N.B.: (1) All questions **are** compulsory.
(2) **Make suitable assumptions** wherever **necessary** and **state the assumptions** made.
(3) **Answer** to the **same questions** 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 the following (any **TWO**)   [10]
    (a) Explain the Java event delegation model.
    (b) What are inner classes? Explain with examples.
    (c) What are the different types of layout in Java? Explain GridLayout.
    (d) Write AWT based Java program that demonstrate the use of checkbox and radiobuttons.

2. Attempt the following (any **TWO**)   [10]
    (a) How can the user be made aware about the software loading process? Which component is facilitating the same? Explain with code specification.
    (b) How do divide frame window in two parts? Explain with code specification.
    (c) Compare and contrast AWT and Swing.
    (d) Write a Java program to create different tabs using JTabbedPane.

3. Attempt the following (any **TWO**)   [10]
    (a) Write a short note on JSAPI (JAVA SERVLET API).
    (b) Explain the life cycle phases of servlet.
    (c) What are servlets? What are the advantages of servlets over CGI?
    (d) Write a servlet application to find the sum of digits of the number entered by the user through the HTML form.

4. Attempt the following (any **TWO**)   [10]
    (a) Write a JDBC program that inserts values in database. [TABLE NAME : Employee, FIELDS : Empid, Name, Dept, Designation]
    (b) What is the difference between a traditional JSP page and a JSP document? Quote an example.
    (c) Explain scrollable and updatable resultsets in JDBC.
    (d) Explain any five implicit objects in Java Server Pages.

5. Attempt the following (any **TWO**)   [10]
    (a) Explain the life cycle of JSF in detail.
    (b) Explain the architecture of Enterprise Java Beans.
    (c) Write the benefits of using EJB.
    (d) What are the different types of enterprise beans? Explain.

6. Attempt the following (any **TWO**)   [10]
    (a) Explain the architecture of hibernate framework in detail.
    (b) Explain web.xml and struts.xml files.
    (c) What is Value stack in struts? State and explain the Execution Flow of value stack.
    (d) Explain the application flow of Model-View-Controller architecture in struts framework.

P.T.O.

7. Attempt the following (any **THREE**) [15]

(a) Write a Java program to handle the mouse related events.

(b) Write a Java program using swing components to display tabbed pane with three tabs for First for First Year, Second for Second Year and Third for Third year. Every tab displays a list of all subjects of the respective years.

(c) What are HTTPServletRequest and HTTPServletResponse?

(d) Explain the concept of "Character Quoting Conventions" in JSP.

(e) Write a session bean code specificaiton that calculate simple interest. Assume the principal, term and rate of interest is entered by the user and the inputs is passed through a servlet.

(f) "Action is a heart and soul of the struts framework". Discuss.

Paper Discussion Schedule for all Subjects

Date	Day	Timing	Centre
5 Nov.2016	Saturday	9.00 a.m. to 11.00 a.m.	Ghatkopar
5 Nov.2016	Saturday	12.00 p.m. to 2.00 p.m.	Thane
5 Nov.2016	Saturday	3.00 p.m. to 5.00 p.m.	Dombivli
6 Nov.2016	Sunday	9.00 a.m. to 11.00 a.m.	Dadar
6 Nov.2016	Sunday	12.00 p.m. to 2.00 p.m.	Andheri
6 Nov.2016	Sunday	3.00 p.m. to 5.00 p.m.	Borivali
7 Nov.2016	Monday	9.00 a.m. to 11.00 a.m.	Nerul

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