

(2½ Hours)

[Total Marks: 75]

- N. B.: (1) **All** questions are **compulsory**.  
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.  
 (3) Answers to the **same question** must be **written together**.  
 (4) Numbers to the **right** indicate **marks**.  
 (5) Draw **neat labeled diagrams** wherever **necessary**.  
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any three of the following:** 15
- What is Java Enterprise Edition (Java EE)? Explain.
  - Write a note on Multi Tier EE application architecture.
  - List and explain the tasks that Servlet can do.
  - Explain the life cycle of servlet.
  - Write a servlet code to display Square and Square root of numbers between 25 and 365 in tabular form.
  - List and explain four types of JDBC drivers.
2. **Attempt any three of the following:** 15
- Explain Cookie class with its constructor and any five methods.
  - Write a servlet program to create a session and display the following:
    - Session ID
    - New or Old
    - Creation Time
  - Write a servlet program `GradeServlet.java` that accepts Grade through radio buttons from `index.html` page, if the string is "A", "B", "C" OR "D", the program should dispatch the direct to the `Success.html` page containing message "*Congratulations !!!, You Passed SEM V exam*", else display "*Try Again*" and load `index.html` page in current servlet. (Make suitable assumptions, Only Write the Servlet Code)
  - Explain the following w. r. t. working with files in Servlet.
    - `@MultipartConfigure`
    - `fileSizeThreshold`
    - `location`
    - `maxFileSize`
    - `maxRequestSize`
  - Explain using a code snippet the `onDataAvailable()` and `onAllDataRead()` methods of `ReadListener` interface.
  - What is `RequestDispatcher`? Explain the two methods of `RequestDispatcher`.
3. **Attempt any three of the following:** 15
- Explain the reasons to use JSP.
  - What are directives? Explain page directive with any of its four attributes.
  - Develop a simple JSP application to accept values from html page and display on next page. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).
  - Explain the `<jsp:useBean >` tag with its attribute. Support your answer with suitable code snippet.
  - List the name of JSP implicit objects. Explain any Two in details.
  - What is wrong in using JSP scriptlet tag? How JSTL fixes JSP scriptlet shortcomings?

**4. Attempt any three of the following:**

- a Explain benefits of EJB.
- b Write a note on different types of session beans.
- c Explain life cycle of a message driven bean using suitable diagram.
- d Write a stateless session bean code to represent BookInformation.  
(BookId integer, BookName String, Pages integer, Price double)
- e What is an interceptor? How an interceptor is defined and how aroundInvoke () is added to it?
- f What is Java Naming and Directory Interface? Explain.

**5. Attempt any three of the following:**

- a. What is Persistence? Explain.
  - b. Explain with suitable diagram architecture of Java Persistence API.
  - c. Write a JSP code to add guest feedback using JPA in GuestBook table in database. (Make suitable assumptions)
  - d. What is Hibernate? Explain Object Relational Mapping.
  - e. Explain the architecture of Hibernate with suitable diagram.
  - f. Write a JSP code to add visitor's feedback using Hibernate in FeedBack table in database. (Make suitable assumptions)
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