

(2 ½ 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.

Q1. Attempt the following (any THREE): (15)

- (A) What is session tracking? Explain how session tracking is done using HttpSession interface.
- (B) What is a servlet? Explain various life cycle methods of a servlet.
- (C) Explain various methods used for reading Form data in a servlet.
- (D) Give example and explain the following methods of HttpServletResponse:
(i) addCookie() (ii) sendRedirect()
- (E) Write a servlet that accepts a string from the user and displays the reverse of that string as a response.
- (F) Write a servlet that accepts a table name from the user and displays all the records in the table.

Q2. Attempt the following (any THREE): (15)

- (A) Explain the purpose and usage of JSP page directive.
- (B) Explain how Exception object is used in JSP with code snippet.
- (C) What is JavaBean? How is it used in a JSP?
- (D) Describe JSP declaration and JSP scriptlet elements. Illustrate with example(s).
- (E) Write a JSP which will display two text boxes for username and email. On click of a submit button call another JSP which will enter these values in a database.
- (F) Write a JSP that will compute squares of first N natural numbers. Number N is accepted from html file.

Q3. Attempt the following (any THREE): (15)

- (A) Write a short note on message-driven bean.
- (B) Differentiate between stateless and stateful session bean.
- (C) Explain the callback methods of stateful session bean.
- (D) Explain the lifecycle of a stateless session bean.
- (E) What makes message-driven beans different from session beans?
- (F) Write a stateless session bean that calculates simple interest. Write a web client that will accept principal amount, rate of interest and time period from the user and use the session bean to calculate and print the interest.

Q4. Attempt the following (any THREE): (15)

- (A) State the characteristics of a remote client and a local client of an enterprise bean.
- (B) Explain the factors that decide on remote or local access to an EJB.
- (C) Describe the contents of an Enterprise Java Bean. What are annotations? Explain @EJB annotation.

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- (D) Explain the following annotations:
 - (i) @WebParam
 - (ii) @WebService
- (E) What is a web service? Explain how WSDL and SOAP technologies are used for web services.
- (F) Write a web service that takes a string as a parameter and returns its length.

Q5. Attempt the following (any THREE): (15)

- (A) Briefly describe any five methods of HttpServletRequest interface.
 - (B) Explain jsp:forward action element with a suitable example.
 - (C) What is an enterprise bean? Briefly describe the types of enterprise beans?
 - (D) Write a note on JAX-WS technology.
 - (E) What is a filter? Explain various parameters of doFilter().
 - (F) Differentiate between Javabeans and EJB.
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