INSTITUTE OF SOFTWARE ENGINEERING

GRADUATE DIPLOMA IN SOFTWARE ENGINEERING

ASSIGNMENT NAME

Programming fundamentals

ASSIGNMENT NO

02

NUMBER OF QUESTIONS: 40

NUMBER OF COMPLETED QUESTIONS: 40

NUMBER OF REMAINING QUESTIONS: 00

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BATCH NO: 63

1. What is the difference between print() and println()? Explain your answer with suitable examples.

WHEN WE TYPE PRINTLN WITH SOP COMMAND FIRST THE JAVA PRINT THAT SIMPLE DATA AND THE CURSER MOVE TO NEXT LINE BUT IF WE USE PRINT WITH SOP THE CURSER DOESN'T MOVE TO NEXT LINE.

```
Class Example{
        Public static void main(String args[]){
                System.out.println("Hello");
                System.out.println("World");
        }
}
```

```
OUTPUT

        Hello
        World
```

```
class Example{
        Public static void main(String args[]){
                System.out.print("Hello ");
                System.out.print("World")
        }
}
```

```
OUTPUT

        Hello World
```

2. Write a Java program to print both name and address in several lines.

```
class Example{
        public static void main(String args[]){
                System.out.println("name");
                System.out.println("address");
        }
}
```

3. Briefly explain the types of Java literals. Explain your answer with suitable examples.

INTEGER LITERAL (ALL THE INTEGER DATAS ARE CALLED INTEGER LITERAL)

EX -: (100),(200),(-234),(-999)

FLOATING-POINT (ALL THE FLOATING POINT NUMBERS ARE CALLED FLOATING-POINTS)

EX –: (0.56),(-3.877),(-87.756)

CHARACTER LITERAL (ALL THE SINGLE CHARACTERS ARE CALLED CHARACTER LITERAL WE HAVE

TO USE SINGLE COUTATION TO INPUT CHARACTERS)

EX -: ('A','a','1','?')

BOOLEAN LITERAL (THERE ARE TWO DATAS USED IN BOOLEAN LITERAL)

EX -: (true),(false)

STRING LITERALS (WE CAN INPUT STRINGS WITH DOUBLE COUTATIONS AND THEY ARE CALLED

STRING LITERAL)

EX -: ("Pasindu Sampath"),("Jfgdhjasho asuhdhabd")

4. Write a Java program to obtain the following result

```
            *

        *   *

        *   *   *

        *   *   *   *

        *   *   *   *   *
```

```java
class Example{
        public static void main(String args[]){
                System.out.println('*');
                System.out.println("* *");
                System.out.println("* * *");
                System.out.println("* * * *");
                System.out.println("* * * * *");
        }
}
```

5. Write a Java program to obtain the following result.

```
*
**
***
****
*****
```

```java
class Example{
    public static void main(String args[]);
        System.out.println('*');
        System.out.println("**");
        System.out.println("***");
        System.out.println("****");
        System.out.println("*****");
    }
}
```

6. Write a Java program to obtain the following result.

```
         *
      *     *
   *     *     *
      *     *
         *
```

```java
class Example{
    public static void main(String args[]){
        System.out.println("          *          ");
        System.out.println("       *     *       ");
        System.out.println("*          *          *");
        System.out.println("       *     *       ");
        System.out.println("          *          ");
    }
}
```

}

7. Write a Java program to accomplish the following tasks in one.

      a. Declare an integer variable named as "i".

      b. Initialize the variable as 100.

      c. Declare another variable "age" and initialize it dynamically, as 20.

      d. Print the value of age ("The age is ….").

```java
class Example{
        public static void main(String args[]){
                int i;
                i=100;
                int age;
                age = 20;
        System.out.println ("The age is  "+age);
        }
}
```

8. Write a Java program to print the total of two integer numbers input by the keyboard.

```java
import java.util.Scanner;
class Example{
        public static void main(String args[]){
                Scanner input=new Scanner(System.in);
                int x,y;
                System.out.print("Input Number 1: ");
                x = input.nextInt();
                System.out.print("Input Number 2: ");
                y = input.nextInt();
                x=x+y;
                System.out.println("Total ="+x);
```

```
        }
}
```

