

MSc Sem.-1 Examination

402

Computer Science

February-2025

Time : 2-30 Hours]

[Max. Marks : 70

- Q1(A) Explain the advantages of using Java for web development over other programming languages. (7)
- Q1(B) Discuss how Java achieves platform independence and why it is beneficial for web applications. (7)
- OR
- Q1(A) Highlight the importance of the Write Once, Run Anywhere (WORA) principle in Java web development. (7)
- Q1(B) Describe the role of Java EE in web application development. Include key components of Java EE architecture. (7)
- Q2(A) Explain the concept of multi-tier architecture in Java EE and its importance in web applications. (7)
- Q2(B) Discuss the role of servlets and JSPs in Java EE Web Architecture. How do they work together? (7)
- OR
- Q2(A) What is a Java web application server? Explain its key features and advantages. (7)
- Q2(B) Discuss the lifecycle of a Java servlet and its role in web application development. (7)
- Q3(A) Explain the importance of security features in Java web application servers. How does Java EE ensure web application security? (7)
- Q3(B) Define and explain the 2-tier client-server architecture. How does it differ from a 3-tier architecture? (7)
- OR
- Q3(A) Discuss the advantages and limitations of the 2-tier architecture in Java database programming. (7)
- Q3(B) What is JDBC, and why is it important in Java programming? Briefly explain the JDBC architecture. (7)
- Q4(A) Outline the steps involved in establishing a JDBC connection to a database. (7)
- Q4(B) Describe the different types of JDBC drivers and their key features. (7)
- OR
- Q4(A) Explain the process of loading a driver class in JDBC. Provide an example. (7)
- Q4(B) Write and explain a Java code snippet to establish a connection to a database server using JDBC. (7)
- Q5 True/False Attempt any seven out of twelve.(2 Marks each) (14)**
- 1) Java is platform-dependent, which limits its usage in web applications.
 - 2) Java EE provides support for multi-tier architecture in web applications.
 - 3) Servlets and JSPs are used together to create dynamic web content in Java EE.
 - 4) Apache Tomcat is a database management system used in Java Web Applications.

E1355-2

- 5) The lifecycle of a servlet includes methods like `init()`, `service()`, and `destroy()`.
- 6) In a 2-tier architecture, the application directly communicates with the database without an intermediary.
- 7) The 2-tier architecture is more scalable than the 3-tier architecture.
- 8) JDBC is a Java API that allows communication between Java applications and databases.
- 9) The `DriverManager` class in JDBC is used to load database drivers and establish a connection.
- 10) JDBC can only be used with relational databases.
- 11) JDBC Type-1 drivers are also called thin drivers.
- 12) To load a database driver class in JDBC, the `Class.forName()` method is commonly used.

BEST OF LUCK