

(2½ hours)

Total Marks: 75

- 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:

- a. What is event? List various event classes in Java. Explain any two event classes. 6/11/18
 b. What is the use of adapter class? Explain with suitable example.
 c. List various layouts used in Java. Explain any two with example.
 d. Write AWT based Java program that will read a number from user (TextBox) and display its factorial (Label).

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2. Attempt **any two** of the following:

- a. Write a Java program using swing components to illustrate the use of JSplitPane.
 b. What is purpose of JFileChooser? Write down constructors and methods of the same.
 c. How message box is displayed in Java? Give suitable example.
 d. Differentiate between JTextArea, JPasswordField and JTextField.

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3. Attempt **any two** of the following:

- a. Write the purpose of following methods of servlet interface
 i. init ii. destroy iii. service iv. getServletConfig v. getServletInfo
 b. What are the merits and demerits of servlets? Explain.
 c. With suitable diagram explain the life cycle of servlet.
 d. Write a servlet that will display whether the number entered by user is odd or even.

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4. Attempt **any two** of the following:

- a. List various classes used in JDBC. Also write the purpose of each.
 b. How result of a query is processed in JDBC? Explain with suitable example.
 c. List and explain JSP directives.
 d. Explain the include and forward action element of JSP.

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5. Attempt **any two** of the following:

- a. List and explain different types of Enterprise Beans.
 b. Write the benefits of EJB.
 c. List and explain the JSF lifecycle phases.
 d. What is facelet? Write the features of facelets.

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6. Attempt **any two** of the following:

- a. With suitable diagram explain the architecture of Hibernate.
 b. Write a short on Interceptors in struts.
 c. What is the use of Action component of Struts 2? Write and explain various roles of Action component.
 d. What is the importance of hibernate mapping file? Explain with suitable example.

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7. Attempt *any three* of the following:

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- a. Write AWT based Java program that demonstrate the use of textbox, label and checkbox.
 - b. Explain how to assign color to frame background using JColorChooser class.
 - c. List various classes of Servlet API. Write the purpose of each.
 - d. What are the different types of statements in JDBC? Explain.
 - e. Explain with suitable example <navigation-rule> element of faces-config.xml file of JSF.
 - f. What is the need of Hibernate? Explain.
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