Total No. of Questions : 12]

May - June 2012

P1455

SEAT No. :

[Total No. of Pages : 3

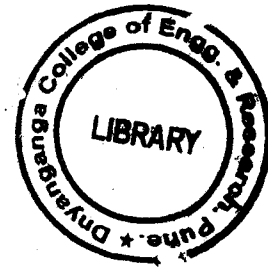**[4164] - 697**

B.E. (Computer Engineering)

OBJECT ORIENTED MODELING & DESIGN

(2008 Pattern) (Sem. - I)

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

Instructions to the candidates:

1) *Answer 3 questions from Section - I and 3 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.*
4) *Figures to the right indicate full marks.*
5) *Assume suitable data, if necessary.*

SECTION - I

Q1) a) Explain the 4+1 view architecture with corresponding UML diagrams associated with each view. [8]

b) Define the following UML concepts with an example. [8]
   i) Constraints.   ii) Association.
   iii) Behavioral thing.   iv) Collaboration.

OR

Q2) a) What do you mean by MDA? How UML supports the concept of MDA? [6]

b) Give the OCL expression syntax with an example. [6]

c) What is the importance of modeling in software development? [4]

Q3) a) Explain the requirements metamodel with a neat diagram. [6]

b) Write the specification of the scenario 'searching a book' with alternate flows, in the library management system, using the usecase template.[6]

c) How do you model an exception in an activity diagram? [4]

OR

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Q4) a) Write the scope of the system for 'Online Book shopping' system and draw the usecase diagram. **[6]**

  b) What are the types of analysis classes? Explain with an example each.**[6]**

  c) How do you refine usecases into sub usecases? **[4]**

Q5) a) Draw the class diagram for a banking system with two classes, Account and Customer. Customer can open a saving or a current account and can do 'deposit' and 'withdraw' transactions. Identify suitable attributes and operations for the classes. **[8]**

  b) Explain any 3 dependency stereotypes used in a class diagram. **[6]**

  c) What is a package? How do you model a subsystem using a package? **[4]**

<div align="center">OR</div>

Q6) a) A 'personal diary' mobile application manages the daily to-do tasks, appointments and contacts for a user. Give design model for this system with the class diagram by making suitable assumptions about the scope of the system. **[8]**

  b) What is an object diagram? Give the application of object diagram with a suitable example. **[6]**

  c) Give the types of inheritance with UML diagram. **[4]**

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SECTION - II

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Q7) a) What is an interaction? Draw the sequence diagram for the 'Issue book' sequence for a Library Management System showing the actor and sequence of messages. **[8]**

  b) Explain the timing diagram with its importance in an embedded application. **[6]**

  c) Differentiate between sequence and communication diagram. **[4]**

<div align="center">OR</div>

Q8) a) Draw the state diagram with composite states for ATM card reading and authentication system. **[8]**

  b) Draw the sequence diagram for 'Login with username and password' showing alternate sequences. **[6]**

  c) What is the purpose and need of interaction overview diagram? **[4]**

Q9) a) What is a component? What are the different types of components? How do you model the source code using components? **[8]**

b) Give the different types of systems which can be modeled using deployment diagram? Draw the deployment diagram for an email system. **[8]**

OR

Q10) a) What do you mean by two tier and three tier architecture? Draw the deployment diagram for a 2 tier web application. **[8]**

b) Explain the following in brief in the context of component diagram. **[8]**
   i) provided and required interfaces.
   ii) ports and connectors.

Q11) a) What is a design pattern? How do you categorize design pattern? Give an example for each category. **[6]**

b) Explain the solution of facade pattern using UML diagram. **[6]**

c) What do you understand by forward and reverse engineering? **[4]**

OR

Q12) a) Explain the iterator pattern with intent, application and solution. **[8]**

b) Why there is a loss of information in reverse engineering? How do you forward and reverse engineer a class diagram? **[8]**

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