(3 Hours)   **Total Marks: 100**

N.B   **1) All questions are compulsory.**
          2) Figures to the right indicate full marks.
          3) Illustrations, in-depth answers & diagrams will be appreciated.
          4) Mixing of sub questions is not allowed.

1. **Write short notes on (any four)**   **20**
    A. Cookies
    B. JTabbedPane
    C. ResultSet
    D. RMI Registry Service
    E. Life Cycle of a Stateful Session Bean
    F. Servlet Life Cycle

2. **Attempt the following(any Four)**   **20**
    A. Explain PreparedStatement using Code Snippets.
    B. How are swing components different from AWT components?
    C. Explain RootPane Container and also specify its four Parts.
    D. Describe the way a stored procedure is called in JDBC.
    E. Write a Java Program to create JFrame containing JDesktopPane which has a single
       JInternalFrame.
    F. Write a JDBC program to accept table name and display only column names.

3. **Attempt the following(any four)**   **20**
    A. State and describe 2 methods of creating a Thread based java program.
    B. What is synchronization? What are the various ways to synchronize the Thread?
       Explain using programming snippet.
    C. Explain the class URLConnection.
    D. Write a short note on RMI Architecture.
    E. Explain the role of following classes with any of its two methods:
            i. Socket   ii. ServerSocket
    F. Write a Java program to create only a TCP Server Program that listens to port 2350 to
       accept client connection.

4. **Attempt the following(any four)**   **20**
    A. Explain the Java Servlet Architecture.
    B. Explain following Interfaces:
            i. ServletContext   ii. ServletConfig
    C. Write a short note on JSP include directive.
    D. Explain error handling mechanism in JSP with code snippet.
    E. Explain jsp:usebean tag with an example.
    F. Write a Servlet which reads a value from Cookie which is already set and display the
       value on the Screen.

5. **Attempt the following (any four)**   **20**
    A. List and explain call back methods of stateless session bean.
    B. Explain the architecture of EJB.
    C. Explain SOAP, UDDI and WSDL.
    D. What is JAX-WS? Explain the uses of JAX-WS.
    E. Write a short note on Message Driven Bean.
    F. Write a web service program which will return factorial of a number passed to it.

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