

(3 Hours)

[Total Marks: 100]

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any two of the following:** 10
 - a. Write and explain steps for Java Database Connectivity.
 - b. What is Enterprise Java Beans? Explain its advantages.
 - c. Explain JTable class in swing with its constructors and methods.
 - d. Write a short note on Java Mail Protocols.

2. **Attempt any three of the following:** 15
 - a. Explain Delegation Event Model.
 - b. Differentiate between Swing and AWT components.
 - c. What is layout manager? Explain BorderLayout with an example.
 - d. Explain CheckboxGroup with an example.
 - e. How menus are created in java? What are the classes used for creating menus? Explain with an example.
 - f. Write a swing program to create GUI to check the number entered in the text box is even or odd.

3. **Attempt any three of the following:** 15
 - a. Explain life cycle of a Servlet.
 - b. Why to use Servlets? What can Servlets do?
 - c. What is RequestDispatcher? What are its two methods?
 - d. Explain HttpServletRequest and HttpServletResponse Interface.
 - e. Write a short note on javax.servlet package.
 - f. Write a servlet program to display the simple sentence Welcome along with the name entered by the user through an HTML Form.

4. **Attempt any three of the following:** 15
 - a. Explain all JDBC Drivers.
 - b. Explain difference between statement and prepared statement.
 - c. Explain directives and actions in JSP.
 - d. Write a short note on Session Tracking in JSP.
 - e. What are the different types of Unified Expression Language? Explain all in detail.
 - f. Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.

5. **Attempt any three of the following:** 15
 - a. List and explain all the components of Java Server Faces
 - b. List and explain types of session beans.
 - c. What is meant by Renderer? What are its types?
 - d. Write a short note on Message Driven Bean.
 - e. Explain the Model View Controller pattern used in the JSF.
 - f. Explain life cycle of Stateful Session Bean.

[Turn Over]

6. Attempt any three of the following:**15**

- a. What is hibernate? What are different RDBMS supported by hibernate?
- b. Explain the concept of Object Relational Mapping.
- c. What is struts? Explain its architecture.
- d. Explain all the configuration files created in hibernate applications.
- e. Explain the components of Hibernate.
- f. What are the mandatory steps used by the struts?

7. Attempt any three of the following:**15**

- a. Explain the basic steps for creating the web services and client.
- b. Write a short note on JavaMail Architecture.
- c. Explain the Naming and Directory Services in JNDI.
- d. Explain the following terms:
 1. Mail server
 2. Message Store
 3. Message Transfer Agent
 4. Mail User Agent
 5. Messaging System
- e. List and Explain packages and methods required in JNDI.
- f. What are the requirements for Java API for XML [JAX-WS] endpoint?