

MASTER OF COMPUTER APPLICATIONS (MCAOL)

1) ASSOCIATION (One-to-One / General Association / Links)

Repeated 6 times

Shows up in almost every paper.

Topics repeated:

- What is association?
- Types of association
- One-to-one association + implementation
- Bidirectional vs unidirectional
- Use of link in representing association

Years:

June-2023, Dec-2023, June-2024, Dec-2024, June-2025 (multiple questions)

2) INHERITANCE / GENERALIZATION / SPECIALIZATION

Repeated 6 times

Content repeated:

- What is inheritance?
- Advantages of inheritance
- Generalization vs Specialization
- Inheritance adjustments
- Semantic rules of inheritance

Years: All 5 papers.

3) USE CASE DIAGRAM

Repeated 5 times

Appears as:

- Make use case diagram for system
- What is use case diagram?

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- Components of use case diagram
- Objectives of use case diagram

Years: June-2023, Dec-2023, June-2024, Dec-2024, June-2025

4) STATE DIAGRAM / STATE TRANSITION DIAGRAM

Repeated 4 times

Systems asked:

- Online Admission
- ATM
- Online Examination
- Explanation of events, states, transitions

Years: June-2023, Dec-2023, Dec-2024, June-2025

5) CLASS DIAGRAM

Repeated 4 times

Very common.

Tasks repeated:

- Draw class diagram for a system
- Class diagram for ATM
- Class diagram for Online Examination
- Class diagram for Online Admission

Years: 2023–2025 multiple papers.

6) DFD (Level-0, Level-1, Level-2)

Repeated 5 times

Systems:

- Online Admission

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- Online Examination
- Online Banking

Also:

- What is DFD?
- Advantages of DFD
- Balancing of DFD

Years: June-2023, June-2024, Dec-2024, June-2025

7) ACTIVITY / SEQUENCE / COLLABORATION DIAGRAMS

Repeated 4–5 times

Repeated tasks:

- Sequence diagram for a system
- Activity diagram (online shopping, etc.)
- Collaboration diagram
- Creating methods from collaboration diagram

Years: multiple papers from 2023–2025.

8) AGGREGATION

Repeated 4 times

Content repeated:

- What is aggregation?
- Aggregation vs generalization
- Aggregation example
- Aggregation in design
- Immutable association (related)

Years: June-2023, Dec-2023, June-2024, Dec-2024

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9) OBJECT DIAGRAM / OBJECT MODEL / PERSISTENT OBJECT

Repeated 4 times

Topics:

- What is object diagram?
- Draw object diagram
- Persistent vs transient objects
- Object model

Years: 2023–2025

10) DESIGN DOCUMENTATION

Repeated 4 times

Patterns:

- What is design documentation?
- Features of a good design doc
- Need & types of design documentation

Years: 2023–2025

11) CONCURRENCY / SYNCHRONIZATION

Repeated 3 times

Topics:

- Need for concurrency management
- Concurrency example
- Time-critical systems

Years: June-2023, June-2024, Dec-2024

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12) DYNAMIC MODEL

Repeated 3 times

Years: 2024–2025

13) MAPPING OBJECT CLASSES TO DATABASE TABLES

Repeated 3 times

Years: Dec-2023, Dec-2024, June-2025

14) SERIALIZATION

Repeated 3 times

Years: Dec-2023, Dec-2024, June-2024 (indirect)

15) OOAD BASICS (Principles, Advantages, Philosophy)

Repeated 4 times

Years: Dec-2023, June-2024, Dec-2024, June-2025

THE MOST IMPORTANT (REPEATED ACROSS ALL YEARS)

1. **Association (esp. One-to-One)**
 2. **Inheritance / Generalization**
 3. **Use Case Diagram**
 4. **DFD (0,1,2 Levels)**
 5. **Class Diagram**
 6. **State Diagram**
 7. **Aggregation**
 8. **Design Documentation**
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