

Time: 2.30 Hrs

Marks: 75

All question are compulsory

- Q.1** Attempt any three of the following: **15**
- a. What is enterprise application?
 - b. Explain Servlet & JSP.
 - c. Explain in detail the servlet life cycle.
 - d. Write a short note on servlet packages.
 - e. Explain different types of JDBC Drivers?
 - f. Explain different types of Java Containers.
- Q.2** Attempt any three of the following: **15**
- a. Explain cookies with different methods.
 - b. Explain Request Dispatcher with different methods.
 - c. How does the session work?
 - d. Write a note on Blocking I/O and Non-blocking I/O.
 - e. Write a program to demonstrate concept of Request Dispatcher?
 - f. How to upload and download a file on web application.
- Q.3** Attempt any three of the following: **15**
- a. How does JSP differ from Servlets?
 - b. Write a note on lifecycle of a JSP.
 - c. List the various implicit objects in JSP.
 - d. Give explanation of jsp: useBean action tag's attribute and usage.
 - e. Explain directive tags in JSP.
 - f. What are the various advantages of using JSTL over scriptlets?
- Q.4** Attempt any three of the following: **15**
- a. Explain EJB with advantages and disadvantages.
 - b. Write a note on Session Bean.
 - c. What are the types of session beans?
 - d. Write a note on Interceptors.

- e. Explain interceptors lifecycle.
- f. Explain different types of EJB.

Q.5 Attempt any three of the following:

15

- a. What is Object Relational Mapping?
- b. Explain Java Persistence API.
- c. Explain features of Hibernate.
- d. Explain the components of Hibernate configuration
- e. Explain types of ORM Mapping.
- f. Write a program to explain the concept of hibernate
