

**MASTER OF COMPUTER
APPLICATIONS (MCA) (REVISED)**

Term-End Examination

December, 2024

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

Time : 3 Hours

Maximum Marks : 100

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

1. (a) UML is meant for which phase of SDLC ?
Briefly discuss the behavioural diagrams
in context of UML. 5

- (b) What is the requirement of DFD in
software development ? Under which
model of OOAD (Object Oriented Analysis
and Design) is it drawn ? Describe the
meaning of various notations used to
construct DFD. 5

- (c) How entities in ERD, relates to DFD ?
Explain with a suitable example. 5
- (d) What is the purpose of use-case diagram ?
What is the similarity in use case diagram
and dataflow diagram ? Discuss with a
suitable example. 5
- (e) Differentiate between Object Oriented
Databases and Relational Databases. 5
- (f) What are Associations in UML ? How do
they differ from Links ? 5
- (g) Class diagram belongs to which model of
OOAD ? Briefly discuss the various
notations used to draw the class diagram. 5
- (h) State diagram belongs to which model of
OOAD ? Briefly discuss the various
notations used to draw the state diagram. 5
2. Discuss the following diagrams. Your
discussion must include the utility of each
diagram and the meaning of the various
notations used to draw them : 5+5+5+5
- (i) Sequence diagram

- (ii) Collaboration diagram
- (iii) Activity diagram
- (iv) Deployment diagram

3. Read the situation given below :

“A university wants to computerize its admission process. The system should accept online applications for different programmes offered during respective admission cycles. Further, the system is also desired to verify the eligibility criteria, offer admission letter, accept fees through draft/cash/credit cards, allocate study centre and dispatch ID cards to the students.”

Now, perform the following tasks; for the situation given above :

5+5+5+5

- (i) Draw class diagram
- (ii) Draw object diagram
- (iii) Draw use-case diagram
- (iv) Draw dataflow diagram

4. (a) Explain three level architecture for RDBMS with the help of a suitable diagram. 7
- (b) What do you understand by data persistence ? How will you transform a non-persistent data to a persistent one ? Explain with a suitable example. 6
- (c) Briefly discuss the concept of role names in a class diagram. Use this concept of role names, while drawing class diagram for the following situation ‘Many employees work for a company, among them, one is a manager.’ 7
5. Write short notes on the following : 5+5+5+5
- (a) Association and its types
- (b) Object Interoperability and its utility
- (c) Object serialization and its utility
- (d) Integrity constraints and its types

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