

(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

- a. What are different technologies provided by Java EE platform?
- b. Explain 2-tier System Architecture, its advantage and disadvantage.
- c. Explain the Life cycle of Servlet with diagram.
- d. What is JDBC? Explain architecture of JDBC in Detail?
- e. Write short notes on JDBC Drivers?
- f. Write a program to accept details of a person and using servlet and store those details in database.

2. Attempt **any three** of the following: 15

- a. Explain Request Dispatcher Interface with its methods.
- b. What is Cookies? Explain setting sending and reading of Cookie in java Servlet.
- c. What is session? Explain lifecycle of Http Session?
- d. Write a short note on session management using servlet.
- e. Explain the working of Non-Blocking I/O.
- f. Write a program to create a servlet application to download a file.

3. Attempt **any three** of the following: 15

- a. Distinguish between Servlet and JSP.
- b. Explain lifecycle of JSP with diagram.
- c. Explain different types of JSP tags with example.
- d. Explain different core tags in JSTL.
- e. List and explain any 4 JSP Implicit objects with their methods.
- f. Explain different scopes of JSP objects.

4. Attempt **any three** of the following: 15

- a. What are the different types of beans? Explain.
- b. Explain lifecycle of stateful session beans.
- c. What is an interceptor? How an interceptor is defined and how aroundInvoke() is added to it?
- d. Explain the Benefits of Enterprise Java Beans.
- e. Explain lifecycle of message driven beans.
- f. Explain naming and directory service with example.

5. Attempt **any three** of the following: 15

- a. Explain Persistency in Java.
- b. Explain JPA Architecture with diagram.
- c. Explain hibernate with advantages.
- d. Explain architecture of hibernate.
- e. What is Impedance Mismatch? How it can be solved?
- f. What are different components of Hibernate? Explain.