

Total No. of Questions : 20

Total No. of Pages : 02

Roll No. _____

Paper Code
2C8121

MCA II Sem(Main/Back) Exam 2026
MCA-201 Java Technologies
2C8121

Time: 3 Hours

Maximum Marks: 70

Attempt all Ten questions from Part A. All Five questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary Any data missing may suitably be assumed and stated clearly Units of quantities used/ calculated must be stated clearly

Use of following supporting material is permitted during examination(As mentioned in form No 205)

1 _____

2 ~~_____~~
✓

Part A (Word limit 25)

- Q.1 ✓ Explain Method Overloading
- Q.2 ✓ Define Java Packages.
- Q.3 ✓ Define J2EE Containers
- Q.4 ✓ What is Session Tracking?
- Q.5 ✓ List types of JDBC Drivers
- Q.6 ✓ What is ResultSet?
- Q.7 ✓ Define JSP Directives
- Q.8 ✓ How to use JDBC with JSP?
- Q.9 ✓ Explain Aspect Oriented Programming (AOP)
- Q.10 ✓ What is Dispatcher Servlet?

10 x 2 = 20

Part B (Word limit 100)

- Q.1 ✓ Design an Abstract Class hierarchy for Shape (Circle, Rectangle) with Interface.
- Q.2 ✓ Explain Servlet chaining for form processing with RequestDispatcher forward/include.
- Q.3 ✓ Develop JDBC utility class for connection pooling and transaction management.
- Q.4 ✓ How to integrate JDBC with JSP? Show database access code.
- Q.5 ✓ Compare BeanFactory vs. ApplicationContext; configure singleton/prototype scopes.

5 x 4 = 20

Part C(Any three)

- Q 1 Describe the Thread Life-Cycle in detail with a state transition diagram. Write a Java program to demonstrate thread synchronization using the synchronized keyword to prevent data inconsistency
- Q.2 Explain the Servlet Life Cycle with its transition methods (init, service, destroy) Furthermore, discuss three different techniques for Session Management in Web Applications, highlighting the pros and cons of each.
- Q.3 Describe the JSP Life Cycle and explain how a JSP page is translated into a Servlet. Differentiate between JSP Directives, Scriptlets, and Expressions with clear syntax examples.
- Q.4 Illustrate the request flow in Spring MVC, specifically detailing the roles of the Dispatcher Servlet, Handler Mapping, Controller and View Resolver.
- Q.5 Define the core concepts of AOP, including Aspect, Joinpoint, Advice, and Pointcut. How does AOP complement OOP in managing cross-cutting concerns like logging or security?

3 x 10 = 30