

Dr. Babasaheb Ambedkar Open University

Term End Examination July – 2026

Course: BCA

Date: 07-07-2026

Subject Name: Object Oriented Analysis and Design

Time: 11:30am to 01:45pm

Subject Code: BCA-502

Total Marks: 70

Section A

Answer the following (Attempt any three)

30 Marks

1. Explain the major phases of the software life cycle also describe the advantages and disadvantages of prototyping.
2. Discuss the importance of Object-Oriented Modelling with dynamic object modelling technique.
3. What is UML? Describe its components with appropriate example.
4. define component technology. explain the main differences between components and objects.
5. What are object-oriented methodologies? Explain object-oriented software engineering in detail.

Section B

Answer the following (Attempt any four)

20 Marks

1. What is pseudocode? Explain the basic logic structures used in pseudocode.
2. Explain the concept and importance of business domain modelling.
3. Differentiate between a class and an object in the object-oriented paradigm.
4. What is a state transition diagram? list any four key elements of state diagrams.
5. Describe JavaBeans and list the conventions that must be followed to create a Java Bean.
6. Briefly explain the deployment diagram with its purpose and an example.

Section C

Part – A (Multiple Choice Questions)

10 Marks

1. In a flowchart, a generic process flow step is represented by a:
A. Oval
B. Diamond
C. Rectangle
D. Circle
2. Which UML diagram models the behavior of a system and how behaviors are connected in an overall flow?
A. Class Diagram
B. Activity Diagram
C. Object Diagram
D. Deployment Diagram
3. Which of the following notations is used to represent a physical component of the system like a server or network?
A. Component
B. Node
C. Interface
D. Use Case
4. A state transition diagram is graphically used to represent:
A. The behavior of an object as it passes through states
B. Class hierarchy and inheritance
C. Database relational structure
D. Package dependencies
5. What is the primary purpose of an open standard in software components? .
A. To limit market access for competitors
B. To increase the market for a technology by enabling consumers to invest without paying monopoly rent
C. To maximize royalty fees for software developers
D. To enforce strict trade secrets
6. Which methodology focuses heavily on customer satisfaction, empowering developers to respond to changing needs, and emphasizes teamwork?
A. Extreme Programming (XP)
B. Booch Method
C. Object Modelling Technique (OMT)
D. Fusion Method

7. Which diagram resembles a flowchart that portrays the roles, functionality, and behavior of individual objects, and uses numbered arrows for message sequencing?
 - A. Deployment Diagram
 - B. Collaboration Diagram
 - C. Package Diagram
 - D. Component Diagram
8. In an Object Model, the only way one object can access the data of another object is by:
 - A. Inheriting its private data
 - B. Using a global variable
 - C. Invoking the method of that other object (sending a message)
 - D. Directly querying the database
9. JavaBeans is a reusable software component architecture specifically for which language?
 - A. C++
 - B. Python
 - C. Java
 - D. COBOL
10. A use-case diagram is used to graphically depict:
 - A. Subset of the model to simplify communications regarding user interactions
 - B. Hardware nodes and physical topology
 - C. Database tables and relationships
 - D. Complex software algorithmic loops

Part - B (Do as Directed)

10 Marks

1. Define 'Actor' in the context of a UML Use Case Diagram.
2. A class is a collection of things or ideas that have the same characteristics. (True/False)
3. In UML, _____ is represented by a dotted ellipse and represents a group of responsibilities.
4. Object-oriented models rely solely on data and processing, rather than on objects. (True/False)
5. What is a 'Pseudo state' in a state chart diagram?
6. Components are large-grained entities, whereas objects are fine-grained entities. (True/False)
7. A _____ diagram shows the dependencies between different packages in a system.
8. Name the three major aspects used by Object Process Methodology (OPM) to achieve model integration.
9. The Fusion method gives a systematic approach to object-oriented software development by providing a direct route from requirements definition to implementation. (True/False)
10. _____ is the process of building a model of a system to help designers build an intuitive information system for end-users.

!~~~~~ Best of Luck ~~~~~!