(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 Life Cycle of Applet with a suitable program
   b) Explain the concept of final methods and final variables with a program.
   c) Explain Inner Classes
   d) Explain difference between method overloading and overriding with example
   e) Explain architecture of Spring Framework.

2. (a) What is Session Tracking in Servlets? Write a Program to illustrate use of HttpSession API 10
   to maintain state in servlet application.
   (b) What are Lambda Expressions? Explain syntax and use of Lambda expressions with a 10
   suitable program.

3. (a) What are actions in JSP? Explain any four actions in JSP with a program. 10
   (b) What is Exception? Explain Concept of Checked and unchecked exception with an 10
   Example of each. Write a code to generate custom exception in java.

4. (a) What is serialization/deserialization of objects? Why do you need it? Give the example 10
   with necessary code.
   (b) What is JDBC? Explain steps to Connect java program to Oracle database using type 4 10
   drivers.

5. (a) Explain Multithreading. Explain Thread Life cycle. Add a note on approaches to 10
   implement threads using java.
   (b) Explain in brief 10
   a) Servlet Life Cycle
   b) JSP Life Cycle

6. (a) Add a note on 10
   a) Visibility modifiers in Java
   b) Interfaces in Java.
   (b) What is Event Delegation model? Explain any two event listeners in detail. 10

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