Total No. of Questions : 12]

SEAT No. :

P2959

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B.E. (Computer Engineering) (Semester - I)

OBJECT ORIENTED MODELING AND DESIGN

(2008 Pattern)

Time : 3 Hours] *[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 common Mechanism in UML **[8]**

b) Explain in brief **[8]**

i) RUP

ii) XMI

OR

Q2) a) What is OCL. With the help of OCL expressions, how the constraints can be specified in UML. **[8]**

b) Explain different relationships in use case diagram. Explain extends and include stereotype with proper example. **[8]**

Q3) a) Draw and Explain looping and streaming in activity diagram. **[8]**

b) Draw the Use Case Diagram for the Credit card processing. The merchant submits a credit card transaction request to the credit card payment gateway on behalf of a customer. Bank which issued customers credit card would approve or reject the transaction. If transaction is approved, funds will be transferred to merchants bank account. Identify the actors. use cases and use full advance notation to draw the diagram. **[8]**

OR

Q4) a) What are different Activity nodes used in activity diagram Draw and Explain with example? **[8]**

b) Explain main flow and alternate flow with reference to use case diagram **[8]**

P.T.O.

Q5) a) Explain the following terms with respect to association relationship: **[6]**

i) Association class

ii) Association qualifiers

iii) Navigability

b) Draw a class diagram for DVD SHOPEE system. Make suitable assumptions about scope and working of your shop (write down the scope too). The shop sells audio and MP3,CDs,DVDs. The search can be made on various aspects like singer, music director etc. The buying transaction is recorded. The payment is accepted in cash against the bill. Your class diagram must show relevant attributes, methods ,relationships **[8]**

c) What are templates? How are they represented in UML **[4]**

OR

Q6) a) Explain connectors, ports and pins with reference to composite structure diagrams **[6]**

b) Explain Import, Access and Merge in the Package Diagram for ATM System. **[6]**

c) Give the elements and application of an object diagram with an example. **[6]**

SECTION - II

Q7) a) What are different types of messages in sequence diagram ? Explain each with appropriate example. **[8]**

b) what is the significance of communication diagram. Draw communication diagram for online shopping web application. **[6]**

c) Briefly explain the use of interaction overview diagram. **[4]**

OR

Q8) a) Explain the significance of timing diagram with proper example **[6]**

b) Draw a state machine diagram for Bank Automated Teller Machine (ATM). ATM is initially off. After the power is turned on, ATM performs startup action and enters Self Test state. If the test fails, ATM goes into Out of Service state, triggerless transition and Idle state. The ATM state changes from Idle to Serving Customer when the customer inserts banking or credit card in the ATM's card reader. On entering the Serving Customer state, the entry action readCard is performed. It goes back to the Idle or in cancel state as the customer could cancel transaction at any time. Draw advanced state machine diagram with full notations. **[8]**

c) Explain Alternatives and option interaction operator in sequence diagram **[4]**

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Q9) a) Draw the white box view of component Diagram for online shopping. The system contain three related subsystems - WebStore, Warehouses, and Accounting. WebStore subsystem contains three components related to online shopping - Search Engine. Shopping Cart, and Authentication. Accounting subsystem provides two interfaces - Manage Orders and Manage Customers. Warehouses subsystem provides two interfaces Search Inventory and Manage Inventory used by other subsystems. With proper interfaces and notations draw a complete component diagram. **[8]**

b) Explain Artifact, instances and execution environments in Deployment diagram **[8]**

OR

Q10)a) Draw UML deployment diagram for J2EE web application with load balancing and clustering which shows specific server instances involved. Incoming HTTP requests are first processed by Apache web server. Static content such as HTML pages. images, CSS. and JavaScript is served by the web server. Requests to JSP pages are load balanced and forwarded to 2x2 Apache Tomcat servers using both vertical and horizontal clustering. **[8]**

b) Enlist and explain different stereotypes used component Diagram with an example. **[8]**

Q11)a) Explain the proxy design pattern with its type **[8]**

b) Give the solution for observer design pattern. **[8]**

OR

Q12)a) Explain the façade design pattern with an example? **[8]**

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

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