

(2½ Hours)

[Total Marks: 75]

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

Q. 1 Attempt All (Each of 5Marks)**(15)****(a) Multiple Choice Questions:**

- (i) Which of these events is generated when a button is pressed?
 (A) WindowEvent (B) ActionEvent
 (C) ButtonEvent (D) KeyEvent
- (ii) Which of the following is a method of JDBC batch process?
 (A) setBatch() (B) deleteBatch()
 (C) addBatch() (D) removeBatch()
- (iii) _____ code retrieves name and version of the protocol.
 (A) config.getProtocol () (B) request.getProtocol ()
 (C) out.getProtocol () (D) response.getProtocol ()
- (iv) _____ tag is used to execute Java code inside the JSP
 (A) <# ... #> (B) <\$... \$>
 (C) <% %> (D) <* ... *>
- (v) JSON stands for _____
 (A) Javascript Object Notation (B) JSP Object Notation
 (C) Java Object Notation (D) None of these

(b) Fill in the blanks:

(java.awt.event, SQLException, parameterized, java.event, ClassNotFoundException, no argument, struts2, JSON, XML, ServletConfig, ServletContext)

- (i) _____ package contains all the classes and methods required for event handling in Java.
 (ii) _____ exception is raised when JDBC driver fails to load.
 (iii) An object of _____ is created for each servlet, to get configuration information from web.xml file.
 (iv) A java bean class should have a _____ constructor.
 (v) _____ framework is used to develop MVC based web application

(c) Answer in 1 – 2 sentences:

- (i) What is JTextArea used for?
 (ii) Write Java code to get ResultSetMetaData object.
 (iii) Write JSP code, to display today's date and time using expression tag.
 (iv) What is ValueStack in struts2?
 (v) Describe how to create an object in JSON.

Q. 2 Attempt the following (Any THREE) (15)

- Explain how to use ButtonGroup class.
- What is a combobox? Explain various constructors and methods of JComboBox class.
- Explain JDBC architecture.
- Explain Statement interface and its methods.
- Write a swing program to accept temperature of the day in a textfield. Using radio buttons choose conversion: Fahrenheit to Celsius or vice versa. On click of a button, display the converted temperature in a label. [Formula: $C = (F - 32) * 5/9$]
- Write a JDBC program to create an Employee table. Insert two records in the table using PreparedStatement.

Q. 3 Attempt the following (Any THREE) (15)

- Differentiate between GenericServlet and HttpServlet.
- Write a note on Servlet life cycle.
- Explain page directive in JSP.
- Explain the following:
 - expression tag
 - declaration tag
- Write a servlet program to accept name and aggregate marks from index.html. if the aggregate marks is larger than 55, then print "You are selected", else print "You are not selected".
- Write JSP program to accept a number from the user and find its factorial. If the number is negative, show error message and accept the number again.

Q. 4 Attempt the following (Any THREE) (15)

- Explain <jsp:setProperty> and <jsp:getProperty> action tags.
- Explain the significance and structure of struts.xml file used in struts2.
- Write a note on Struts2 interceptors.
- Write the similarities and differences between JSON and XML.
- What is JSON schema? Give example and illustrate.
- Explain various Result Types available in Struts2.

Q. 5 Attempt the following (Any THREE) (15)

- Describe various constructors and methods of JCheckBox class.
- Explain various methods of Connection interface.
- Write a note on JSP application implicit object.
- Explain session tracking mechanism in servlets.
- Write a note on Struts2 Action class.