

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

Term-End Examination

December, 2022

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

Time : 3 Hours

Maximum Marks : 100

***Note : Question number 1 is compulsory. Answer
any **three** questions from the rest.***

1. (a) Draw the following diagrams (for an admission system) of an Institution. The brief details of the proposed system are given below : 5+5+5+5

- (i) Class diagram
- (ii) Object diagram
- (iii) Use case diagram
- (iv) Dataflow diagram

“An institution wants to computerise its admission process. The system should accept online application for different programmes, offered during respective admission cycles. Further, the system desires 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.” Make necessary assumptions.

- (b) Discuss the notations of state diagram, and use them to draw state diagram for online reservation of airline tickets. 5
- (c) What are integrity constraints ? Briefly discuss the types of integrity constraints, with suitable example for each. 5
- (d) Draw a sequence diagram for sending an e-mail to your friend. Briefly discuss the meaning of various notations used in sequence diagram. 5
- (e) Compare the terms model and system. Give suitable example for each. 5

2. (a) Compare object model, dynamic model and functional model. Specify the diagrams drawn under each model. Among the three models, which model is mostly used and why ? Give justification for your answer. 7
- (b) How does a good software design differ from a bad software design ? Critically comment on the role of UML models in software designing. 5
- (c) Differentiate between the following : 4+4
- (i) Aggregation and Association
- (ii) Object oriented database and Relational databases
3. Discuss the following, with suitable example for each : 4×5=20
- (a) Deployment diagram
- (b) Activity diagram
- (c) Collaboration diagram
- (d) Control of states and events in a system

4. (a) What is Association in the UML diagram ?
Briefly discuss various types of associations available in UML. 5
- (b) Compare structured analysis and object oriented analysis approach. Give advantages and disadvantages of both. 5
- (c) Differentiate between generalization and specialization with the help of an example. 5
- (d) Briefly discuss the terms “Object Oriented Analysis” and “Object Oriented Design”. 5
5. (a) Compare ternary associations and binary associations. Show the process of mapping ternary associations to tables, through an example. 7
- (b) Briefly discuss the different notations of DFD. How datastores in DFD are connected to ERD ? 5
- (c) Write short notes on the following : 4+4
- (i) Object ID and its advantages
 - (ii) Design optimization