(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:**
a. What are the challenges of Enterprise Application Development?
b. List and explain Java Container types.
c. What are the alternatives to CGI? Explain in detail.
d. Write short note on Part and WebConnection interfaces.
e. Explain Deployment descriptor file with its elements.
f. Explain RowSet and its type in JDBC.

2. **Attempt _any three_ of the following:**   **15**
a. Explain methods of RequestDispatcher interface.
b. Explain setting, sending and reading of Cookie in java servlet.
c. What is session tracking? What are the ways to track the sessions?
d. Write short note on creation and invalidation of sessions.
e. Which points are important while uploading a file?
f. Explain the working of Non-Blocking I/O.

3. **Attempt _any three_ of the following:**   **15**
a. How JSP functions and Executes?
b. How to set and access the properties of java bean in JSP?
c. What are the types of Expression available in EL?
d. Write short note on Restriction, Projection and Partitioning Operators in EL.
e. Explain Conditional or Flow Control Statements in XML Tag Library with examples.
f. How to query and update data in JSTL?

4. **Attempt _any three_ of the following:**   **15**
a Write short note on Enterprise Bean Server and Enterprise Bean.
b Describe Packaging of Enterprise Beans in JAR and WAR Modules.
c How to access No-Interface View and Local Business Interface?
d Write short note on Lifecycle of a Message Driven Bean with onMessage( ) Method.
e How to define Interceptor? What is the role of AroundInvoke Method?
f What is DataSource Resource Definition in Java EE?

5. **Attempt _any three_ of the following:**   **15**
a. Explain Java Persistence API with Specification.
b. What is The Impedance Mismatch? How it can be solved?
c. What is the relationship between JPA, ORM, Database and the application?
d. Write short note on Functions in JPQL and Downcasting in JPQL.
e. How hibernate works?
f. Explain the structure of hibernate.cfg.xml.