Q. Code:359378

Reg. No. | | | | | | | | | | | | | |

B.E./B.TECH. DEGREE EXAMINATIONS, MAY 2024

Fourth Semester

CS22409 – JAVA PROGRAMMING: THEORY AND PRACTICES

(Computer Science and Engineering)

(Regulation 2022)

TIME: 2 HOURS **MAX. MARKS: 60**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Understand the fundamentals of Java programming including variables, data types, control structures and methods.	**2**
CO 2	Apply the concepts of problems classes, objects, packages and inheritance to solve simple problems.	**3**
CO 3	Create Java applications with Interfaces, Strings and Exception Handling mechanism.	**6**
CO 4	Apply the concepts of streams and multithreaded model to solve real world problems.	**3**
CO 5	Apply the concepts of Applet, JavaFX components and controls for developing GUI based applications.	**3**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	How the main method in Java should be declared and why?	**1**	**2**
2.	Write a Java program to show the input and output operation by getting the name and salary of the user and printing it on the console.	**1**	**2**
3.	What would happen if you declare a variable, method and class as final?	**2**	**2**
4.	What is the use of protected members?	**2**	**2**
5.	Develop a program to obtain the multiple inheritance in Java.	**3**	**5**
6.	Write a program to check whether two students have the same name.	**3**	**5**
7.	Differentiate the concept of multi-threading from multitasking.	**4**	**3**
8.	Give a short note on the thread life cycle.	**4**	**2**

9.	Construct a program to create and run an Applet.	**5**	**3**	
10.	Write a JavaFX application that displays a "Hello, JavaFX!" message in a window.	**5**	**3**	

PART- B (3 x 10 = 30 Marks)

			Marks	CO	RBT LEVEL
11. (a)	Explain any three OOP concepts in Java with suitable examples.		**(10)**	**1**	**2**
	(OR)				
(b)	Explain the fundamental programming structures in Java and JavaDoc comments.		**(10)**	**1**	**2**
12. (a)	Write a Java program to create a class known as Person with methods called getFirstName() and getLastName(). Create a subclass called Employee that adds a new method named getEmployeeId() and overrides the getLastName() method to include the employee's job title.		**(10)**	**2**	**3**
	(OR)				
(b)	Write a Java program to perform employee payroll processing using packages. In the java file, Emp.java creates a package employee and creates a class Emp. Declare the variables name,empid, category, bpay, hra, da, npay, pf, grosspay, incometax, and allowance. Calculate the values in methods. Create another java file Emppay.java. Create an object e to call the methods to perform and print values. [Hint: allowance is 10% of bpay, grosspay is subtract PF from total amount of bpay, da, hra and allowance), income tax is 15% of grosspay, netpay is calculated by subtracting income tax from grosspay]		**(10)**	**2**	**3**
13. (a)	Consider the system has three threads. The first thread generates a random integer every 1 second and if the value is even, the second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of the cube of the number. Build multithreading systems using the Thread Class and the Runnable Interface separately.		**(10)**	**4**	**3**
	(OR)				
(b)	**(i)**	Write a Java program to read file (a.txt) content line by line and write into other file (b.txt)	**(5)**	**4**	**3**
	(ii)	Write a Java program to read file (a.txt) content character by	**(5)**	**4**	**3**

character and write into console

PART- C (1 x 10 = 10 Marks)

(Q.No.14 is compulsory)

		Marks	CO	RBT LEVEL
14.	Explain the importance of the following concepts of Exception Handling Mechanism with programs a. Multiple catch blocks for a try block b. Using 'finally' block of statements c. Creating your own exception class	**(10)**	**3**	**5**

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