

**MCA/MX****5269****Object Oriented Methodology****Paper : MCA-404**

Time : Three Hours]

[Maximum Marks : 80

**Note :-** Attempt **FIVE** questions in all, selecting **ONE** question from each Unit and Question No. 1 is compulsory.

1. Answer the following questions in brief:

- What are extensible mechanisms of UML ?
- What do you mean by common divisions mechanisms of UML ?
- How abstraction and encapsulation are related ?
- What are ternary and m-ary associations ? Give examples.
- Distinguish between control flow and data flow by giving suitable examples.
- Differentiate between action and activity by giving examples.
- How do you make your design decision about storage management ?
- What do you mean by programming-in-the-large ?  $8 \times 3 = 24$

**UNIT-I**

- What are structural things of UML ? Explain each by giving one example. 7
  - What are different types of relationships in UML ? Explain each by giving examples. 7
- What is use case diagram ? Draw a use case diagram for a library system. 7
  - Explain activity and deployment diagrams of UML by giving examples. 7

**UNIT-II**

- Explain modularity, typing and persistence of objects. 7
  - What is association ? Discuss the properties of an association used in object modelling by giving suitable examples. 7
- What is object model of OMT ? What is class diagram ? 7
  - Prepare a class diagram for a graphical document editor that supports grouping. Assume that a document consists of several sheets. Each sheet contains drawing objects, including text, geometrical objects and groups. A group is simply a set of drawing objects, possibly including other groups. A group must contain at least two objects at least two drawing objects. A drawing object can be a direct member of at most one group. Geometrical objects include circles, ellipses, rectangles, lines and squares. 7

**UNIT-III**

- What are aggregation concurrency and concurrency within an object ? How these are supported by a state model ? Explain by giving examples. 7
  - Draw a nested state diagram for a phone line. 7
- What is functional model ? How is it related to dynamic and object model ? 7
  - What is DFD ? Draw a DFD for issuing a book from a library. 7

**UNIT-IV**

- Explain the following design decisions in detail :
  - Organize the system into subsystems 7
  - Handle boundary conditions. 7
- Explain the following activities of object design :
  - Design of algorithms 5
  - Design optimization 4
  - Design of associations. 5