

- 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. Explain the use of adapter classes with suitable example.  
 b. Explain the event delegation model.  
 c. Write AWT based Java program that will read a string from user and display the number of characters in the string.  
 d. List various Event listener interfaces. Explain any two.
2. Attempt any two of the following: 10  
 a. Write a Java program using swing components that displays table containing employee information.  
 b. What is use of JColorChooser? Write down the constructors and methods of the same.  
 c. Write a Java program using swing components to display tabbed pane with three tabs for First for FirstYear, Second for Second Year and Third for Third year. Every tab displays a list of all subjects of the respective years.  
 d. Explain JTree with example.
3. Attempt any two of the following: 10  
 a. Explain the ServletRequest and ServletResponse interface of Servlet.  
 b. Write a servlet program to display the factorial of a given number.  
 c. What is servlet? What are different tasks carried out by servlets?  
 d. List various classes of Servlet API. Write the purpose of each.
4. Attempt any two of the following: 10  
 a. What are the disadvantages of JSP? Explain.  
 b. List various directives of JSP. Explain any two.  
 c. List and explain different types of JDBC drivers.  
 d. Write the purpose of the following JDBC classes  
 i. DriverManager    ii. ResultSet    iii. Statement    iv. Connection  
 v. PreparedStatement
5. Attempt any two of the following: 10  
 a. List and explain various phases of JSF lifecycle..  
 b. What is Facelet? Write the features of Facelet.  
 c. Write the benefits of EJB.  
 d. Write the code that defines stateless bean which converts an amount from one currency to another.

Contd...

6. Attempt any two of the following:

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- a. What are interceptors in struts? Explain the execution flow of interceptors.
- b. With suitable diagram explain the architecture of hibernate.
- c. What is Value stack? Explain.
- d. What is the purpose of Hibernate mapping file?  
Write the Hibernate mapping file that maps the application to the table GuestBook of GuestBook database. GuestBook table contains the columns VisitorNo (Unique Integer, VisitorName varchar(75), VisitorMessage varchar(100) ,MessageDate varchar(20).

7. Attempt any three of the following:

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- a. Write AWT based Java program that demonstrate the use of checkbox and radiobuttons.
- b. Write a Java program using swing components to divide the window into two horizontal windows. First window displays a text box, a label and a button. Textbox is used to accept a number from user. When user clicks on button the table of the number is displayed in second window
- c. What is the purpose of WEB-INF file? Explain.
- d. Explain the Request and Response implicit objects of JSP.
- e. List and explain different types of Enterprise Beans.
- f. What is the use of Action component of Strut 2? Write and explain various roles of Action component.