Unit 1

1. Define the OSI Models with protocols.
2. Explain the OOPS concepts in Java.
3. State and explain socket programming along with the three internet sockets. (Explain host, client, server, TCP and other things.)
4. Describe RMI along with step by step process of creating an RMI application and explain features.
5. Define a distributed computing system along with its advantages and disadvantages.
6. What is IP? Difference between IPv4 and IPv6.
7. Explain multicasting sockets along with 4 methods
8. Write a program for creating mini chat application using socket programming.
9. What is the main goal of remote procedure call (RPC), illustrate with a model?

Unit 2

1. What is a servlet? Describe the life cycle of servlets with an example.

2. Write short notes on:

a. Server side programming

b. Deployment descriptor

c. Server side include

d. Servlet chaining

3. Write differences between:

a. Servlets and CGI

b. Forward and send redirect()

c. ServletConfig vs ServletContext

4. Which are the session tracking techniques used in java programming language?

5. Explain Delegation Event Model used for event handling in java.

6. Explain 2 tier and 3 tier architecture

7. Write a program for creating simple Servlet with JDBC.

8. What is a Report? Draw the structure of a Jasper Report template.

9. Explain the steps to create jdbc connectivity and perform CRUD operations. (Mention the interfaces and methods)

Unit 3

1. Write short notes on standard action tags.
2. Write the html and jsp codes for adding 2 numbers and displaying its output on clicking the submit button
3. Explain the four basic tags- Scriplet, Directive, Expression and Declaration
4. Explain any 6 JSTL core tags along with a code example.
5. Explain any 6 JSTL SQL tags along with a code example.
6. Explain any 6 JSTL function tags along with a code example.
7. Differentiate between servlet and JSP.
8. Explain MVC architecture in detail with example.
9. What are Implicit objects in Java Server Pages.

Unit 4

1. Explain architecture of Hibernate. Explain the core concepts of Hibernate framework.
2. Describe advantages as well as limitations of Hibernate.
3. Compare and contrast Hibernate and JDBC in terms of architecture, performance, and ease of use.
4. Discuss how Hibernate maps Java objects to database tables and vice versa with the help of Object-Relational Mapping (ORM).
5. Provide a detailed step-by-step guide on configuring Hibernate in a Java project. Include code snippets to demonstrate each step.
6. Write short note on HQL with examples.
7. Discuss the core modules of the Spring framework, including Spring Core, J2EE, ORM, JDBC, and AOP modules.
8. Explain the integration of Struts framework with Hibernate for building web applications.
9. Discuss the integration of Struts framework with the Spring framework.

Unit 5

1. Describe JAXB along with its features. Explain conversion of Java Object to XML with example.
2. Explain Repositories in Maven Project and importance of Maven Plugin.
3. Compare and contrast Apache Ant and Apache Maven. Discuss the advantages and limitations of each build tool.
4. Write short notes on-
5. Maven POM.xml
6. Maven Plugin
7. Java Web Service
8. Explain the components of web services, focusing on SOAP and REST.
9. Discuss Java Web Services and their role in Service-Oriented Architecture (SOA).Provide examples of Java APIs used in building web services.
10. Discuss the significance of assert classes in JUnit testing.Provide code examples demonstrating the use of assert classes.
11. Explain the different types of JUnit testing, including unit testing, integration testing, and functional testing.