9. Write a Java program create 2 variables as integers, named x, y and assign values in the same statement

    a. Print the values as x, y format (eg: if x is 10 and y is 20 output should be 10 20)

    b. Print the values in y, x format.

```
class Example{
        public static void main(String args[]){
        int x=11,y=22;
                System.out.println(x+' '+y);
                System.out.println(y+' '+x);
        }
}
```

10. Write a Java program using the help of the "Scanner",

    a. Input two values and store them in two variables.

    b. Print the values as they assign to the variable and finally print them as "Values are …"

```
import java.util.Scanner;
class Example{
        public static void main (String args[]){
        Scanner input = new Scanner(System.in);
        int x,y;
        System.out.print("Input Number 1:  ");
        x = input.nextInt();
        System.out.print("Input Number 2:  ");
        y =input.nextInt();
        System.out.println("Values are : " + x +" And "+ y);
        }
}
```

11. Write one Java program to accomplish the given task.

  a. Declare 4 variables using only ONE statement. (variable names: Computing, Maths, Science, English)

  b. Initialize the 4 variables. (Use a value from 1 to 100)

  c. Declare another Integer variable as total, and sum up the 4 variables and add to the total.

  d. Print the total ("The total is …")

  e. Write a print statement, which prints the total by not using the total variable or any other variable except the

   [given 4 variables.

  f. Print the four variables keeping space between them. (20 10 30 40)

  g. Declare a variable "average" as double and initialize it as 0.0.

  h. Find the average of the 4 variables and store them in the variable "average".

  i. Print the average as ("The Average is ….").

```java
class Example{
    public static void main (String args[]){
        int Computing,Maths,Science,English ;
        Computing = 80;
        Science = 65;
        Maths = 88;
        English = 35;
        int total;
        total=Computing+Science+Maths+English;
        System.out.println("The Total Is = " + total );
        System.out.println(Computing+Maths+Science+English);
        System.out.println(Computing+" " +Maths+" "+Science+" "+English);
        double  average=0.0;
        average=total/4;
        System.out.println("The average is "+average);
    }
}
```

12. Write a Java program to convert inches to millimetres. The conversion formula is "1mm=inch x 25.4".

```java
import java.util.Scanner;
class Example{
```

```java
public static void main (String args[]){

Scanner input = new Scanner(System.in);

double x;

System.out.println("Type The Inches for converting to milimeters")

x = input.nextInt();

x=x*25.4

System.out.println(x +" mm");

}

}
```

13. Write a Java program to convert ounces to grams. The conversion formula is "gram =ounce x 28.3495".

```java
import java.util.Scanner;

class Example{

        public static void main(String args[]){

        Scanner input=new Scanner(System.in);

        double=x ;

        System.out.print("Input the value(ounce) to Convert in to the gram  :");

        x=input.nextInt();

        x = x*28.3495;

        System.out.println(x + " g")

    }

}
```

14. Write a Java program to accomplish the following task.

   a. Input your age.

   b. Store it in an integer variable named "age"

   c. Find your age after 3years (No additional variables can be used).

   d. Print the new age as "New age : "

```java
import java.util.Scanner;

class Example{

        public static void main (String args[]){
```

15. Write a Java program to input marks for 10 subjects find the total and average. The result must be as follows.

Marks [34,45,62,34,23,89,56,45,67,56]

Total :511

Average :51.1

```
class Example{
public static void main (String args[]){
        int a,b,c,d,e,f,g,h,i,j;
        a=34;
        b=45;
        c=62;
        d=34;
        e=23;
        f=89;
        g=56;
        h=45;
        i=67;
        j=56;
        System.out.println("Marks ["+a+","+b+","+c+","+","+d+","+e+","+f+","+g+","+h+","+i+","+j+"]");
        double total;
        total = a+b+c+d+e+f+g+h+i+j;
        System.out.println("Total :"+total);
        double average;
```

```
            average = total/10;

            System.out.println("Average :" + average);

    }

}
```

16. Which of the followings can be legally inserted at line 12? Explain your answer.

```
    class Example{

            public static void main(String args[]){

            int x; //Insert code here //Line 12

            System.out.println(x);

             }

     }
```

A. int y;   B. int x;   C. y=100;   D. x=200;   E. Insert nothing

When we declare a variable,we must assign a value before print it

17. Which of the followings can be legally inserted at line 12? Explain your answer.

```
    class Example{

            public static void main(String args[]){

             //Insert code //Line 12

            System.out.println(x);

            System.out.println(y);

        }

}
```

A. int x,y;   B. int x=10,y;   C. int x=10,y=20;   D. int x=y=10;   E. int x,y=20;   F. int x=10,y=20,z=30

Before we Print Integer variables , we must declare variables and we have to assign values for that variables.

