(An Autonomous Institution, Affiliated to Anna University, Chennai)
CHENNAI - 600 069

B.E. / B.Tech. DEGREE END SEMESTER EXAMINATIONS
APR / MAY 2025
Second Semester
CS4204 – INTRODUCTION TO JAVA PROGRAMMING
(Common to CSE / IT / AIDS / CSBS / CSE-AIML / CSE-CZ)
(Regulations 2024)

Time: Three Hours | Maximum Marks: 100

Answer ALL Questions

RBT Level : L1- Remembering, L2 – Understanding, L3 – Applying, L4 – Analyzing, L5 – Evaluating, L6 – Creating

		CO
	PART – A (10x2=20 Marks)	
1.	How does the Java Virtual Machine (JVM) contribute to the platform independence of Java applications through the use of bytecode?	CO1
2.	List any two built-in functional interfaces available in the java.util.function package.	CO1
3.	How can a subclass gain access to the attributes and methods of its superclass in Java?	CO2
4.	Mention the distinction between virtual threads and platform threads introduced in Java 21.	CO2
5.	Identify the keyword or construct used for handling exceptions in Java and briefly describe its usage.	CO3
6.	Differentiate between the print() and println() methods in Java in terms of behavior and output formatting.	CO3
7.	Compare multi-threading with multitasking in Java, highlighting key operational differences.	CO4
8.	Write a generic method in Java that can swap two values of any given data type.	CO4
9.	Why is it essential to explicitly close JDBC connections after use? Provide a brief explanation referencing resource management.	CO5
10.	Highlight two advantages and two limitations of using arrays for storing primitive data types in Java applications.	CO5

			CO
		PART - B (5x16=80 Marks)	
11. a)	i)	Describe the role of abstraction in hiding complexity.	CO1
	ii)	Compare and contrast compile-time polymorphism and run-time polymorphism in Java.	CO1

(OR)

b) i) Create a functional interface and implement it using a lambda expression to calculate the simple interest for the savings account in a bank. CO1

ii) Demonstrate the use of access specifiers by creating a class with public, private, and protected methods. CO1

12. a) i) Differentiate between method overriding and method hiding with code examples. CO2

ii) Implement a Java program that stores and manipulates product names of supermarkets using ArrayList. CO2

(OR)

b) i) Explain the significance of the Object class in Java inheritance. CO2

ii) Design a Java program with multiple interfaces (Cash Withdrawal, Balance Inquiry, PIN Change) and a class Automated Teller Machine (ATM) implementing them. CO2

13. a) i) Describe the role of try, catch, finally blocks in exception handling. CO3

ii) Write a Java program that implements a try-catch block to handle an ArrayIndexOutOfBoundsException and division by zero using ArithmeticException. CO3

(OR)

b) i) Compare built-in exceptions and user-defined exceptions in terms of structure and use cases. CO3

ii) Justify the importance of safe memory access in the Foreign Function and Memory API. CO3

14. a) i) Which is better in real-world applications, extending Thread or implementing Runnable? Justify your answer. CO4

ii) Write a Java 21 program to demonstrate the creation and execution of virtual threads. CO4

(OR)

b) i) Discuss the pros and cons of using daemon threads for background services. CO4

ii) Why String objects are immutable in Java? Explain with suitable example. CO4

15. a) i) Describe the structure of a Map and how it stores key-value pairs. CO5

ii) Review the use of DAO pattern and how the Collection Framework enhances its implementation. CO5

(OR)

b) i) Implement a simple JDBC program to connect to a database and retrieve records from a table. CO5

ii) Evaluate the usefulness of autoboxing in reducing boilerplate code in collections. CO5