Rajalakshmi Engineering College

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_MCQ

Attempt : 1
Total Mark : 15
Marks Obtained : 12

Section 1 : MCQ

1. Which of the following is not a primitive data type?

Answer

string

Status : Correct ***Marks : 1/1***

2. What will be the output of the following program?

```
class DataTypesMCQ {
   public static void main(String[] args) {
      int a = 10;
      double b = 5;
      System.out.println(a / b);
   }
```

```
}
```

Answer

2.0

Status : Correct ***Marks : 1/1***

3. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int a = 10;
        int b = 3;
        System.out.println(a / b);
    }
}
```

Answer

3

Status : Correct ***Marks : 1/1***

4. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int count = 8;
        count = count ^ 1;

        System.out.println(count);
    }
}
```

Answer

4

Status : Wrong ***Marks : 0/1***

5. What is the output of the following program?

```
class Arithmetic {
    public static void main(String[] args) {
        char ch = 'A';
        System.out.println(ch);
    }
}
```

Answer

A

Status : Correct ***Marks : 1/1***

6. What will be the output of the following code?

```
import java.util.*;

class TernaryOperatorExample {
    public static void main(String[] args) {
        int a = 5, b = 10;
        int result = (a > b) ? a : b;
        System.out.println(result);
    }
}
```

Answer

10

Status : Correct ***Marks : 1/1***

7. Which of the following data types is used to store single characters?

Answer

char

Status : Correct ***Marks : 1/1***

8. What is the output of the following code?

```
import java.util.*;

class RelationalOperatorExample {
    public static void main(String[] args) {
        int x = 8, y = 4;
        boolean result = (x != y);

        System.out.println(result);
    }
}
```

Answer

false

Status : Wrong ***Marks : 0/1***

9. What will be the output of the following code snippet?

```
class DivisionExample {
    public static void main(String[] args) {
        double num1 = 10.5;
        double num2 = 3;
        int result = (int)(num1 / num2);
        System.out.println(result);
    }
}
```

Answer

3

Status : Correct ***Marks : 1/1***

10. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int x = 5;
        int X = 10;
```

```
        int sum = x + X;
        int bitwiseResult = x | X;

        System.out.println(sum);
        System.out.println(bitwiseResult);
    }
}
```

Answer

1515

Status : Correct ***Marks : 1/1***

11. Which of the following data types is used to store floating-point numbers with greater precision?

Answer

double

Status : Correct ***Marks : 1/1***

12. What is the result of the following expression?

```
import java.util.*;

class ComplexExpressionExample {
    public static void main(String[] args) {
        int a = 5, b = 2, c = 3, d = 4;
        int result = a + b * c / d - b;

        System.out.println(result);
    }
}
```

Answer

6

Status : Wrong ***Marks : 0/1***

13. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int a = 5;
        int b = 10;

        int sum = a + b;
        int bitwiseAnd = a & b;
        int bitwiseOr = a | b;

        System.out.println(sum);
        System.out.println(bitwiseAnd);
        System.out.println(bitwiseOr);
    }
}
```

Answer

15015

Status : Correct ***Marks : 1/1***

14. What will be the output of the following code snippet?

```
import java.util.*;

class OperatorPrecedenceExample {
    public static void main(String[] args) {
        int a = 5, b = 3, c = 2;
        int result = a + b * c;

        System.out.println(result);
    }
}
```

Answer

11

Status : Correct ***Marks : 1/1***

15. What is the output of the following program?

```
class Demo {
    public static void main(String[] args) {
        String text = "Hello, World!";
        System.out.println(text);
    }
}
```

Answer

Hello, World!

Status : Correct ***Marks : 1/1***

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q1

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Gloria is responsible for monitoring the performance of two machines in a factory. She needs to determine which of the two machines is operating closest to the optimal temperature of 100 degrees Celsius using the relational operator.

Assist Gloria in displaying the machine's temperature, which is closer to 100, and the difference from 100.

Input Format

The first line of input consists of an integer N, representing the temperature of the first machine.

The second line consists of an integer M, representing the temperature of the second machine.

