WORKSHEET2- PULKIT SHARMA

Q1.Java method overloading implements the OOPS concept

answer: C. Polymorphism

Q2.Data members and member functions of a class are private by default.

answer: A. True

Q3.Which of the following functions can be inherited from the base class?

answer: C. ALL

Q4. Identify the feature, which is used to reduce the use of nested classes.?

ANSWER: B. Abstraction

Q5. Which concept of Java is achieved by combining methods and attributes into a class?

ANSWER: A. Encapsulation

Q6.Which of the following declarations does not compile?

ANSWER: A. double num1, int num2 = 0;

Q7.Which of these interface must contain a unique element?

ANSWER:A. Set

Q8.Predict the output?package main;class T {int t = 20;}class Main {public static void main(String args[]) {T t1 = new T();System.out.println(t1.t);}}

ANSWER: OUTPUT= A. 20

A class named T is defined with an integer instance variable t initialized to 20.

In the Main class's main method:

- An instance of class T is created using new T().
- The value of t within the created T object is accessed using t1.t.
- The value of t is 20, and it is printed to the console using System.out.println(t1.t).

Q9. What is the output of the below Java program?//bingo.java filepublic class Hello{public static void main(String[] args){System.out.println("BINGO");}}

ANSWER: A. BINGO

The class is named Hello.

The main method is defined with the public static void modifiers, which makes it the entry point of the program.

Inside the main method, the System.out.println statement is used to print the string "BINGO" to the console.

When the program is executed, the output "BINGO" will be displayed on the console.

Q10.What will be the output of the following Java program?class variable_scope{public static void main(String args[]){int x;x = 5;{int y = 6;System.out.print(x + " " + y);}System.out.println(x + " " + y);}}

ANSWER: A. Compilation Error

The variable x is declared and initialized with the value 5 outside the inner block.

Inside the inner block, a variable y is declared and initialized with the value 6.

The first System.out.print statement prints the values of x and y within the inner block.

The second System.out.println statement tries to print the values of x and y outside the inner block.

However, the variable y is not accessible outside the inner block because it was declared within that block.

So, the compiler will throw an error for the second System.out.println statement, as it's trying to access a variable y that is not in scope.

Q11.What will be the output of the following Java code?class String_demo{public static void main(String args[]){char chars[] = {'a', 'b', 'c'};String s = new String(chars);System.out.println(s);}}

ANSWER: A. abc

An array of characters chars is declared and initialized with the values 'a', 'b', and 'c'.

A new String object s is created using the constructor that takes an array of characters as its argument.

The characters from the array are used to construct the string "abc".

The System.out.println statement prints the value of the string s, which is "abc".

Q12. What will be the output of the following Java program?final class A{int i;}class B extends A{int j;System.out.println(j + " " + i);}class inheritance{public static void main(String args[]){B obj = new B();obj.display();}}

answer: D. Compilation Error

The System.out.println statement is directly placed within the class definition for class B. Statements outside methods are not allowed in Java class definitions.

The class B is trying to inherit from class A, but class A is declared as final, which means it cannot be inherited from. This will lead to a compilation error.

The class B has a field j which is not being used in any method or constructor.

Q13.What is output of following programpublic class Test{public int getData() //getdata() 1{return 0;}public long getData() //getdata 2{return 1;}public static void main(String[] args){Test obj = new Test();System.out.println(obj.getData());}}

ANSWER: D. Compilation Error

There are two methods with the same name getData(), but they differ only in their return types (int and long).

Java cannot distinguish between the methods based on their return types alone, and this leads to a compilation error.

You would need to use different method names or adjust the method parameter types to avoid this conflict and allow the code to compile and run.

Q14. What is the output of the following program?public class Test{static int start = 2;final int end;public Test(int x) {x = 4;end = x;}public void fly(int distance) {System.out.println(end-start+" ");System.out.println(distance);}public static void main(String []args){new Test(10).fly(5);}}

ANSWER: A. [2 5]

The main method is the entry point of the program.

An instance of the Test class is created using the constructor new Test(10).

Inside the constructor, the local variable x is assigned the value 4, but it's not directly used afterward.

The end instance variable is then assigned the value of x, which is 4.

The fly method is called on the created instance with the argument 5.

Inside the fly method:

- end - start evaluates to 4 - 2, which is 2.
- The first System.out.println statement prints 2.
- The second System.out.println statement prints the value of the distance argument, which is 5.

Q15.What is the output of the following program?String john = "john";String jon = new String(john);System.out.println((john==jon) + " "+ (john.equals(jon)));

ANSWER: C. false true

john is assigned the value "john" using string literal.

jon is assigned the value of a new String object created using the constructor new String(john). This creates a new instance of a String object, even though the content is the same as the john string.

The == operator is used to compare object references. Since john and jon are two separate String objects, the comparison using == will result in false.

The .equals() method is used to compare the content of the strings. The content of both john and jon is "john", so the comparison using .equals() will result in true.

Q16. Given that Student is a class, how many reference variables and objects are createdby the following code?Student studentName, studentId;studentName = new Student();Student stud_class = new Student();

ANSWER: B. Two reference variables and two objects are created.

