

**MASTER OF COMPUTER
APPLICATIONS (MCA) (Revised)
Term-End Examination
June, 2022**

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

Time : 3 Hours

Maximum Marks : 100

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

1. (a) Compare structured analysis and object oriented analysis approaches with the help of examples. 5

- (b) What are associations ? How can we implement them in C++/Java ? Explain with suitable example/code. 5

- (c) What is message passing ? What are the benefits of message passing ? 5

- (d) What is inheritance ? Discuss different types of inheritance with the help of suitable example or diagram. 5
- (e) What is a use-case diagram ? Draw use-case diagram for a Railway reservation system. 5
- (f) A University offers Bachelors and Masters Level Programme. The University wants to develop an Online Students Admission System. This system will register the eligible students in various programmes and will provide facility for online fee submission. Perform the following for this system. Make necessary assumptions :
- (i) Identify the objects in the system. 5
- (ii) Draw class diagram of the system. 5
- (iii) Draw use-case diagram of the system. 5
2. (a) What is an activity diagram ? Explain how activity diagrams are designed in an object oriented approach. Also draw an activity diagram for E-mail encryption. 10

- (b) Explain Component diagram and Deployment diagram with the help of examples. 10
3. (a) What is a collaboration diagram ? Discuss the utility of collaboration diagram in object oriented systems. Draw collaboration diagram for railway ticket reservation system. 10
- (b) Write short notes on the following : $2\frac{1}{2} \times 4 = 10$
- (i) Association and its types
 - (ii) Modelling with objects
 - (iii) Concurrency control
 - (iv) Integrity constraints
4. Differentiate between the following : $5 \times 4 = 20$
- (a) Class and Object
 - (b) Generalization and Specialization
 - (c) Sequence diagram and Collaboration diagram
 - (d) Functional modelling and Dynamic modelling
 - (e) Composition and Association

5. (a) Briefly discuss the various notations of Data Flow Diagram (DFD). Draw a DFD (upto level 2) for a General Store Management System. Make necessary assumptions, wherever required. 10
- (b) Discuss the various notations of a state diagram. Draw the state diagram for online shopping of a book. 10