(3 Hours)   [Total marks : 80]

N.B. :   (1) Question No. **1** is **compulsory**.
          (2) Attempt any **three** from remaining **five** questions.

1.   Attempt **Any Four**   20

    a)   Explain difference between Swing and AWT
    b)   What is Bytecode? Explain how java achieves platform independence using
         ByteCodes.
    c)   Explain difference between Abstract classes and Interfaces
    d)   Write a note on Dependency Injection in Spring Framework.
    e)   JSP implicit objects

2. (a) What is Session Tracking in Servlets? Explain use of Cookies and HttpSession API.   10
    (b) What are Lambda Expressions? Explain syntax and use of Lambda expressions with a   10
         suitable program.

3. (a) What are Directives in JSP? Explain Page, Taglib and include directive with a simple   10
         coding snippet.
    (b) What is Exception Handling? Explain use of try,catch, throw and throws keyword with a   10
         suitable program using java.

4. (a) What are Byte Streams and Character Streams? Write a simple program to read and   10
         write data to a file using character streams.
    (b) What is JDBC? Explain steps to Connect java program to Oracle database using type 4   10
         drivers.

5. (a) What is InterThread Communication? Explain how you will use it to solve Producer   10
         consumer problem using a suitable program.
    (b) Explain in brief   10
         a)   GenericServlet and HttpServlet
         b)   Custom Tags and JSTL

6. (a) Add a note on   10
         a)   Wrapper Classes
         b)   Generic Classes using Java
    (b) What is Event Delegation model? Explain any two event listeners in detail.   10

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