

**MASTER OF COMPUTER
APPLICATIONS**

(MCA) (REVISED)

Term-End Examination

June, 2026

**MCS-032 : OBJECT ORIENTED ANALYSIS AND
DESIGN**

Time : 3 Hours

Maximum Marks : 100

Note : *Question No. 1 is compulsory. Attempt
any **three** questions from the rest.*

1. (a) Read the situation given below :

“An Institute wants to conduct entrance test in online mode. The system developed for this activity should accept online registration form. The system should verify registration fees paid and eligibility criteria. Also, the system

should allocate the examination centre and generate examination hall tickets.

Make necessary assumptions wherever required and perform the following for this system : 5+5+5+5

- (i) Draw class diagram.
 - (ii) Draw object diagram.
 - (iii) Draw use case diagram.
 - (iv) Draw state diagram.
- (b) Differentiate between RDBMS and OODBMS. 5
- (c) Can we transform a DFD of 1st level into a use case diagram. Justify your answer. 5
- (d) Differentiate between object oriented modelling and structural modelling. Also match the following models with the diagrams : 5

Diagram**Model**

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|-----------------------|------------------------|
| (a) Class diagram | (i) Dynamic model |
| (b) Data flow diagram | (ii) Object model |
| (c) State diagram | (iii) Functional model |

- (e) Differentiate between structural diagram and behavioral diagram. Also match the following : 5

(I)**(II)**

- | | |
|-------------------------|--------------------------|
| (a) Structural diagram | (i) Class diagram |
| (b) Behavioural diagram | (ii) Component diagram |
| | (iii) Use case diagram |
| | (iv) State chart diagram |

2. (a) Describe the term 'Association' in context of object oriented modeling. How does binary association differs from ternary association ? Give example of each association. 8
- (b) Explain extended three-schema architecture for object models with the help of a diagram. 7
- (c) Define Integrity constraints. Explain the types of Integrity constraints. 5
3. (a) What do you understand by the term serialization ? Where is it required ? And why it is required ? 5
- (b) Draw sequence diagram for sending an e-mail to your friend. 5
- (c) Describe the term persistence in UML. How can you make data persistent ? 5
- (d) Draw use case diagram for online reservation of Railway ticket. 5

4. Discuss the following with suitable example for each : $4 \times 5 = 20$
- (a) Deployment diagram
 - (b) Collaboration diagram
 - (c) Sequence diagram
 - (d) Activity diagram
5. Write short notes on the following : $5 \times 4 = 20$
- (a) Characteristics of Object Oriented Modeling (OOM)
 - (b) Abstraction and its utility in OOM
 - (c) Generalization and Specialization
 - (d) Design flaws in DFD
 - (e) Advantages and disadvantages of object oriented databases

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