18. What is the result of attempting to compile and run the program?

```
    class Example{

            public static void main(String args[]){

                    System.out.print("A\nB");
```

```java
        System.out.println("CD");

        System.out.print("\nEF\n");

        System.out.print("G\nH");

    }

}
```

OUTPUT	A
	BCD
	EF
	G

19. What will be the output when you compile and run the following program?

```java
class Example{

        pubic static void main(String args[]){

                System.out.println(10+20+30);

                System.out.println("10+20+30");

                System.out.println("10+20"+30);

                System.out.println("10"+"20"+"30");

                System.out.println("10"+20+30);

                System.out.println(10+20+"30");

                System.out.println(10+"20"+30);

        }

}
```

There is a Compile error Because of "pubic" in 2nd line and If we Replace it with "public" we can get following result

60

10+20+30

10+2030

102030

102030

3030

102030

20. Which of the following lines are valid statements? Explain your answers.

```java
class Example{

        public static void main(String args[]){

        System.out.println(0B11100100); //Line 1

        System.out.println(0b11100100); //Line 2

        System.out.println(0B11100200); //Line 3

        System.out.println(0144); //Line 4

        System.out.println(0148); //Line 5

        System.out.println(0x64); //Line 6

        System.out.println(0xabc); //Line 7

        System.out.println(0xabcg); //Line 8
```

System.out.println(0X); //Line 9

<mark>System.out.println(0Xffffffff); //Line 10</mark>

        }

}

When the simple data in the sop is starting with "0B" or "0b" Java takes it as a binary number and gives the Converted decimal output.In 3rd line we can see there is number 2.But The 2 is not a binary value so it is a invalid statement. When the simple data in the sop is starting with "0" java takes it as a octal number and gives the Converted decimal number as the output.In the 5th line we can see number 8 but 8 is not a Octal value so it is an invalid statement.When the simple data in a Sop is starting with "0x" OR "0X" java takes it as a Hexadecimal value and gives the converted Decimal value.We can see g In line 8 and it is not a Hexadecimal value so its an Invalid statement.In line 9 there is only "0x" and there is no value,so java takes it as an error.

21. Write a Java statement to accomplish each of the following tasks:

    a. Declare variables sum and x to be of type int.

    b. Assign 1 to variable x.

    c. Assign 0 to variable sum.

    d. Add variable x to variable sum, and assign the result to variable sum.

    e. Print "The sum is: ", followed by the value of the variable sum.

```java
class Example{
    public static void main(String args[]){
        int sum,x
        x=1;
        sum=0;
        sum=x+sum;
        System.out.println("The sum is "+sum);
    }
}
```

22. Write Java statements to get following output (Only one sout statement can be used)

    a. Java is a typed language

```java
        class Example{

                public static void main(String args[]){

                        System.out.println("Java is a typed language")

                }

        }
```

b. AB"CB

```java
class Example{

        public static void main (String args[]){

        System.out.println("AB\"CB");

        }

}
```

c. AB\CD

```java
class Example{

        public static void main(String args[]){

        System.out.println("AB\\CD")

        }

}
```

d. C:\Windows\Program

```java
        class Example{

                public static void main(String args[]){

                System.out.println("C:\\Windows\\Program");

        }

}
```

e. AB\"CD

```java
        class Example{

                public static void main(String args[]){

                System.out.println("AB\\\"CD");

                }

        }
```

f. AB\""CD

```
class Example{

        public static void main(String args[]){

        System.out.println("AB\\\\"\"CD");

        }

}
```

g. AB\nCD

```
class Example{

        public static void main(String ags[]){

        System.out.println("AB\\nCD");

        }

}
```

h. AB\tCD

```
class Example{

        public static void main (String args[]){

        System.out.println("AB\\tCD");

        }

}
```

i.AB\bCD

```
class Example{
        public static void main(String args[]){
        System.out.println("AB\\bCD");
        }
}
```

