

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

Term-End Examination

December, 2021

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) What is object oriented modelling ? Briefly explain the steps involved in object oriented modelling. 6
- (b) What is encapsulation ? Explain benefits of encapsulation with the help of an example. 4
- (c) Draw a state chart diagram for withdrawal of money from a savings account from a bank counter. Make necessary assumptions. 10
- (d) What is association ? Explain how two-way associations are implemented, using an example. 10
- (e) Draw a class diagram for library management system. Make necessary assumptions. 5
- (f) What is serialization ? Explain why and where it is used. 5

2. (a) Draw a sequence diagram for online admission system of a university. Make necessary assumptions. 10
- (b) Explain how generalizations are mapped to a table using an example. 10
3. (a) Differentiate between the following : $2 \times 5 = 10$
- (i) Generalization and Specialization
- (ii) Object Modelling and Functional Modelling
- (b) Draw a DFD up to 2nd level for online doctors appointment system of a hospital. Make necessary assumptions. 10
4. (a) Explain why object oriented modelling is better than structured modelling approach, considering concepts of abstraction, encapsulation, inheritance and polymorphism. 10
- (b) Draw a use case diagram for e-mail system. 5
- (c) What is object oriented database ? Explain its advantages. 5
5. Write short notes on the following : $4 \times 5 = 20$
- (a) Deployment Diagram
- (b) Activity Diagram
- (c) Concurrency Control
- (d) Dynamic Model