FULL STACK DEVELOPMENT – WORKSHEET 2

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Batch - FSG0123

Q1. Java method overloading implements the OOPS concept

A. Encapsulation
B. Inheritance
C. Polymorphism
D. Abstraction

Ans: C. Polymorphism

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

A. True
B. False
C. Depend on code
D. None

Ans: A. True

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

A. Constructor
B. Static
C. All
D. None

Ans: B. Static

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

A. Binding
B. Abstraction
C. Inheritance
D. None

Ans: B. Abstraction

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

A. Encapsulation
B. Inheritance
C. Polymorphism
D. Abstraction

Ans: A. Encapsulation

Q6. Which of the following declarations does not compile?

A. double num1, int num2 = 0;
B. int num1, num2;
C. int num1, num2 = 0;
D. int num1 = 0, num2 = 0;

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

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

A. Set
B. List
C. Array
D. collection

Ans: A. Set

Q8 to Q16 you have to find output and give explanation where needed.

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);

}

}
```

A. 20
B. 0
C. COMPILE ERROR

Ans: A. 20

Explanation:

The code defines a class T with a variable t set to 20. In the main method, it creates an instance of T and prints its t value, which is 20. Thus, the output is 20 (Option A).

Q9. What is the output of the below Java program?

```
//bingo.java file
public class Hello
{
public static void main(String[] args)
{
System.out.println("BINGO");
}
}
```

A. BINGO
B. bingo
C. 0
D. Compile Error

Ans: A. BINGO

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);

}

}
```

A. Compilation Error
B. Runtime Error
C. 5 6 5 6
D. 5 6 5

Ans: A. Compilation Error

Explanation:

The variable y is declared inside a block and is not accessible outside that block. Trying to print y outside the block will lead to a compilation error.

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);

}

}
```

A. abc
B. a
C. b
D. c

Ans: A. abc

Explanation: The code defines a character array **chars** with values 'a', 'b', and 'c'. It creates a string **s** using the characters from the array. The **System.out.println(s);** statement prints the string, resulting in "abc" as the output (Option A).

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();
}
}
```

Ans: As there is some errors in the given code so it won't compile and execute successfully. Therefore, there won't be any output.

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);
```

```
}

}
```

A. abc
B. a
C. b
D. c

Ans: A. 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();

}

}
```

A. 2 2
B. 3 3
C. Runtime Error
D. Compilation Error

Ans: A. Compilation Error

Q13.What is output of following program

```
public 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());
}
}
```

A. 1
B. 0
C. Runtime Error
D. Compilation Error

Ans: D. Compilation Error

Q16. Given that Student is a class, how many reference variables and objects are created by the following code?

```
Student studentName, studentId;
studentName = new Student();
Student stud_class = new Student();
```

A. Three reference variables and two objects are created.
B. Two reference variables and two objects are created.
C. One reference variable and two objects are created.
D. Three reference variables and three objects are created.

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

Q17 to Q25 are simple java programs to write.

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

Ans:

```
import java.util.Scanner;

public class EvenOddChecker {
    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

Ans:

```
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

Ans:

```
import java.util.Scanner;

public class NumberSwapper {
    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:");
        System.out.println("First number: " + num1);
        System.out.println("Second number: " + num2);

        int temp = num1;
        num1 = num2;
        num2 = temp;

        System.out.println("After swapping:");
        System.out.println("First number: " + num1);
        System.out.println("Second number: " + num2);

        scanner.close();
    }
}
```

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

Ans:

```
import java.util.Scanner;

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

        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        boolean isPrime = true;

        if (number <= 1) {
            isPrime = false;
        } else {
            for (int i = 2; i <= Math.sqrt(number); i++) {
                if (number % i == 0) {
                    isPrime = false;
                    break;
                }
            }
        }

        if (isPrime) {
            System.out.println(number + " is a prime number.");
        } else {
            System.out.println(number + " is not a prime number.");
        }

        scanner.close();
    }
}
```

Q21. Write a java program to find table of n

Ans:

```
import java.util.Scanner;

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.

Ans:

```
import java.util.Scanner;

public class LargestOfThree {
    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 = num1;

        if (num2 > largest) {
            largest = num2;
        }

        if (num3 > largest) {
            largest = num3;
        }

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

        scanner.close();
    }
}
```

Q23. Write a java program to calculate Simple Interest

Ans:

```
import java.util.Scanner;

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 (in percentage): ");
        double rate = scanner.nextDouble();

        System.out.print("Enter the time period (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

Ans:

```
import java.util.Scanner;

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 = length * width;
        double perimeter = 2 * (length + width);

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

        scanner.close();
    }
}
```

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

Ans:

```
import java.util.Scanner;

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 ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
         // Convert to lowercase for easy comparison
         char lowercaseCh = Character.toLowerCase(ch);

         if (lowercaseCh == 'a' || lowercaseCh == 'e' || lowercaseCh == 'i' || lowercaseCh == 'o' ||
lowercaseCh == 'u') {
            System.out.println(ch + " is a vowel.");
         } else {
            System.out.println(ch + " is a consonant.");
         }
      } else {
         System.out.println("Invalid input. Please enter a valid character.");
      }

      scanner.close();
   }
}
```