

Q.No	Part A (7x10=70 marks) (Answer all the questions)
1	Why Pointers are not used in Java?
2	Give the syntax and example to create class and objects.
3	What are the different ways to create string object?
4	How can you achieve multiple inheritance in Java using interfaces?
5	What does JVM do when an exception occurs in a program?
6	What is the difference between the throw and throws keywords in Java?
7	Name a potential issue that can arise in a multithreading environment without proper synchronization.
8	How to Create Virtual Threads in Java 21?
9	What is autoboxing in Java's Collections Framework?
10	List few advantages of Record Patterns.

Q.No	Part B - (5 x 16 = 80 marks) (Answer all the questions)
11 A	Explain the typical structure of a Java source file. Discuss the significance of the public class and the relationship between the file name and class name. Describe the steps involved in compiling a Java program using the javac compiler.
11 B	You are developing a Java project that uses third-party libraries and frameworks. How would you integrate these external dependencies

	into your project's package structure? Explain the concept of package visibility in Java and how it relates to accessing classes and members from external libraries. How would you manage package-private, protected, and public access levels when incorporating third-party dependencies?	
12 A	Create a Java program that models a simple hierarchy of vehicles. You have a base class called Vehicle and derived classes Car and Bicycle. Each class will have properties and methods specific to their type of vehicle. Demonstrate inheritance by creating objects of both derived classes and invoking their methods to display information specific to each type of vehicle.	C
OR		
12 B	In a basic library system, you have a base class LibraryItem representing common attributes like title and itemID. Create two subclasses, Book and DVD, that inherit from LibraryItem and add attributes specific to each, such as author for books and duration for DVDs. Implement a sample scenario where you instantiate objects of both subclasses and demonstrate the use of inherited and subclass-specific attributes. Discuss how the concept of inheritance promotes code reuse and organization in this context.	C
13 A	<p>i) Explain the concept of throwing and catching exception in java.</p> <p>ii) Write a Java Program that prompts the user to enter their age. Ensure that the input is a positive integer. How would you handle cases where the user enters invalid input, such as a negative number or a non-integer?</p>	C
OR		
13 B	Explain in detail about user-defined exceptions with example and stack trace elements in exception handling mechanisms.	C
14 A	Compare and contrast String Buffer and StringBuilder classes. Explain the situations where each class is more suitable. Provide examples demonstrating the usage of String Buffer and StringBuilder.	C
OR		
14 B	Elaborate on the concept of inter-thread communication. Discuss different methods for achieving communication between threads. Provide a practical example demonstrating inter-thread communication	
15 A	Develop an e-commerce platform using Collection Interfaces, where users can browse products, add them to the cart, proceed to checkout, and make payments. You can also incorporate user authentication and order history.	
OR		
15 B	Explain the role of JDBC connectivity in Java for accessing databases. Outline the basic steps involved in establishing a database connection using JDBC.	