TEST -7

JAVA

1.

```java
public class Main {
    public static class Employee {
        private String name;
        private double salary;
        public Employee(String name, double salary) {
            this.name = name;
            this.salary = salary;
        }
        public String getName() {
            return name;
        }
        public double getSalary() {
            return salary;
        }
        public String toString() {
            return "Employee [Name=" + name + ", Salary=" + salary + "]";
        }
    }
    public static class Manager extends Employee {
        private String department;
        public Manager(String name, double salary, String department) {
            super(name, salary);
            this.department = department;
        }
        public String getDepartment() {
            return department;
        }
        public String toString() {
            return "Manager [Name=" + getName() + ", Salary=" + getSalary() + ", Department=" + department +
                "]";
        }
    }
    public static void main(String[] args) {
        Employee emp = new Employee(" vishnu", 50000);
        System.out.println(emp);
        Manager mgr = new Manager("sai", 75000, "IT");
        System.out.println(mgr);
}
}
```

```
java -cp /tmp/UqC2RSwlA6/Main
Employee [Name= vishnu, Salary=50000.0]
Manager [Name=sai, Salary=75000.0, Department=IT]

=== Code Execution Successful ===
```

2.

```java
class Person {
    String name;
    int age;

    public void displayInfo() {
        System.out.println("Name: " + name);
        System.out.println("Age: " + age);
    }
}

class Student extends Person {
    int studentId;


    public void displayInfo() {
        super.displayInfo();
        System.out.println("Student ID: " + studentId);
    }
}
public class Main {
    public static void main(String[] args) {
        Student student = new Student();
        student.name = "nithin";
        student.age = 20;
        student.studentId = 192325048;

        student.displayInfo();
    }
}
```

```
java -cp /tmp/GrVFJPOLi9/Main
Name: nithin
Age: 20
Student ID: 192325048

=== Code Execution Successful ===
```

3.

```java
class Vehicle {
    public void move() {
        System.out.println("Vehicle is moving");
    }
}

class Car extends Vehicle {

    public void move() {
        System.out.println("Car is being driven");
    }
}

class Bicycle extends Vehicle {
    public void move() {
        System.out.println("Bicycle is being pedaled");
    }
}

public class Main {
    public static void main(String[] args) {
        Vehicle vehicle = new Vehicle();
        Car car = new Car();
        Bicycle bicycle = new Bicycle();

        vehicle.move();
        car.move();
        bicycle.move();
    }
}
```

```
java -cp /tmp/SPWN8kj8db/Main
Vehicle is moving
Car is being driven
Bicycle is being pedaled

=== Code Execution Successful ===
```

4.

```java
abstract class Shape {
    public abstract double calculateArea();
    public abstract double calculatePerimeter();
}

class Circle extends Shape {
    private double radius;

    public Circle(double radius) {
        this.radius = radius;
    }
   public double calculateArea() {
        return Math.PI * radius * radius;
    }
    public double calculatePerimeter() {
        return 2 * Math.PI * radius;
    }
}

class Rectangle extends Shape {
    private double width;
    private double height;

    public Rectangle(double width, double height) {
        this.width = width;
        this.height = height;
    }
    public double calculateArea() {
        return width * height;
    }
    public double calculatePerimeter() {
        return 2 * (width + height);
    }
}
class Triangle extends Shape {
    private double side1;
    private double side2;
    private double side3;

    public Triangle(double side1, double side2, double side3) {
        this.side1 = side1;
        this.side2 = side2;
        this.side3 = side3;
    }

    public double calculateArea() {
        double s = calculatePerimeter() / 2;
        return Math.sqrt(s * (s - side1) * (s - side2) * (s - side3));
    }
 public double calculatePerimeter() {
        return side1 + side2 + side3;
    }
}
public class Main {
    public static void main(String[] args) {
        Shape circle = new Circle(1.5);
        Shape rectangle = new Rectangle(4.0, 6.0);
        Shape triangle = new Triangle(3.0, 4.0, 5.0);

        System.out.println("Circle:");
        System.out.println("Area: " + circle.calculateArea());
        System.out.println("Perimeter: " + circle.calculatePerimeter());

        System.out.println("\nRectangle:");
        System.out.println("Area: " + rectangle.calculateArea());
        System.out.println("Perimeter: " + rectangle.calculatePerimeter());

        System.out.println("\nTriangle:");
        System.out.println("Area: " + triangle.calculateArea());
        System.out.println("Perimeter: " + triangle.calculatePerimeter());
    }
}
```

```
java -cp /tmp/hvaNR3NQhs/Main
Circle:
Area: 78.53981633974483
Perimeter: 31.415926535897932

Rectangle:
Area: 24.0
Perimeter: 20.0

Triangle:
Area: 6.0
Perimeter: 12.0

=== Code Execution Successful ===
```