



MCA DEGREE EXAMINATIONS: NOV/ DEC 2024

(Regulation 2024)

First Semester

MASTER OF COMPUTER APPLICATIONS

24CAI503: Object Oriented Programming

COURSE OUTCOMES

- CO1:** Understand the core concepts of Java programming, including object-oriented principles, exception handling, and GUI components, to build a solid foundation in software development.
- CO2:** Apply advanced frameworks to develop modular, scalable, and efficient Java-based software solutions.
- CO3:** Apply various technologies to connect and manipulate databases, demonstrating the ability to integrate backend data management with web applications.
- CO4:** Analyze the effectiveness of different Java frameworks and libraries in addressing specific software development challenges, including GUI design and network programming.
- CO5:** Evaluate distributed objects and network programming techniques to enhance application performance and scalability, using case studies and real-world examples.

Time: Three Hours

Maximum Marks: 100

PART A (4*20 = 80 Marks)

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|----|----|---|----|-----|-------------------|
| 1. | a) | Compare different types of constructors in java with suitable examples. | 10 | CO1 | [K ₃] |
| | b) | Develop a program for a finance application to calculate the sum, difference, product, quotient, and remainder of two input numbers. Provide sample inputs and outputs to illustrate the functionality. | 6 | CO1 | [K ₃] |
| | c) | Explain various features of java with a neat sketch. | 4 | CO1 | [K ₃] |
| 2. | a) | Write a Java program to read and write data using FileReader and FileWriter. Analyze the differences between FileReader and FileWriter in terms of functionality. | 10 | CO2 | [K ₃] |
| | b) | Write a Java program to determine whether a given string is a palindrome | 6 | CO2 | [K ₃] |
| | c) | Write a Java program to check whether a given number is even or odd using | 4 | CO2 | [K ₃] |

the conditional (ternary) operator.

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|----|----|--|----|-----|-------------------|
| 3. | a) | Write a Java program to perform CRUD (Create, Read, Update, and Delete) operations using JDBC on a database table. Include appropriate handling for database connections and SQL exceptions. | 10 | CO3 | [K ₃] |
| | b) | Analyze the differences between the GET and POST methods in Servlets, focusing on their functionality, security implications, and appropriate use cases. | 6 | CO3 | [K ₃] |
| | c) | Write a JSP program to calculate the cube of a given number using a method, implemented with a declaration tag. | 4 | CO3 | [K ₂] |
| 4. | a) | Design an AWT program with a TextField to enter a name and a Submit button. When the button is clicked, display 'Welcome' to the text entered in the TextField. | 10 | CO4 | [K ₃] |
| | b) | Describe the various terminologies used in Java Networking. | 6 | CO4 | [K ₂] |
| | c) | Write a Java program to extract and display the protocol, host name, port number, and file name from a given URL. | 4 | CO4 | [K ₃] |

Answer any ONE Question

PART B (1*20 = 20 Marks)

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|----|----|---|----|-----|-------------------|
| 5. | a) | Explain the structure of JSON (JavaScript Object Notation) and its uses in web development. | 10 | CO5 | [K ₂] |
| | b) | Analyze the advantages of using JSP (Java Server Pages) over Servlets in web development. | 6 | CO5 | [K ₃] |
| | c) | Explain Exception Handling with an Example. | 4 | CO5 | [K ₂] |

OR

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|----|----|---|----|-----|-------------------|
| 6. | a) | Explain Object-Relational Mapping (ORM) in Hibernate with an example. | 10 | CO5 | [K ₂] |
| | b) | Analyze the diverse applications of Java. | 6 | CO5 | [K ₃] |
| | c) | Draw a neat, labeled diagram of the MVC (Model-View-Controller) architecture. | 4 | CO5 | [K ₃] |
