

Department : CSE-DATA SCIENCE

Year & Semester : II YEAR & I SEM

Sub Code & Sub Name :23CSE234&OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Unit-I

S.No	Part-A Questions
1.	Define Object-Oriented Programming .
2.	List any four basic concepts of OOP .
3.	Explain the use of command-line arguments in Java .
4.	Give two examples of escape sequences in Java .
5.	Define data type with an example.
6.	Differentiate between implicit and explicit type casting.
7.	List types of operators in Java
8.	Illustrate the use of increment (++) ,decrement(--)-operator with an example
9.	What Is Identifiers Define Any 4 Rules
10.	Differentiate Instance Variable and Static variable.
11.	Define looping statements ?
12.	Differentiate between while loop and do-while loop in Java with an example
13.	List different types of control statements in Java.
14.	State the use of continue statement in loops
15.	Write the syntax of for loop in Java
16.	Identify the difference between break and continue statements
17.	Give an example of a nested if expression
18.	Identify the difference between break and continue statements
19.	Give an example of a nested if expression

S.No	Part-B Questions
1.	Explain the different selection statements in Java with suitable example programs.
2.	Illustrate the working of iterative statements in Java with example programs.
3.	Demonstrate the usage of arithmetic, relational, logical, and bitwise operators in Java with example programs.
4.	Explain the various data types in Java with example programs
5.	Differentiate between type casting and type conversion in Java with illustrative example programs
6.	Compare while loop and do-while loop in Java.
7.	Write a Java program to read input using command-line arguments
8.	Construct a Java program to demonstrate the use of break and continue statements inside nested loops
9.	Explain the different control statements in Java with suitable example programs.

10.	Explain the different types of operators in Java with suitable example programs.
11.	Explain the basic concepts and principles of Object-Oriented Programming in Java with suitable examples.
12.	Explain the concept of operator precedence and associativity in Java with example programs.
13.	Illustrate the structure of a simple Java program, explaining the role of tokens, statements, comments, and escape sequences
14.	Develop a Java program using a switch statement to display the day of the week based on user input
15.	Demonstrate with a program the difference between implicit type conversion (widening) and explicit type casting (narrowing) in Java.

Unit-II

S.No	Part-A Questions
1.	Explain the concept of a class in Java.
2.	Describe what an object is in Java with an example.
3.	Explain the purpose of the final keyword in Java.
4.	List and Describe the different access modifiers in Java.
5.	Explain the public access modifier in Java with an example.
6.	Explain the private access modifier in Java with an example.
7.	Explain the protected access modifier in Java with an example.
8.	Describe the this keyword in Java and its usage.
9.	Explain what class members are in Java (variables and methods).
10.	Explain the concept of recursion in Java with an example.
11.	Demonstrate the syntax for object creation in Java with a simple program.
12.	What is a constructor in Java
13.	What are nested classes in Java
14.	What is method overloading
15.	What is passing arguments by value and by reference in Java

S.No	Part-B Questions
1.	Describe the process of declaring a class and creating objects in Java with a simple program
2.	Differentiate between constructors and methods in Java
3.	Explain the role of the keyword this in Java with example programs
4.	Explain polymorphism in Java and discuss how it can be achieved through method overloading and method overriding and constructor overloading, with suitable programs.
5.	Explain the use of final keyword with class, method, and variable using example programs

6.	Explain the concept of functions in Java. Differentiate between parameter passing techniques (pass by value vs. pass by reference) and demonstrate their working with suitable Java programs
7.	Explain Access Control Mechanism In Java With Suitable Example Programs?
8.	Write A Java Program Assigning One Object To Another Object?
9.	Construct a Java program to calculate the factorial of a number using recursion, and explain how recursion works.
10.	Write a Java program to declare a class and create objects. Demonstrate how to access class members
11.	Construct a Java program with overloaded constructors to initialize student details and display them using methods.
12.	Write a Java program to demonstrate method overriding (runtime polymorphism) using inheritance.
13.	Develop a Java program to check access control: use private, protected, and public members in different classes and demonstrate accessibility

Unit-III

S.No	Part-A Questions
1.	Define an array in Java.
2.	What is a two-dimensional array?
3.	What is the difference between a one-dimensional and a two-dimensional array?
4.	How can you copy one array into another?
5.	Compare dynamic arrays with static arrays.
6.	What is inheritance in Java?
7.	List of inheritance supported by Java.
8.	Explain the purpose of the super keyword
9.	How does multilevel inheritance work in Java?
10.	How do you declare an array of integers?
11.	What is an interface in Java?
12.	What is the difference between an abstract class and an interface?
13.	What is the purpose of static methods in an interface
14.	Create a nested interface inside a class.
15.	Why is multiple inheritance of classes not supported in Java? Explain with an example.

