Reg. No.															

Question Paper Code	13673

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Third Semester

Computer Science and Engineering

(Common to Compute Science and Engineering (IoT) & Information Technology)

20CSPC301 - OBJECT ORIENTED PROGRAMMING

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	*K – Level*	*CO*
1.	The Java Virtual Machine is responsible for (a) Compiling Java source code (b) Loading and executing Java bytecode (c) Running the Java compiler (d) Interpreting Java source code directly	*1*	*K1*	*CO1*
2.	What is the output of the given code snippet in Java? System.out.println(3 + 5 + "Hello"); (a) Hello35 (b) 35Hello (c) 8Hello (d) Compilation error	*1*	*K1*	*CO1*
3.	Protected members of a class can be accessed by (a) Only within the same class (b) Classes in the same package and subclasses (c) All classes (d) Only subclasses	*1*	*K1*	*CO2*
4.	Select the correct way to import all classes from the java.util package. (a) import java.util.*; (b) include java.util.*; (c) use java.util.*; (d) import all from java.util;	*1*	*K1*	*CO2*
5.	Which of the following keywords is used to implement an interface in Java? (a) extends (b) interface (c) inherits (d) implements	*1*	*K1*	*CO3*
6.	What is object cloning in Java? (a) Creating a new object with a different reference (b) Creating a copy of an existing object (c) Creating a static method for cloning (d) Creating a static method for cloning	*1*	*K1*	*CO3*
7.	Which class is the superclass of all exceptions in Java? (a) Throwable (b) Error (c) Exception (d) Runtime Exception	*1*	*K1*	*CO4*
8.	Which of the following exceptions is unchecked in Java? (a) IOException (b) IOException (c) NullPointerException (d) FileNotFoundException	*1*	*K1*	*CO4*
9.	In Java, which method is used to start a thread? (a) run() (b) start() (c) execute() (d) begin()	*1*	*K1*	*CO5*
10.	Which Java feature allows processing elements in parallel using lambda expressions? (a) Thread (b) parallelStream() (c) filter() (d) map()	*1*	*K1*	*CO6*

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	What is the significance of ***this*** keyword in Java?	*2*	*K1*	*CO1*
12.	What is a variable? How to declare variables in java?	*2*	*K1*	*CO1*
13.	Differentiate abstract classes from interfaces.	*2*	*K2*	*CO2*
14.	Write the use of the ***final*** keyword with methods and classes in Java.	*2*	*K1*	*CO2*
15.	Write a note on inner classes in Java.	*2*	*K1*	*CO3*
16.	Compare ArrayList and a regular array in Java.	*2*	*K2*	*CO3*
17.	Relate the exception hierarchy in Java.	*2*	*K2*	*CO4*

18.	Why do we make use of try blocks in programs?	*2*	*K1*	*CO4*
19.	Infer the advantage of Java Generics.	*2*	*K2*	*CO5*
20.	What is a Thread class?	*2*	*K1*	*CO5*
21.	What does the map() function do? Why do you use it?	*2*	*K1*	*CO6*
22.	List the operations for creating operators-reactive subjects.	*2*	*K2*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a) (i)	Explain the characteristics of Object-Oriented Programming in detail.	*6*	*K2*	*CO1*
	(ii)	Write a Java program to find the factorial of a number using recursion.	*5*	*K1*	*CO1*
		OR			
	b) (i)	Explain in detail the different types of constructors in Java.	*6*	*K2*	*CO1*
	(ii)	Write a Java application in which a class Bank Account contains sensitive information such as account balance and account number. Explain how you would use access specifiers to protect this data while allowing users to view the balance and make deposits. Provide code to demonstrate the solution.	*5*	*K1*	*CO1*
24.	a) (i)	Explain Packages in Java.	*6*	*K2*	*CO2*
	(ii)	Develop a program that defines a package containing a class ***MathFunc*** with methods for basic arithmetic operations. Import this package in another class and call its methods.	*5*	*K3*	*CO2*
		OR			
	b) (i)	Explain the concept of inheritance in Java.	*6*	*K2*	*CO2*
	(ii)	Develop a Java Program with an abstract class Shape with an abstract method area() and implement subclasses Circle and Rectangle that provide their own implementations of area().	*5*	*K3*	*CO2*
25.	a)	Explain in detail about interfaces in Java.	*11*	*K2*	*CO3*
		OR			
	b)	How Strings are handled in Java? List out some methods of String class with appropriate example program.	*11*	*K3*	*CO3*
26.	a)	Develop a program with a custom exception class named Invalid Age Exception. Write a program that checks if a person's age is valid. If it is not valid, throw the appropriate custom exception.	*11*	*K3*	*CO4*
		OR			
	b)	Build a Java program that read data from the console and writes the data to a file.	*11*	*K3*	*CO4*
27.	a)	Show the use of the life cycle of Thread with its explanation.	*11*	*K2*	*CO5*
		OR			
	b)	Explain a generic class in Java that contains a method to return the average of an array containing any type of numbers.	*11*	*K2*	*CO5*
28.	a)	Explain lambda expressions in Java with examples.	*11*	*K2*	*CO6*
		OR			
	b)	Explain in detail about Reactive Programming in Java.	*11*	*K2*	*CO6*