

Dr. Babasaheb Ambedkar Open University, Ahmedabad

Term-End Examination : January-2026

Course Name : MSCIT

Subject Name : Object Oriented Technology

Subject Code : MSCIT-303

Date : 18-02-2026

Time : 03:00PM TO 05:15PM

Max Marks : 70

Section A

Q.-1. Answer the following (Attempt any three) (30)

- (1) Compare and contrast Java AWT and Java Swing, detailing at least five significant differences and explaining the benefits of lightweight components.
- (2) Describe the JTree component, explaining how it represents hierarchical data and the various event models (Expansion, Selection, and Model) it generates.
- (3) Discuss the JDBC Architecture in detail, explaining the role of the java.sql and javax.sql packages and the process of establishing a database connection.
- (4) Explain the lifecycle of a Java Servlet, discussing the purpose and timing of the init(), service(), and destroy() methods as managed by the container.
- (5) Describe the MVC (Model-View-Controller) architecture in the context of Java Web development, detailing the roles of JSPs, Servlets, and Java Beans.

Section B

Q.-2. Write short notes on any four of the following topics. (20)

- (1) Differentiate between AWT and Swing components based on platform dependency and the use of the MVC architecture.
- (2) Explain the "Lightweight" nature of Swing components and how it contributes to platform independence.
- (3) Explain the functionality of the isPopupTrigger() method in the context of creating a JPopupMenu.
- (4) What is the Class.forName() method used for during the JDBC driver registration process?
- (5) Describe the doGet() and doPost() methods and explain when each is typically utilized in an HttpServlet.
- (6) Identify and briefly define three JSP scripting elements: Declarations, Scriptlets, and Expressions.

Section C

Q.-3. Choose the correct option (A, B, C, or D). (10)

(1) Which architecture does Java Swing follow to support multiple look-and-feels?

- | | |
|--------------------------|------------------|
| A) Monolithic | B) Layered |
| C) Model-View-Controller | D) Client-Server |

(2) Unlike AWT components, Swing components are described as being?

- | | |
|-----------------------|----------------|
| A) Heavyweight | B) Lightweight |
| C) Platform-dependent | D) Peer-mapped |

(3) Which event is generated when a JButton is pressed?

- | | |
|----------------|----------------|
| A) ItemEvent | B) ActionEvent |
| C) ChangeEvent | D) MouseEvent |

(4) Which JDBC driver type is currently considered the industrial standard?

- | | |
|-----------|-----------|
| A) Type 1 | B) Type 2 |
| C) Type 3 | D) Type 4 |

(5) Which protocol in the java.net package allows for reliable communication between two applications?

- | | |
|--------|---------|
| A) UDP | B) IP |
| C) TCP | D) HTTP |

(6) What is the process of converting messages into a proper binary format for RMI transmission called?

- A) Unmarshalling
- B) Marshalling
- C) Serialization
- D) Compiling

(7) Which Servlet type is protocol-independent and must override the service() method?

- A) HttpServlet
- B) GenericServlet
- C) JspServlet
- D) BaseServlet

(8) In JSP, which scripting element is specifically used for declaring variables, methods, and classes?

- A) Scriptlet
- B) Expression
- C) Declaration
- D) Directive

(9) Which JSP implicit object is an instance of javax.servlet.jsp.JspWriter?

- A) request
- B) out
- C) response
- D) application

(10) In the MVC architecture for web applications, which component typically represents the "View" layer?

- A) Servlet
- B) Java Bean
- C) JSP
- D) Database

Section D

Q.-4. State whether the following statements are true or false

(10)

- (1) JFrame.EXIT_ON_CLOSE ensures that the application terminates when the frame is closed.
- (2) The JApplet class extends the AWT Applet class to support the Swing architecture.
- (3) JRadioButton objects must be added to a ButtonGroup to ensure only one is selected at a time.
- (4) A JMenuBar is attached to a JFrame using the setMenuBar() method.
- (5) JDBC Type 4 drivers are known as JDBC-ODBC bridge drivers.
- (6) A Socket is simply an endpoint for communication between two machines.
- (7) Servlets are robust and scalable because they are based on the Java language.
- (8) The RequestDispatcher.forward() method is used for client-side redirection to a new URL.
- (9) The JSP Declaration tag is used to encapsulate code into the _jspservice() method.
- (10) The jsp:useBean action is used to instantiate a Java Bean and access its properties in a JSP page.
