

Total No. of Questions : 12]

SEAT No. :

**P848**

**[4659] - 226**

[Total No. of Pages : 4

**B.E. (Computer Engineering)**  
**OBJECT ORIENTED MODELLING AND DESIGN**  
**(2008 Pattern) (Sem. - I)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *Figures to right indicate full marks.*
- 2) *Answer to two sections should be written in separate answer books.*
- 3) *From section - I, answer (Q1 or Q2) and (Q3 or Q4) and (Q5 or Q6).*
- 4) *From section - II, answer (Q7 or Q8) and (Q9 or Q10) and (Q11 or Q12).*
- 5) *In design question you are encouraged to make further suitable assumptions on scope of the systems given wherever felt necessary and to state yours important assumptions if any.*

**SECTION - I**

**Q1) a)** Justify “Modelling is a proven and well accepted engineering technique”. [6]

b) Which are the aims we achieve through modelling? [6]

c) Explain “A model is simplification of reality” with example. [6]

OR

**Q2) a)** Justify & Explain “Every model may be expressed at different levels of precision” Inception, Elaboration, Construction and Transition phases. [8]

b) Justify “The best models are connected to reality”. [5]

c) Draw “4 +1” architecture, write down it’s importance in brief. [5]

**Q3) a)** Explain following concepts from ACTIVITY diagrams. [8]

i) Action states.

ii) Parameter nodes.

iii) Partitions.

iv) Activity states.

**P.T.O.**

- b) Consider a software system like 'Account System' Assume that there are Use Cases defined like 'View Salary', 'Input Salary parameters', 'View all the deductions', 'Optionally Send/Forward employee payslip as an Email'. Show how Use Case relationships like Includes, Generalization, and Extends can be used to appropriately model above use cases and their relationships in context of use case diagrams. [8]

OR

- Q4)** Draw an activity diagram for the business process describe below: [16]

A student applies for interview in the company. He can join one of the posts in the company. The student applications are sorted on merit. Top students with their screen testing are offered the job on merit order. The joining process involves students being shown available posts. Students select a posts, chooses optionally, a hostel seat, in parallel makes expected payments, select membership to gym, and select selective training to attend. On successfully appointment he enrolled, given a I-card, and is given a copy of appointment order. The students not being given job can register their interest in waitlist. Make additional assumptions about scope use advanced activity diagram 2.0 features if relevant.

- Q5)** a) With reference to composite structure diagram explain with example following. [8]
- i) Elements-port
  - ii) Port
  - iii) Connector
  - iv) Collaboration
- b) Explain the relation of package to sequence diagram. give the example for package diagram of sequence diagram. [8]

OR

- Q6)** a) What is visibility of package? Explain with examples. [8]
- b) Show the generalisation among packages. Explain with example. [8]

## SECTION - II

- Q7)** a) Explain the difference between sequence & collaboration diagram with examples. [9]
- b) Draw a SEQUENCE diagram for schedule a 'Examination Schedule'. Here are some of the assumptions. The Controller of examination interacts through a (GUI) form to schedule the meeting for having schedule of examination. A special control object called scheduler does the automated meeting scheduling & schedule of examination. the scheduler bases its decision on free slots in the (Entity object) timetable. The entire faculties, examiners, officers involved will get an invitation through an SMS on their mobiles for their examination, meeting & appointment by giving two-folded passwords. The system depends on an external Mobile Gateway subsystem to handle forwarding SMS's. [9]

OR

- Q8)** a) Explain the five parts of transition. [9]
- i) Source state
  - ii) Event Trigger
  - iii) Guard condition
  - iv) Action
  - v) Target state
- b) Draw a state machine diagram for an automated Coffee machine or ATM System. Make suitable assumptions and clearly state the assumptions made. [9]
- Q9)** a) Give the significant difference between class & components with example. [8]
- b) Give the relations between Components & interfaces with examples.[8]

OR

- Q10)**a) When you model & draw components in the UML & How? [8]
- b) Explain the "modelling of source code". [8]

- Q11)**a) Draw structure design pattern of Abstract Factory pattern and when to use? [8]
- b) What are the implementation issues of FACADE? What are the benefits? [8]

OR

- Q12)** Give the concept of Forward Engineering and Reverse Engineering of UML Diagrams with taking suitable examples in detail (for Coding, C++ or Java Can be used). [16]

