

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 right indicate marks.
- (5) Draw neat labeled diagrams wherever necessary.
- (6) Use of non-programmable calculations is allowed.

1. Attempt any two of the following 10
  - a) Difference between AWT and Swing.
  - b) List the different ways of session tracking. Write syntax for adding cookie file in Java.
  - c) What are the various methods of Statement interface in JDBC.
  - d) What is Email ? Explain the anatomy of Email message.

2. Attempt any three of the following 15
  - a) Explain any three Event classes with their respective Event Listeners
  - b) Write a program in swings to accept the username and password from the user and display message in a messagebox "Valid user" if username and password is "admin" else "Invalid user".
  - c) Explain event delegation model with an example.
  - d) Explain the various Text Components along with its constructors.
  - e) Create a JTable as follows :

Name	Address	Phone
Abc	Lmn	123
Pqr	www	456

- f) Write a java program to demonstrate JTree.
3. Attempt any three of the following 15
  - a) Explain HttpServlet with its constructors and methods.
  - b) Write a servlet application to accept a number from the user and display the square and cube of the number.
  - c) List and explain any 3 interfaces in javax.servlet package.
  - d) Why servlet is preferred over CGI
  - e) Explain the life cycle of servlet.
  - f) Write a program to demonstrate session tracking using HttpSession interface.

4. Attempt any three of the following 15
  - a) Explain the type 1 driver used in JDBC.
  - b) Explain the scrollable and updatable resultsets in JDBC
  - c) List the four object scopes in JSP. Demonstrate any one with example.
  - d) Write a JDBC program that inserts values in database using prepared statement through keyboard input. [TABLE NAME: Employee. FIELDS: Empid, Name, Dept, Designation]
  - e) List and explain various implicit objects used in JSP.
  - f) Write the syntax of various tags used in JSP.

5. Attempt any three of the following 15
- a) Write a short note on MVC architecture
  - b) Explain the advantages of EJB.
  - c) Explain in detail the phases of JSF Life cycle.
  - d) Explain the structure of faces-config.xml file
  - e) Write a model and navigation rules to find the simple interest of a given principal, interest and terms. (in JSF)
  - f) List and explain the various types of beans.
6. Attempt any three of the following 15
- a) Explain the structure of hibernate.cfg.xml
  - b) Explain the importance of mapping and show the creation of mapping file in hibernate framework.
  - c) Write a short note on interceptors in struts.
  - d) Explain hibernate architecture
  - e) What is value stack in struts ? State and explain the execution flow of value stack.
  - f) Explain in detail the core components of struts framework.
7. Attempt any three of the following 15
- a) What are naming and directory services.
  - b) Explain the different types of Mail protocols.
  - c) Write a short note on following
    - Session in Java Mail.
    - Authenticator.
  - d) Explain the components of web service.
  - e) Write a short note on SOAP
  - f) Write a short note on java mail API.

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