U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

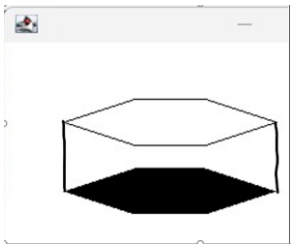
Programme: B.E. **Semester: III**
Branch: Computer Science & Engineering **Duration: 3 hrs.**
Course Code: 22CS3PCOOJ **Max Marks: 100**
Course: Object Oriented Java Programming

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.
3. Output with valid data to be written for programming questions.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	What is a Constructor? Write its main characteristics? Explain with a simple example the concept of constructor overloading.	CO1	PO1	**08**
	b)	Differentiate Type conversion and Type casting with an appropriate example program for each.	CO1	PO1	**06**
	c)	Describe the features of Java Programming Language that justifies its popularity.	CO1	PO1	**06**
		UNIT - II			
2	a)	Create an abstract class Calculate which has three double members -say x, y and result. Include a method calc. Derive three classes from Calculate which performs any three arithmetic operations on the two variables x and y and assign the result to the variable result. Make appropriate declarations and definitions.	CO3	PO3	**10**
	b)	Write a Java program to create a vehicle class hierarchy. The base class should be Vehicle, with subclasses Truck, Car and Motorcycle. Each subclass should have properties such as make, model, year, and fuel type. Implement methods for calculating fuel efficiency, distance traveled, and maximum speed.	CO2	PO2	**10**
		UNIT - III			
3	a)	Create an interface "Routine" to have default method "diet" that displays "2500 calories needed per day" and an unimplemented method "workout". Write two classes Person1 and Person2 each of which implements the interface. Create a Main class to instantiate objects of Person 1 and Person 2 and call the respective the methods.	CO3	PO3	**10**
	b)	Create a Student class to have the variables USN, Name and Sem. Write an appropriate constructor to initialize the instance	CO2	PO2	**10**

			variables. Also write a method that calculates the percentage and displays "Distinction" if percentage is greater than 80, "First class", if percentage is in between 60 to 80, "Second class" if percentage is in between 40 to 60. Formulate a user defined Exception NotEligibleException that will be thrown if the total percentage is less than 40.			
			OR			
	4	a)	Write a Java program to create a method that takes an integer as a parameter and throws an exception if the number is odd.	*CO2*	*PO2*	**10**
		b)	Write a Java program to create an interface Flyable with a method called fly_obj(). Create three classes Spacecraft, Airplane, and Helicopter that implement the Flyable interface. Implement the fly_obj() method for each of the three classes.	*CO3*	*PO3*	**10**
			UNIT - IV			
	5	a)	Explain life cycle of a thread in java.	*CO1*	*PO1*	**06**
		b)	List and explain some of the methods of the thread class.	*CO1*	*PO1*	**06**
		c)	Write a java program to demonstrate thread priorities in Multithreading with the help of getPriority() and setPriority() method.	*CO2*	*PO2*	**08**
			UNIT - V			
	6	a)	With a neat diagram explain AWT class hierarchy	*CO1*	*PO1*	**05**
		b)	Develop a Java program to create "Do Not Enter sign" image given below. NOTE: • The colour of the circle to be filled with Red. • The Outer rectangle to be filled with Green • The inner rectangle is white. 	*CO3*	*PO3*	**08**
		c)	Explain the working of Delegation Event Model with the help of a neat diagram.	*CO1*	*PO1*	**07**
			OR			
	7	a)	What are the constructors used in the java.awt.event.MouseEvent class. Give their syntax and descriptions.	*CO1*	*PO1*	**05**
		b)	Develop a Java program to create "A Pie Chart" image given below.	*CO3*	*PO3*	**08**

			NOTE: • The colour of the circle to be filled with Green, blue and red 			
		c)	Write a program to generate the below output using frames. 	*CO3*	*PO3*	**07**

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