Output Format

The output prints "The integer closer to 100 is X with a difference of Y" where X is the temperature of the closer machine and Y is the difference from 100.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 90
80
Output: The integer closer to 100 is 90 with a difference of 10

Answer

```
import java.util.Scanner;

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

        // Read temperatures of the two machines
        int N = scanner.nextInt();
        int M = scanner.nextInt();

        // Calculate the absolute difference from 100 for each machine
        int diffN = Math.abs(100 - N);
        int diffM = Math.abs(100 - M);

        // Compare the differences to find which machine is closer
        if (diffN < diffM) {
            System.out.println("The integer closer to 100 is " + N + " with a difference
of " + diffN);
        } else {
            System.out.println("The integer closer to 100 is " + M + " with a difference
of " + diffM);
        }

        scanner.close();
    }
}
```

Status : Correct *Marks : 10/10*

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q2

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. PROBLEM STATEMENT:

Dave got two students who wants help with their doubt. Each handouts an integer and wants to find if one Integer Positive While the Other is Not Divisible by 3. Write a program to achieve this and conclude for them.

Input Format

The first line of input represents the first integer.

The second line of input represents the second integer.

Output Format

The output should display as "One of the integers is positive while the other is not divisible by 3." or "Neither of the integers meets the condition."

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 4
3
Output: One of the integers is positive while the other is not divisible by 3.

Answer

```
import java.util.Scanner;

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

      // Read the two integers
      int num1 = scanner.nextInt();
      int num2 = scanner.nextInt();

      // Check the condition: one integer is positive AND the other is not divisible
by 3
      boolean conditionMet = false;

      // Case 1: num1 is positive and num2 is not divisible by 3
      if (num1 > 0 && num2 % 3 != 0) {
         conditionMet = true;
      }
      // Case 2: num2 is positive and num1 is not divisible by 3
      else if (num2 > 0 && num1 % 3 != 0) {
         conditionMet = true;
      }

      // Output the result
      if (conditionMet) {
         System.out.println("One of the integers is positive while the other is not
divisible by 3.");
      } else {
         System.out.println("Neither of the integers meets the condition.");
      }

      scanner.close();
```

```
    }
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem statement

Manoj, a developer at MoneyMatters Inc., is working on improving the company's financial system. He needs to create a program that takes an integer input, converts it into a double, and displays both the original integer and the converted double value.

Input Format

The input consists of a single integer representing a monetary amount.

Output Format

The first line of the output displays the "Original Integer: ", followed by an integer representation of the input value.

The second line displays the "Converted Double: ", followed by a double value representing the input as a decimal value.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 20

Output: Original Integer: 20
Converted Double: 20.0

Answer

```
import java.util.Scanner;

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

        // Read the integer input
        int originalInteger = scanner.nextInt();

        // Convert the integer to a double
        double convertedDouble = (double) originalInteger;

        // Display the original integer and the converted double
        System.out.println("Original Integer: " + originalInteger);
        System.out.println("Converted Double: " + convertedDouble);

        scanner.close();
    }
}
```

Status : Correct ***Marks : 10/10***

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q4

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Vishal and Arun are discussing the properties of numbers. Vishal gives Arun two integers. He asks Arun to check if the sum of these two numbers is a multiple of their product.

Can you assist Arun and determine whether the sum is a multiple of the product?

Input Format

The input consists of two space-separated integers.

Output Format

The output prints:

1. "Sum is Multiple of Product" if the sum of the two numbers is divisible by their product.
2. "Sum is Not Multiple of Product" otherwise.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1 2

Output: Sum is Not Multiple of Product

Answer

```
import java.util.Scanner;

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

      // Read the two integers from a single line
      int num1 = scanner.nextInt();
      int num2 = scanner.nextInt();

      // Calculate the sum and product
      int sum = num1 + num2;
      int product = num1 * num2;

