages depend on lower level packages. Packages belonging to the same level could depend on each other. **[6]**

c) Draw a class diagram for inventory control system. Assume suitable scope. **[6]**

SECTION-II

Q7) a) Consider the scenario: Facebook (FB) user could be authenticated in a web application to allow access to his/her FB resources. Assume suitable scope and draw a sequence diagram with all advanced notations. **[6]**

b) Explain the Timing diagram with suitable example. **[6]**

c) What are the history states? Explain with example. **[6]**

OR

Q8) a) What are different types of messages in sequence diagram? **[6]**

b) Explain the significance of Interaction Overview Diagram and Communication Diagram. **[6]**

c) Draw state chart diagram for VCR recorder. System will allow for automatic recording and manual recording. **[6]**

Q9) a) Draw a deployment diagram for Admission procedure system. It's a centralized system which deals with a central server at university. **[8]**

b) Define component. Explain the significance of component diagram in modeling a system with appropriate example. **[8]**

OR

Q10)a) What is an Interface? Explain the different type of Interfaces and their representation? **[8]**

b) Identify any two possible components and the interfaces they support for a hypothetical typical college library system that issues (returns) books to student members. The students can search for the books details as well as check availability. Draw a Component diagram to show the two identified components with interfaces they support. **[8]**

Q11)a) Explain Singleton, Abstract Factory and Façade Design pattern. **[8]**

b) How do you forward engineer a class diagram? Explain with example. **[8]**

OR

Q12)a) What is Design Pattern and Explain its Type. **[8]**

b) What is reverse engineering. Write a piece of code in C++ which depicts inheritance and also draw its UML representation. **[8]**

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