

# CBCS SCHEME

USN

BCS306A

## Third Semester B.E./B.Tech. Degree Examination, June/July 2024

### **Object Oriented Programming with Java**

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.*

*2. M : Marks , L: Bloom's level , C: Course outcomes.*

<b>Module – 1</b>			M	L	C
Q.1	a.	Differentiate two paradigms of programming.	5	L2	CO1
	b.	Explain the various bitwise and short circuit operators in Java.	8	L2	CO1
	c.	Write a Java program with a method to check whether a given number is prime or not.	7	L3	CO1
<b>OR</b>					
Q.2	a.	Explain various scopes of variables in Java.	5	L2	CO1
	b.	Explain the arithmetic compound assignment and Ternary operators in Java.	8	L2	CO1
	c.	Write a Java program to perform linear search on an array elements accepted from keyboard and key element also accepted from key board.	7	L3	CO1
<b>Module – 2</b>					
Q.3	a.	Explain method overloading in Java with examples.	8	L2	CO2
	b.	Design a stack class to hold maximum of N numbers with a constructor, push, POP and Display methods. Develop Java main method to illustrate stack operations.	12	L3	CO2
<b>OR</b>					
Q.4	a.	Explain the role of “this” keyword and “static” keyword in Java.	8	L2	CO2
	b.	Design a class called “Employee” with fields ID, Name and Salary. Write a suitable constructors a method to raise salary and a static method to display. The number of Employee objects. Write suitable Main method for illustration.	12	L3	CO2
<b>Module – 3</b>					
Q.5	a.	Explain the role of “Super” with example Java program.	6	L2	CO3
	b.	For any class and any method as an example, explain method overriding.	5	L2	CO3
	c.	Develop a Java program to create class called “Shape”. Create 3 sub classes : circle, triangle and square. Each class has 2 member function area ( ) and draw ( ). Demonstrate polymorphism with a suitable main program.	9	L3	CO3
<b>OR</b>					
Q.6	a.	Explain the order of constructor execution in a multilevel class hierarchy.	6	L2	CO3
	b.	Define dynamic method dispatch and write a code snippet in Java to demonstrate.	5	L1	CO3

	<b>c.</b>	Develop Java program to create interface Resizable with methods resize width (int width) and resize height (int height) that allow object to be resized. Create a class Rectangle that implements This Interface.	<b>9</b>	<b>L3</b>	<b>CO3</b>
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**Module – 4**

<b>Q.7</b>	<b>a.</b>	Explain four categories of visibility for class members based on packages.	<b>6</b>	<b>L2</b>	<b>CO4</b>
	<b>b.</b>	Give the general form of an exception handling block and write a Java program to illustrate multiple catch classes.	<b>7</b>	<b>L2</b>	<b>CO4</b>
	<b>c.</b>	Write a custom exception in Java called “less marks” and raise This exception when marks entered by valuator in the range [30 – 34]	<b>7</b>	<b>L3</b>	<b>CO4</b>

**OR**

<b>Q.8</b>	<b>a.</b>	With code snippets, explain mechanism to create and import a package in Java.	<b>6</b>	<b>L2</b>	<b>CO4</b>
	<b>b.</b>	Write a Java program to create chained exceptions with top-level exception is Null Pointer Exception and its cause Arithmetic Exception.	<b>7</b>	<b>L3</b>	<b>CO4</b>
	<b>c.</b>	Develop a Java program to create custom exception for Negative odd numbers.	<b>7</b>	<b>L3</b>	<b>CO4</b>

**Module – 5**

<b>Q.9</b>	<b>a.</b>	Explain various methods of thread class in Java.	<b>6</b>	<b>L2</b>	<b>CO5</b>
	<b>b.</b>	Write a Java program to create 4 threads and each thread when run, will sleep for 500 milliseconds and print its name before “Before Quitting”.	<b>8</b>	<b>L3</b>	<b>CO5</b>
	<b>c.</b>	Explain the use of Type wrappers in Java with example.	<b>6</b>	<b>L2</b>	<b>CO5</b>

**OR**

<b>Q.10</b>	<b>a.</b>	Explain is Alive ( ) and join ( ) methods of Thread with example code snippet.	<b>6</b>	<b>L2</b>	<b>CO5</b>
	<b>b.</b>	Write a Java program to create 4 Read and each Thread generates random number and prints it and sleeps for 800 msec and quits.	<b>8</b>	<b>L3</b>	<b>CO5</b>
	<b>c.</b>	Explain the concept of autoboxing /unboxing in expressions and methods.	<b>6</b>	<b>L2</b>	<b>CO5</b>

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