VIT
Vellore Institute of Technology

Slot: B2 +TB2

School of Computer Science Engineering and Information Systems

Fall Semester 2024-2025

Continuous Assessment Test – I

Programme Name & Branch: MCA

Course Name & code: Java Programming & PMCA502L

Class Number (s): VL2024250103191, VL2024250103131, VL2024250103233

Faculty Name (s): Dr. Senthil Murugan B, Dr. Thilagavathi M, Dr. Vijayarani A

Exam Duration: 90 Min. **Maximum Marks: 50**

Answer ALL Questions

		Max Marks
1.	Define a class **'Point'** with two instance variables – x and y, representing the Cartesian coordinates of the point and **parameterized constructor**. Write a method which takes array of objects as parameter and display the count of the objects in the various quadrants. i) If x & y are both positive, the point is in 1st quadrant ii) If x is negative and y is positive, the point is in 2nd quadrant iii) If x and y are both negative, the point is in 3rd quadrant iv) If x is positive and y is negative, the point is in 4th quadrant. Finally, create a Java demo class with an array of 'n' Point objects to store their coordinate values read from the user and call to the method.	10
2.	With appropriate java code snippets to demonstrate the implementation of compile time and runtime polymorphism. Compare the conceptual factors involved in it.	10
3.	Given below are the code blocks for analysis. Identify the exact line susceptible to generate error, explain the error and provide suitable rectification so that intended output can be obtained. You should write only the rectified line of code (strictly not all the lines of code)	
	a. ***Snippet-1***	5

```
1.  interface Intf1{
2.  public int intfM1();
3.  }
4.
5.  class C1 implements Intf1{
6.  public void intfM1() {
7.  System.out.println("From C1-iM1");
8.  }
9.  void c1M1(){
10. System.out.println("sample");
11. }
12. } //end of C1
13.
14. class C2 implements intf1 {
15. public void c2M1() {
16. System.out.println("From C2-M1");
17. }
18. } //end of C2
19.
20. public TestClass1 {
21. public static void main(String[] args) {
```

```
22.     C1 obj1 = new C1();
23.     C2 obj2 = new C2();
24.     obj1.iM1();
25.     obj1.m1();
26.     obj2.c2M1();
27.     } //end of main method
28.     } // end of TestClass1
```

b. ***Snippet -2*** 5

```
1.      class C1 {
2.      int m1(){return 5;}
3.      }
4.      class C2 extends C1{
5.      int m1(){return 10;}
6.      int m2(){return 20;}
7.      }
8.      class C3 extends C1{
9.      int m1(){return 15;}
10.     }

11.     class TestClass2{
12.     public static void main(String args[]){
13.     C1 obj1 = new C1();
14.     C1 obj2 = new C1();
15.     C2 obj3 = new C2();
16.     C1 obj4 = new C3();
17.     System.out.println("From Obj1 "+ obj1.m1());
18.     System.out.println("From Obj2 "+ obj2.m1());
19.     System.out.println("From Obj3 "+ obj3.m1()+ " - "+obj3.m2());
20.     System.out.println("From Obj4 "+ obj4.m1());
21.     } //end of main
22.     } //end of TestClass2
```

4. Write a single Java file program to do the following: 10
   a. Get a directory name from user and check it is directory or not.
   b. If it is directory, list all java files available in that along with the size. Finally, display the count of java files and sum of the size.
   c. Display the error message when the input is not directory

5. Write a Java program to get a user name and the age. Here, the name should contain alphabets and space only. Sample valid names Akash R, Vidhya Priya M, Thushar Zacharia. i.e. the name should contain minimum of two parts. The first letter must be capital letter and the rest are small if any. The age must be between 1 and 100. These two should be validated after getting from user. Create a user defined class to represent these details. If the input is correct then create an object, otherwise throw the exception by stating the exact error. 10