      // Check if the sum is a multiple of the product
      // This is true if the product is not zero and the sum is divisible by the product.
      // The problem constraints (1 <= input integers <= 100) ensure the product will never be zero.
      if (sum % product == 0) {
         System.out.println("Sum is Multiple of Product");
      } else {
         System.out.println("Sum is Not Multiple of Product");
      }

      scanner.close();
   }
}
```

Status : Correct *Marks : 10/10*

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q5

Attempt : 1
Total Mark : 10
Marks Obtained : 6

Section 1 : Coding

1. Problem Statement:

Emily has a beautiful circular garden in her backyard. She's interested in calculating two important measurements for her garden: the circumference and the area. To do this, she needs a program that can take the radius of her circular garden as input and provide the calculated circumference and area as output. The formulas she should use are as follows:

To calculate the circumference (C) of a circle, you can use the formula:

C = 2 * π * r

A = π * r^2

Where:

C represents the circumference.

A represents the area.

π (pi) is approximately 3.14159.

r is the radius of the circle.

Emily is not a programmer, and she needs your help to create a program that will make these calculations for her garden.

Input Format

The first line of input contains a single double-point number radius, representing the radius of the circle.

Output Format

The output should consist of two lines:

The first line should print the circumference of the circle rounded to 2 decimal places, followed by the unit "meters".

The second line should print the area of the circle rounded to 2 decimal places, followed by the unit "square meters".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 3.0

Output: Circumference: 18.85 meters
Area: 28.27 square meters

Answer

```
import java.util.Scanner;
import java.lang.Math; // For Math.PI

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

```
        // Read the radius as a double
        double radius = scanner.nextDouble();

        // Define PI (using Math.PI for precision, as 3.14159 is an approximation)
        final double PI = Math.PI;

        // Calculate circumference
        double circumference = 2 * PI * radius;

        // Calculate area
        double area = PI * radius * radius; // Or Math.pow(radius, 2);

        // Print the circumference, formatted to 2 decimal places
        System.out.printf("Circumference: %.2f meters%n", circumference);

        // Print the area, formatted to 2 decimal places
        System.out.printf("Area: %.2f square meters%n", area);

        scanner.close();
    }
}
```

Status : Partially correct **Marks : 6/10**

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q7

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement:

Miles is working on a program that involves analyzing two integers. He wants to check if either one of the integers is both:

Less than or equal to zero, andOdd.Can you help him create a program that identifies whether either of the integers meets these conditions?

Input Format

The input consists of two integers on separate lines, denoted as 'input1' and 'input2'.

Output Format

A single line with a boolean result (either 'true' or 'false') indicating whether either 'input1' or 'input2' is both less than or equal to zero and odd.

Refer to the sample output for format specifications

Sample Test Case

Input: -45
10
Output: true

Answer

```
import java.util.Scanner;

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

        // Read the two integers
        int input1 = scanner.nextInt();
        int input2 = scanner.nextInt();

        // Check the condition for the first integer: less than or equal to zero AND
odd
        boolean condition1 = (input1 <= 0) && (input1 % 2 != 0);

        // Check the condition for the second integer: less than or equal to zero AND
odd
        boolean condition2 = (input2 <= 0) && (input2 % 2 != 0);

        // Check if EITHER of the conditions is true
        boolean result = condition1 || condition2;

        // Print the boolean result
        System.out.println(result);

        scanner.close();
    }
}
```

Status : Correct ***Marks : 10/10***

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q8

Attempt : 1
Total Mark : 10
Marks Obtained : 5

Section 1 : Coding

1. Problem Statement

In the Kingdom of Finance, the royal treasury is managed by the treasurer, Sir Cedric. Sir Cedric tracks the daily expenses of the kingdom using an expense report that lists three major categories: food, clothing, and utilities. However, the King wants to know if the average daily expense is greater than at least two of these categories to ensure the kingdom is spending wisely.

Your task is to help Sir Cedric determine if the average daily expense is greater than two of the categories. Specifically, you need to calculate the average of the three expenses and check if it is greater than any two categories.

Note: Use the ternary operator

Input Format

Three integers a, b, and c represent the daily expenses for food, clothing, and utilities. Each integer is provided on a single line.

Output Format

The average of the three expenses, rounded to two decimal places.

A message indicating whether the average is greater than at least two of the expense categories.

