PROGRAMMING FUNDAMENTALS WEEK – 03 ASSIGNMENT

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ICM 106 OR23106564

Question 01

A) avg = (double) tot/10;

Question 02

B) 4.0 4.5 4.5 5.0

Question 03

A : 3

B : -3

C : 3

D : -3

E : 3

F : -3

G : 3

Only sign of Dividend number is considered on modular operator.

Question 04

A) 17

B) -10

C) -17

D) -3

E) 7

F) -3

Question 06

100101

104

104

105

* x++ is post increment and its run after the assignment operation in this statement. So x always get current value.

* But when it comes to ++x, its excecated before assigning the value.

Question 07

101 100

102 101

103 102

y=x++; This statement assigns the current value of x to y and then increments the value of x. So, after this line, y will have the current value of x before the increment.

Question 08

101 101

102 102

103 103

y=++x; This statement increments the value of x and then assigns the result to y. So, after this line, both x and y will have the incremented value of x.

Question 09

100

100

100

101

102

103

Question 10

A) 30 : Basic addition operation with default (+) sign for both.

B) -10 : Equipped with (-) sign for 'b' and 'b' become -20. so arithmetic operation is 10 – 20 = -10

C) 31 : pre-increment operation for 'a' (++a) and a value become 11 and operation is 11+20 = 31

D) 30 : no change for 'a'. 'b' has post increment (b++).In the program execution considered only b`s current value when it is post increment which is 20. So calculation is 10+20 = 30

E) 31 : a has pre-increment (++a) and its current value goes to 11 b has post increment and program consider only previous value which is 20 so calculation is 11+20 = 31

F) 30 : Both has post increment and program consider current value so calculation is 10+20. If we check the values of a and b with SOP after this operation it will indicate that a=11 and b=21

G) 32: Both has pre increment. So both values increment by 1 before calculation. So calculation is 11+21=32

F) 31 : a has post increment and its only consider previous value before calculation. b has pre increment and its value became 21 before calculation. so calculation is 10 + 21 = 31

Question 11

12 - 4 * 2 : 4

(12 - 4) * 2 : 16

12 - (4 * 2) : 4

Java Order of operation as following

1. Parentheses()
2. Prefix (unary) ++x, - - x, -x
3. Postfix x++ , x - -
4. Multiplicative %,/,*
5. Additive + -
6. Assignment = += -= *= /= %=

x= 12 - 4 * 2 : In this statement first operation is 4*2 and second operation is 12 -8. So answer is 4.

x= (12 - 4) * 2 : In this statement first operation is inside Parentheses 12-4 and second operation is Multiplicative 8*2. So answer is 16

x= 12 - (4 * 2) : In this statement first operation is Parentheses -8 and second operation is Additive 12 – 8 So answer is 4

Question 12

x= 7 % 10 / 2 * 2 : in this expression, first executed modular operation 7%10 returns 7. Second operation is division 7/2. Since the final outcome is integer, answer is 3. Finally multifaction 3*2. So final answer is 6

x= 7 % (10 / 2) * 2 : in this expression, first executed Parentheses (10/2) returns 5. Second operation is modular 7/5 returns 2. Finally, multifaction 2*2. So final answer is 4.

x= 7 % 10 / (2 * 2) : in this expression, first executed Parentheses (2*2) returns 4. Second operation is modular 7/10 returns 7. Finally, division 7/4. Since the final outcome is integer, answer is 1.

x= 7 % (10 / (2 * 2)) : in this expression, first executed Parentheses (2*2) returns 4 & (10/4) returns 2. Second operation is modular 7/2 returns 1. So final answer is 1.

x= 7 % ((10 / 2) * 2) : in this expression, first executed Parentheses (10/2) returns 5 & (5*2) returns 10. Second operation is modular 7/10 returns 7. So final answer is 7.

Question 13

```
import java.util.*;

class Example {

	public static void main(String asrg[]) {

		Scanner input = new Scanner(System.in);

		System.out.print("Enter dividend X: ");

		int p = input.nextInt();

		System.out.print("Enter divisor Y: ");

		int q = input.nextInt();


		//Quotient Calculation

		int r = p/q;

		System.out.println("Quotient of X / Y is "+r);

		//Remainder Calculation

		int s = p%q;

		System.out.println("Remainder of X / Y is "+s);

	}

}
```

Question 14

```
import java.util.*;
class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print("Enter First Number: ");
		double p = input.nextInt();
		System.out.print("Enter Second Number: ");
		double q = input.nextInt();

		//Addition Calculation
		double r = p+q;
		System.out.println(" X + Y = "+r);

		//Multification Calculation
		double s = p*q;
		System.out.println(" X * Y = "+s);

		//Subtraction Calculation
		double t = p-q;
		System.out.println(" X - Y = "+t);

		//Division Calculation
		double u = p/q;
		System.out.println(" X / Y = "+u);

		//Reminder Calculation
		double v = p%q;
		System.out.println(" X % Y = "+v);
	}
}
```

