

Total No. of Questions : 12]

SEAT No. :

P702

[Total No. of Pages : 3

[4458] - 763

**B.E. (Computer Engineering) (Semester - I)**  
**OBJECT ORIENTED MODELING AND DESIGN**  
**(Theory) (2008 Course)**

*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 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 Model driven architecture. How MDA can be applied in software modeling using UML? [6]
- b) Explain in brief the following concepts of UML. [6]
- i) Common mechanisms.
  - ii) Grouping things.
  - iii) States.
- c) How do you model the static aspects of design view? [4]

OR

- Q2)** a) Explain the phases of Rational Unified Process with the activities. [6]
- b) Explain the relationships in UML with their notations. [6]
- c) How do you extend UML using stereotypes? [4]

- Q3)** a) What are the types of requirements? How do you capture the requirements for a software system? [8]
- b) What are the elements of an activity diagram? Give the swim lane diagram for 'Creation of use case model' in requirements analysis. [8]

OR

**P.T.O.**

- Q4)** a) Identify the actors and use cases for “Online payment of electricity bill system” and give the use case diagram for the same with use case refinements. [8]
- b) What are the types of analysis classes? How do you find analysis classes using use case model? [8]
- Q5)** a) Design the class diagram for the hierarchy of classes for different 2D shapes with abstract, root, leaf properties and specification for attributes and operations. [8]
- b) Explain composite structure diagram elements with an example. [6]
- c) Differentiate between collaboration and use case. [4]

OR

- Q6)** a) Give the elements and application of an object diagram with an example. [8]
- b) Explain the different types of dependencies which can be used in a class diagram. [6]
- c) What is the application of package diagram? [4]

## **SECTION - II**

- Q7)** a) What are different types of messages in a sequence diagram? Create a sequence diagram for a “Phone call” between two persons. [8]
- b) Explain the orthogonal composite state with an example. [6]
- c) What do you mean by an interaction? [4]

OR

- Q8)** a) Explain the elements of a communication diagram with an example. [8]
- b) How sequence diagram is used to model an interaction? Explain the forward engineering of a sequence diagram. [6]
- c) What is the relation between state and timing diagram? [4]

- Q9)** a) What is an artifact? Give the artifact diagram for an Online Aptitude Test Management System. [8]
- b) What are the elements of a deployment diagram? Explain with an example. [8]

OR

- Q10)** a) Explain the application of deployment diagram in modeling the software. [8]
- b) What are the types of interfaces of a component? Give the component diagram for an “Online book order and purchase system”. [8]

- Q11)** a) Write short notes for the following: [8]
- i) Reverse Engineering of a Component diagram.
- ii) Abstract Factory.
- b) What is forward engineering? Explain the forward engineering of a class diagram. [8]

OR

- Q12)** a) What is a behavioural design pattern? How iterator pattern solves the problem of traversal of any type of list? [8]
- b) Explain the proxy design pattern with its types. [8]

