MCA/ M-12
Object Oriented Methodology
Paper-MCA-404

Time allowed: 3 hours **M.M.: 80**

Note: Attempt any five Questions, selecting at least one question from each Unit. Question No. 1 is Compulsory.

1. Answer the following questions in brief:
   (a) What do you mean by "Unified" in UML?
   (b) What are extensibility mechanisms in UML? Explain.
   (c) Distinguish between strongly typed and untyped programming languages.
   (d) What are constraints? Explain with examples.
   (e) Define event, state, activity, action, guard and control flow.
   (f) What is an actor? How do you identify actors?
   (g) What are hardware-software trade-offs ?
   (h) List guidelines for programming-in-the-large

UNIT-I

2. (a) What are different types of relationships in UML? Give one suitable example for each.
   (b) What is use case diagram ? Draw an object diagram for an order processing system.

3. (a) What is object diagram in UML? What are 'extend' and 'include' relationship? Draw a use case diagram for student assessment management system.
   (b) What is sequence diagram? Draw a sequence diagram for a session with an online stock broker.

UNIT-II

4. Distinguish between the following :
   (a) Abstraction and Encapsulation
   (b) Link and Association
   (c) Abstract Class and Meta data
5. (a) What are multilevel, multiple and hybrid inheritance ? Give one example for each.
   (b) What is class diagram? Draw a class diagram for graphic document editor.

Unit-III

6. (a) What are limitations of state diagram? How these are overcome by the event-trace diagram to make a phone call.
   (b) Explain aggregation concurrency and synchronization of concurrent activities by using suitable example and OMT notations
7. (a) How do you add operations to object model from dynamic and functional model?
   (b) What is context diagram? How is it different from Level-0 DFD? Draw a DFD for Library Management System.

UNIT-IV

8. (a) How do you organize a system into partitions and layers ? Explain
   (b) Discuss the design decisions made regarding handling of global resources

and boundary conditions.

9. (a) What do you mean by robustness of a method? Discuss guidelines to write robust methods.

(b) Discuss techniques used to optimize designs during object design phase of OMT.