1. If the average is greater than the two smallest monthly expenses, print "Average is greater than both X and Y," where X and Y are the two smallest expenses.
2. Otherwise, display "Average is not greater than two smallest expenses".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 4
6
10

Output: 6.67
Average is greater than both 4 and 6

Answer

```
import java.util.Scanner;
import java.util.Arrays;

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

      // Read the three integer expenses
      int a = scanner.nextInt();
      int b = scanner.nextInt();
      int c = scanner.nextInt();

      // Calculate the average (casting to double for floating-point division)
```

```
        double average = (double) (a + b + c) / 3;

        // Print the average, formatted to two decimal places
        System.out.printf("%.2f%n", average);

        // To find the two smallest expenses, we can sort them.
        int[] expenses = {a, b, c};
        Arrays.sort(expenses);
        int smallest1 = expenses[0];
        int smallest2 = expenses[1];

        // Use the ternary operator to determine the output message
        String resultMessage = (average > smallest1 && average > smallest2) ?
                        "Average is greater than both " + smallest1 + " and " +
smallest2 :
                        "Average is not greater than two smallest expenses";

        // Print the result message
        System.out.println(resultMessage);

        scanner.close();
    }
}
```

Status : Partially correct **Marks : 5/10**

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q10

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Aishu is supervising a construction project that needs to be completed with the help of three workers: A, B, and C.

She knows how many days each of them would take to complete the entire project individually:

A can complete it in x days,B in y days,C in z days.

Initially, all three workers (A, B, and C) work together for d1 days.

After that, C leaves, and only A and B continue for another d2 days.

Then B also leaves, and A works alone to finish the remaining work.

Your tasks is to help aishu to implement this functionality using the class WorkDistribution and Method calculateWork(int x, int y, int z, int d1, int d2)

Calculate the total work completed in the first d1 days by A, B, and C.Calculate the work completed in the next d2 days by A and B.Determine the remaining work after these d1 + d2 days.

Input Format

The first line of input contains five space-separated integers: x y z d1 d2

where:

x represents the Days A takes to complete the work alone

y represents the Days B takes to complete the work alone

z represents the Days C takes to complete the work alone

d1 represents the Days A, B, and C work together

d2 represents the Days A and B work together (after C leaves)

Output Format

The first line of output prints "Work done in first d1 days (A+B+C): " followed by a double value rounded to 2 decimal places.

The second line of output prints "Work done in next d2 days (A+B): " followed by a double value rounded to 2 decimal places.

The third line prints "Remaining work: " followed by a double value rounded to 2 decimal places.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 10 20 30 2 2

Output: Work done in first d1 days (A+B+C): 0.37
Work done in next d2 days (A+B): 0.30
Remaining work: 0.33

Answer

```
import java.util.Scanner;

// The class to handle work distribution calculations
class WorkDistribution {
    public void calculateWork(int x, int y, int z, int d1, int d2) {
        // Calculate the daily work rate for each worker
        double rateA = 1.0 / x;
        double rateB = 1.0 / y;
        double rateC = 1.0 / z;

        // Calculate the work done in the first d1 days by A, B, and C
        double workDoneD1 = d1 * (rateA + rateB + rateC);

        // Calculate the work done in the next d2 days by A and B
        double workDoneD2 = d2 * (rateA + rateB);

        // Calculate the total work completed
        double totalWorkDone = workDoneD1 + workDoneD2;

        // Calculate the remaining work (total work is 1.0)
        double remainingWork = 1.0 - totalWorkDone;

        // Print the results formatted to 2 decimal places
        System.out.printf("Work done in first d1 days (A+B+C): %.2f%n",
workDoneD1);
        System.out.printf("Work done in next d2 days (A+B): %.2f%n", workDoneD2);
        System.out.printf("Remaining work: %.2f%n", remainingWork);
    }
}

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

        // Read the five space-separated integers
        int x = scanner.nextInt();
        int y = scanner.nextInt();
        int z = scanner.nextInt();
        int d1 = scanner.nextInt();
        int d2 = scanner.nextInt();

        // Create an instance of the WorkDistribution class
```

```
        WorkDistribution workCalculator = new WorkDistribution();

        // Call the method to calculate and print the work distribution
        workCalculator.calculateWork(x, y, z, d1, d2);

        scanner.close();
    }
}
```

Status : Correct **Marks : 10/10**