Q17. Write a java program to check even or odd number?

ANSWER: import java.util.Scanner;

```
public class EvenOddCheck {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a number: ");
```

```
        int number = scanner.nextInt();


        if (number % 2 == 0) {

            System.out.println(number + " is an even number.");

        } else {

            System.out.println(number + " is an odd number.");

        }


        scanner.close();

    }

}
```

Q18. Write a java program to find average of two numbers?

ANSWER: import java.util.Scanner;

```
public class AverageCalculator {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the first number: ");

        double num1 = scanner.nextDouble();


        System.out.print("Enter the second number: ");

        double num2 = scanner.nextDouble();


        double average = (num1 + num2) / 2;


        System.out.println("The average of " + num1 + " and " + num2 + " is: " + average);
```

```
        scanner.close();

    }

}


Q19. Write a java program to swap two numbers?

ANSWER: import java.util.Scanner;


public class NumberSwap {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the first number: ");

        int num1 = scanner.nextInt();


        System.out.print("Enter the second number: ");

        int num2 = scanner.nextInt();


        System.out.println("Before swapping: num1 = " + num1 + ", num2 = " + num2);


        // Swapping logic using a temporary variable

        int temp = num1;

        num1 = num2;

        num2 = temp;


        System.out.println("After swapping: num1 = " + num1 + ", num2 = " + num2);


        scanner.close();
```

```
    }

}
```

Q20. Write a java program to check whether a number is prime or not

ANSWER: import java.util.Scanner;

```java
public class PrimeNumberCheck {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a number: ");

        int number = scanner.nextInt();


        boolean isPrime = isPrimeNumber(number);


        if (isPrime) {

            System.out.println(number + " is a prime number.");

        } else {

            System.out.println(number + " is not a prime number.");

        }


        scanner.close();

    }


    // Function to check if a number is prime

    public static boolean isPrimeNumber(int num) {

        if (num <= 1) {

            return false;

        }
```

```java
        for (int i = 2; i * i <= num; i++) {

            if (num % i == 0) {

                return false;

            }

        }


        return true;

    }

}
```

Q21. Write a java program to find table of n?

ANSWER: import java.util.Scanner;


```java
public class MultiplicationTable {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a number: ");

        int n = scanner.nextInt();


        System.out.println("Multiplication Table of " + n + ":");

        for (int i = 1; i <= 10; i++) {

            System.out.println(n + " x " + i + " = " + (n * i));

        }


        scanner.close();

    }

}
```

Q22. Write a java program to find the largest of three numbers?

ANSWER: import java.util.Scanner;

public class LargestNumber {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the first number: ");

        double num1 = scanner.nextDouble();

        System.out.print("Enter the second number: ");

        double num2 = scanner.nextDouble();

        System.out.print("Enter the third number: ");

        double num3 = scanner.nextDouble();

        double largest = findLargest(num1, num2, num3);

        System.out.println("The largest of the three numbers is: " + largest);

        scanner.close();

    }

    // Function to find the largest of three numbers

    public static double findLargest(double a, double b, double c) {

        return Math.max(Math.max(a, b), c);

    }

}

Q23. Write a java program to calculate Simple Interest?

ANSWER: import java.util.Scanner;

```java
public class SimpleInterestCalculator {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the principal amount: ");
        double principal = scanner.nextDouble();

        System.out.print("Enter the rate of interest: ");
        double rate = scanner.nextDouble();

        System.out.print("Enter the time (in years): ");
        double time = scanner.nextDouble();

        double simpleInterest = (principal * rate * time) / 100;

        System.out.println("Simple Interest: " + simpleInterest);

        scanner.close();
    }
}
```

Q24. Write a java program to calculate Area and perimeter of Rectangle?

ANSWER: import java.util.Scanner;

```java
public class RectangleCalculator {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the length of the rectangle: ");

        double length = scanner.nextDouble();


        System.out.print("Enter the width of the rectangle: ");

        double width = scanner.nextDouble();


        double area = calculateArea(length, width);

        double perimeter = calculatePerimeter(length, width);


        System.out.println("Area of the rectangle: " + area);

        System.out.println("Perimeter of the rectangle: " + perimeter);


        scanner.close();

    }


    // Function to calculate the area of a rectangle

    public static double calculateArea(double length, double width) {

        return length * width;

    }


    // Function to calculate the perimeter of a rectangle

    public static double calculatePerimeter(double length, double width) {

        return 2 * (length + width);

    }
```

}

Q25. Write a java program to check whether character is vowel or consonant?

ANSWER: import java.util.Scanner;

```java
public class VowelConsonantChecker {
  public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);

    System.out.print("Enter a character: ");
    char ch = scanner.next().charAt(0);

    if (isVowel(ch)) {
      System.out.println(ch + " is a vowel.");
    } else {
      System.out.println(ch + " is a consonant.");
    }

    scanner.close();
  }

  // Function to check if a character is a vowel
  public static boolean isVowel(char ch) {
    ch = Character.toLowerCase(ch);
    return ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u';
  }
}
```