

(3 Hours)

[Total Marks: 80]

**N.B. : (1) Question No.1 is Compulsory**

**(2) Attempt any Three Question between Question No.2 to 6**

- Q 1. A) Write a Short note on following (Attempt Any Four). [20]**
1. Explain 9 JSP Implicit Objects.
  2. What is Constructor Injection? Implement with suitable example.
  3. Difference between ArrayList and Vector and give an example on both of them?
  4. Explain Map interface and using HashMap print the elements in name-pair in forward and reverse direction.
  5. Explain Scripting tags in JSP with suitable syntax and example.
- Q 2. A) Explain spring framework with its Core module and suitable diagram.. [10]**
- B) What is Lambda Expression? Write code on it using Lambda expression as an Object. [10]**
- Q 3. A) What is Circular Dependency Injection in Spring? Write the code on Circular Dependency using Annotations approach. [10]**
- B) Explain Types of Wildcards with example. [10]**
- Q 4. A) What is Java Bean Class? Write Java Bean class on counter increments and instantiate and display its value using JSP Standard action. [10]**
- B) Explain session management in JSP with its types. And write code on Cookie management. [10]**
- Q 5. A) Explain spring AOP in details and its advices. [10]**
- B) What is Spring autowire injection and its types with explanation and syntax [10]**
- Q 6. A) What is REST API web services? Explain with example [10]**
- B) Explain Data Access operations with JdbcTemplate and Spring. [10]**

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