23. Which of the followings can be legally inserted at line 12? Explain your answer.

```
class Example{

        public static void main(String args[]){

         int x;

        //Line 12

        System.out.println(x);
```

```
        }

    }
```

A. x+1;   **B. x=100;**   C. int y=100   D. int x=200;   E. Insert nothing.

The variable x is decleared in 3rd line.There for we have to initialize a value to 'x' before print it.We cannot declare same variable in one program therefor we cannot use answer D

24.Write a Java program to get the following output using a single "System.out.println()"

ABC

XYZ

PQR


```
class Example{

        public static void main(String args[]){

        System.out.println("ABC\nXYZ\nPQR");

        }

}
```

25. What is the result of attempting to compile and run the program?

```
class Example{

        public static void main(String args[]){

        int x=10,y=20,z=30;

        System.out.println(x);

        System.out.println(y);

        System.out.println(z);

        int y=200;

        System.out.println(y);

        }

}
```

OUTPUT
Compile error Because We cannot declare same varaiable again and again in this program, variable y has been declared in 3rd line and 7th line.
There for java compiler takes it as a error

```
error: variable y is already defined in method main(String[])
            int y=200;
```


26. Write a Java program to get the following output. |"/"\"/"\"|

```
class Example{

public static void main(String args[]){

System.out.println("|\"/\"\\\"/\"\\\"|")
```

```
        }
}
```

27. Write a Java program to get the following output. "+"\"+/"+""+"\n"+"\n"

class Example{

public static void main(String args[]){

System.out.println("\"+\"\\\"+/\"+\"'\"+\"\\n\"+\"\\n\"");

}

}

28. Write a Java program to get the following output using a single "System.out.println()"

Name : Niroth

Total : 673

Average: 67.3

Grade : B

class Example{

        public static void main(String args[]){

        System.out.println("Name : Niroth \nTotal : 673 \nAverage : 67.3 \nGrade :B");

        }

}

29. Which of the following lines are valid declarations? Select the three correct answers.

a. char a = '\u0061';

b. char 'a' = 'a';

c. char \u0061 = 'a';

d. ch\u0061r a = 'a';

e. ch'a'r a = 'a';

30. What is the result of attempting to compile and run the program?

class Example{

        public static void main(String args[]){

        int x,y,z; //line 1

        x=y=z=10; //line 2
```

```
        int a=12,b,c=4; //line 3

        int p=10; //line 4

        int q=p; //line 5

        int i=j=k=10; //line 6

        }

    }
```

a. Compile error at line 2

b. Compile error at line 3

c. Compile error at line 5

d. Compile error at line 6

e. None of the above

31. Which are valid declarations? (Choose all that apply.)

a. int $x;

b. int 123;

c. int _123;

d. int #dim;

e. int %percent;

f. int *divide;

g. int sales_ Summer_2005_gross_sales; _

32. What is the result of attempting to compile and run the program?

```
class Example{

        public static void main(String args[]){

        int x,y,z;

        System.out.println(x+y+z);

        }

    }
```

a. prints : nothing

b. prints : undefined value

c. prints null.

d. Runtime error

f. None of the above

33. What is the result of attempting to compile and run the program?

```
class Example{

    public static void main(String args[]){

    int x;

    System.out.println(x);

    }

}
```

a. prints : nothing   b. prints : x   c. prints : 100   d. Runtime error   e. Compile time error

34. What will be the result of attempting to compile and run the following program?

```
class Example {

    public static void main(String[] args) {

    System.out.println(0x10 + 10 + 010);

    }

}
```

Select the one correct answer.

a. The program will not compile. The compiler will complain about the expression " 0x10 + 10 + 010."

b. When run, the program will print 28.

c. When run, the program will print 30.

d. When run, the program will print 34.

e. When run, the program will print 36.

f. When run, the program will print 101010.

35. Compile time error is generated at which line?

