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ICM 106 OR23106564

PROGRAMMING FUNDAMENTALS WEEK – 03 ASSIGNMENT

**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);

}

}