S.No	Part-B Questions
1.	Explain the concept of arrays in Java and illustrate the types of arrays (1D, 2D, 3D) with example programs.
2.	Demonstrate one-dimensional arrays in Java by writing a program to store, access, and print elements.

3.	Write a Java program to demonstrate two-dimensional arrays and explain how elements are stored and accessed.
4.	Develop a Java program to perform binary search on a sorted array and explain the steps
5.	Write a Java program to perform linear search on an array and display the search results.
6.	Explain and demonstrate searching elements in arrays using linear search and binary search with suitable programs.
7.	Construct a Java program to assign one array to another array and explain what happens in memory.
8.	Explain the concept of inheritance in Java and illustrate the types of inheritance (single, multilevel, hierarchical) with example programs.
9.	Write a Java program to demonstrate method overriding and dynamic method dispatch using inheritance
10.	Explain the concept of an interface in Java with a program demonstrating its declaration and implementation.
11.	Write a Java program demonstrating interface inheritance and implementation of extended interfaces.
12.	Develop a Java program to calculate the addition of two matrices and display the resulting matrix
13.	Write a java program to find max element and min element in arrays.
14.	Write a java program to implement sorting array elements (Asc and dec)
15.	Develop a Java program to calculate the multiplication of two matrices and display the resulting matrix

Unit-IV

S.No	Part-A Questions
1.	What is a package in Java?
2.	Name the types of packages in Java with an example.
3.	What is the java.lang package? Give examples of its classes.
4.	What are wrapper classes in Java?
5.	What is an exception in Java?
6.	List the types of exceptions in Java.
7.	What is the difference between checked and unchecked exceptions?
8.	List the keywords used in Java for exception handling.
9.	What are standard I/O streams in Java?
10.	List the types of byte streams and character streams in Java.
11.	List the classes used for reading and writing files in Java
12.	Explain the role of NullPointerException and how to handle it.
13.	What is ArithmeticException? Provide an example.
14.	Write a program demonstrating nested try-catch blocks.
15.	Explain the difference between BufferedReader and FileReader.

S.No	Part-B Questions
1.	Explain the access control modifiers in Java (public, private, protected) with examples.
2.	How does auto-boxing and auto-unboxing work in Java? Give an example.
3.	Explain the purpose of the Formatter class with an example.
4.	What are Temporal Adjuster classes in Java? Give an example of adjusting a date.
5.	How do you import a package and its classes into a Java program?
6.	Write a Java program to implement a user-defined package
7.	Write a Java program to demonstrate auto-boxing and auto-unboxing using wrapper classes.
8.	Write a Java program to format output using the Formatter class.
9.	Write a Java program using Temporal Adjusters to find the next Monday from today.
10.	Demonstrate access control using public, private, and protected in a Java program
11.	Explain the purpose of try, catch, throw, throws, and finally blocks.
12.	Demonstrate multiple catch blocks in Java with an example.
13.	Analyze the differences between throw and throws in Java.
14.	Write a Java program to read data from a file using FileReader.
15.	Write a Java program to write data into a file using FileWriter.

Unit-V

S.No	Part-A Questions
1.	What is a thread in Java?
2.	Define immutability of a string.
3.	What is the default priority of a Java thread?
4.	Name any two methods of the String class used for searching.
5.	List any three methods for modifying a string in Java.
6.	What is the purpose of sleep() method in threads?
7.	What is the main thread in Java?
8.	Define deadlock in multithreading.
9.	List two JDBC drivers used in Java.
10.	What is a scene graph in JavaFX?
11.	Explain the difference between wait() and sleep() in Java threads.
12.	Explain the difference between notify() and notifyAll().
13.	Describe the use of ResultSet in JDBC.
14.	Explain how StringBuffer is thread-safe.
15.	Describe the importance of layout managers in JavaFX.

S.No	Part-B Questions
1.	Define string handling in Java and list the classes used for string manipulation.
2.	What is multithreading? Explain the need for multithreaded programming.
3.	What is JDBC and what are its components?
4.	Explain the architecture of JDBC with a diagram.
5.	Write a Java program demonstrating thread synchronization using the synchronized keyword
6.	Analyze a JDBC program that executes multiple SQL queries. Explain the role of ResultSet in fetching data.
7.	Analyze the difference in performance between using String, StringBuffer, and StringBuilder in repetitive string concatenation.
8.	What are deadlocks and race conditions? Explain with examples.
9.	Explain the structure of a JavaFX application window.
10.	What string and types of string functions with example programs in java ?
11.	Explain string handling mechanism in java with example program?
12.	Explain thread life cycle in java
13.	Explain inter thread communication in java(hint :sleep(),wait(),notify()etc)
14.	Implement a java program how to connect with JDBC