Question 15

```
import java.util.*;


class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		double pi = 3.141;

		System.out.print(" Enter redius of the circle: ");
		double redius = input.nextInt();

		//Addition Calculation
		double area = pi*(redius*redius);
		System.out.println(" Area of the circle = "+area);

		//Multifaction Calculation
		double perimeter = 2*pi*redius;
		System.out.println(" perimeter of the circle = "+perimeter);

	}
}
```

Question 16

```
import java.util.*;
class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Enter Price of the Product : ");
		double price = input.nextInt();
		System.out.print(" Enter Discount of the Product % : ");
		double discount = input.nextInt();

		//Discount Calculation
		double disCal = price * (discount/100);
		System.out.println(" Discount is : "+disCal);
	}
}
```

Question 17

```
import java.util.*;

class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		double taxRate = 0.15;
		System.out.print(" Enter the total amount of purchase Rs : ");
		double totAmount = input.nextInt();

		//Tax Calculation
		double taxCal = totAmount * taxRate;
		System.out.println(" Discount is Rs : "+taxCal);
	}
}
```

Question 18

```
import java.util.*;
class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Enter the Kilobyte Value: ");
		double kByte = input.nextInt();

		//Megabyte Calculation
		double mByte = kByte/1024;
		System.out.println(mByte+" Megabytes");

		//Gigabyte Calculation
		double gByte = mByte/1024;
		System.out.println(gByte+" Gigabytes");
	}
}
```

Question 19

```
import java.util.*;
class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Number of days - ");
		int days = input.nextInt();

		//Months Calculation
		int month = days/30;

		//Days Calculation
		int monthBal = month%30;

		System.out.println(" 69 days = "+month+" Months and "+monthBal+" Days");
	}
}
```

Question 20

```
import java.util.*;
class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Input seconds: ");
		int seconds = input.nextInt();

		//hours Calculation
		int hours = seconds/3600;
		int hoursBal = seconds%3600;

		//minutes Calculation
		int minutes = hoursBal/60;

		//second Calculation
		int second = hoursBal%60;

		System.out.println(hours+":"+minutes+":"+second);
	}
}
```

Question 21

```
import java.util.*;


class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" How many eggs do you have : ");
		int eags = input.nextInt();

		//gross Calculation
		int gross = eags/144;
		int grossBal = eags%144;

		//Dozen Calculation
		int dozen = grossBal/12;

		//second Calculation
		int balEags = grossBal%12;

		System.out.println("Your number of eggs is "+gross+" gross, "+dozen+" dozen, and "+balEags);

	}
}
```

Question 22

```
import java.util.*;


class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Enter first Devidend : ");
		int num1 = input.nextInt();

		System.out.print(" Enter second Devisor : ");
		int num2 = input.nextInt();

		//Reminder Calculation
		int result = num1-((num1/num2)*num2);

		System.out.println(" Reminder of "+num1+"/"+num2+" = "+result);
	}
}
```

Question 23

```
import java.util.*;

class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Body mass in Kg : ");
		double mass = input.nextDouble();

		System.out.print(" Height in meters : ");
		double height = input.nextDouble();

		//BMI Calculation
		double bmi = mass/(height*height);
		bmi = (int) (bmi * 100) / 100.0;

		System.out.println("Body Mass Index is "+bmi);
	}
}
```

Question 24

```
import java.util.*;


class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		System.out.print(" Enter basic salary : ");
		double salary = input.nextDouble();

		//Calculations
		double employee = salary*(12.0/100);
		employee = (int) (employee * 100) / 100.0;

		double employer = salary*(3.5/100);
		employer = (int) (employer * 100) / 100.0;

		double pension = salary*(8.3/100);
		pension = (int) (pension * 100) / 100.0;

		System.out.println("Employee Fund = "+employee);
		System.out.println("Employer Fund = "+employer);
		System.out.println("Pension Fund = "+pension);
	}
}
```

Question 25

```
import java.util.*;


class Example {
	public static void main(String asrg[]) {
		Scanner input = new Scanner(System.in);
		double salesTax = 10.0/100;
		System.out.print(" Enter the tax-inclusive price in dollars : ");
		double taxInPrice = input.nextDouble();

		//Calculations
		double accPrice = taxInPrice*(100.0/110);
		double taxCal = accPrice*(10.0/100);
		accPrice = (int)(accPrice*100)/100.0;
		taxCal = (int)(taxCal*100)/100.0;

		System.out.println("Actual Price is: "+accPrice);
		System.out.println("Sales Tax is: "+taxCal);
	}
}
```