```
class Example{

    public static void main(String args[]){

    char a = '\c'; // Line 1

    char b = '\r'; // Line 2
```

```
        char c = '\"'; // Line 3

        char d = '\b'; // Line 4

        char e = '\'; // Line 5

        }

    }
```
a. Line 1   b. Line 2   c. Line 3   d. Line 4   e. Line 5   f. None of the above

36. What is the output for the following code fragment and explain your answer?

A. System.out.println(1+2+3);

6

java take this as a sum of integers(Arigthmatic addition)

B. System.out.println("1"+"2"+"3");

123

java takes these Integers as strings and gives output as a sum of Strings(String concat)

C. System.out.println('1'+'2'+'3');

150

java takes these integers as characters and gives output as a sum of ASCII values.(Arigthmatic addition)

D. System.out.println('1'+" "+'2'+" "+'3');

1 2 3

java takes these numbers as characters and the spaces as strings after that it prints on consol as a sum of the characters and strings(String concat)

E. System.out.println('A'+'B'+'C');

198

java takes the ASCII value of the characters and gives the Totals as a Arigthmatic addition

F. System.out.println("A"+"B"+"C");

ABC

java takes these letters as strings and print them on consol as a summery of a Strings.(String concat)

G. System.out.println('A'+100+200);

365

Java takes the ASCII value of the A character and add it with other values and gives the total value as an arigthmatic addition output

H. System.out.println('A'+" "+'B'+" "+'C');

A B C

java Takes those Letters as characters and spaces as Strings and output their sum on the consol as string concat output.

37. What will be the outputs when you compile and run the following program and explain your answer line by line?

```
class Example{
public static void main(String asrg[]){
char a='a';
System.out.println(a=='\u0061');
System.out.println(\u0061==\u0061);
System.out.println(\u0061==97);
\u0061='\u0041';
System.out.println('A'=='\u0041');
System.out.println(65=='\u0041');
System.out.println(65==a);
System.out.println('\u0041'==a);
}
}
```

Output :	true
	true
	true
	true
	true
	true
	true

1st Line – Creating the class

2nd Line – Main method Creating

3rd Line - Character variable Creating

4th Line – Assign a Character to The Variable

5th Line – Giving a Expression statement output using a character and a Unicode.(0061 is the code of A in Unicode System)

6th Line - Giving a Expression statement output using two Unicodes.(0061 is the code of A in Unicode System)

7th Line - Giving a Expression statement output using a Unicode and a ASCII Code.(The Unicode of A character is 0061 and the ASCII code of it is 97)

8th Line - A statement for add 0041 (unicode value of A) to the 0061(unicode value of a).

9th Line - Giving a Expression statement output using a character and a Unicode.

10th Line - Giving a Expression statement output using a ASCII Code and a Unicode.

10th Line - Giving a Expression statement output using a ASCII Code and a Unicode.

11th Line - Giving a Expression statement output using a ASCII Code and a character.

38. Which are valid declarations and explain why?

a. System.out.println(0B1010); (Java take this as a binary value)

b. System.out.println(B1010); (This statement is starting with "B" So It is an invalid statement)

c. System.out.println(0B01010); (Java take this as a binary value)

d. System.out.println(01010); (Java take this as a Octal value)

e. System.out.println(0x1010); (Java takes this as a Hexa decimal Value)

f. System.out.println(01012); (Java takes this as a Octal Value)

g. System.out.println(0B1012); (Java takes this as a binary value Because it starts with "0B",but 2 is not a binary value so this is not a valid statement)

39. Complete the following program?

```java
import java.util.*;
        class Example{
        public static void main(String args[]){
        Scanner input=new Scanner(System.in);
        System.out.print("Input your age : ");
        int age=input.nextInt();
        System.out.println("Your current age is : "+age);
         //--------------Do not modify before this line----
        age = age + 10;//increment the age by 10
        //---------------------Do not modify after this line---
        System.out.println("Your age after 10 years is : " +age);
        }
    }
```

40. Complete the following program?

```java
import java.util.*;

class Example{

        public static void main(String args[]){

        Scanner input=new Scanner(System.in);

        System.out.print("Input number 1 : ");

        int num1=input.nextInt();

        System.out.print("Input number 2 : ");

        int num2=input.nextInt();

        System.out.println(num1+" "+num2);

        //-----------Do not modify before this line--------

        int num3=num1;

        num1=num2;

        num2=num3;

        //------Do not modify after this line------------

        System.out.println(num1+" "+num2);

        }

}
```