



Institute of Software Engineering

Graduate Diploma in Software Engineering

Programming Fundamentals – Assignment 06

Answer all the questions and submit your attempt on or before the given date.

01. Write is the correct method declaration? Give reason for illegal declaration.

- `public static void myMethod() { };`
- `public static void main() { }`
- `public void static subMethod();`
- `public static void () { }`
- `public static void _();`
- `public static void _(){}`
- `public static void myMethod(int x){ }`
- `public static void myMethod(x) { }`
- `public static void myNewMethod(100) { }`
- `public static void m(int a){return 0;}`
- `public static void m1(){return;}`
- `public static int me(int a){return 0;}`

02. Mark legal and illegal lines. Write most suitable reason for each illegal line.

```
class Example{
    public static String printName(String name){
        return name;
    }
    public static void main(String args[]){
        printName();           //Line 1
        printName("CMJD");     //Line 2
        Example.printName("IJSE"); //Line 3
        MyClass.printName("IJSE"); //Line 4
        MyClass.printName();     //Line 5
        String name1 =
            MyClass.printName("CMJD");//Line 6
        String name2 = Example.printName("");//Line 7
        String name3 = printName(); //Line 8
    }
}

class MyClass{
    public static void printName(String name){
        System.out.println("My Name is : " + name);
    }
    public static String printName(){
        return "Java";
    }
}
```

03. Write a Java method to input marks for 10 subjects and find the total and average.

04. Write a Java method to input 3 numbers and find the max of them.

05. Write a Java method to find & print the area of a circle when the user inputs the radius.

06. Write a Java method to find out the sum of digits of a number input by the user.

07. Define a method that takes an integer value and returns the number with its digits reversed.

For example, given the number 7631, the function should return 1367.

08. Write a method to check a number is Armstrong or not.

(A number is Armstrong if the sum of cubes of individual digits of a number is equal to the number itself. For example, 371 is an Armstrong number as $3^3 + 7^3 + 1^3 = 371$. Some other Armstrong numbers are: 0, 1, 153, 370, 407.)

09. Write a Java method to find the smallest positive number that is evenly divisible by all of the numbers from 1 to 20.

2520 is the smallest number that can be divided by each of the numbers from 1 to 10 without any remainder.

10. Write a Java method to get a Year from user input and find it is a leap year or not.

11. Write a Java method to print Fibonacci series up to a given number. Fibonacci series is a series of natural numbers where the next number is equivalent to the

sum of the previous two number e.g. $fn = fn-1 + fn-2$.
First two numbers of Fibonacci series is always 1, 1.

12. Mark legal and illegal lines. Write most suitable reason for each illegal lines..

```
class Example{
    public static void myMethod(){
        System.out.println("My Method()...");
    }
    public static void main(String args[]){
        int myMethod;           //Line 1
        myMethod;               //Line 2
        myMethod();              //Line 3
        myMethod(){ }           //Line 4
        myMethod(){ };          //Line 5
        Example.myMethod();      //Line 6
        System.out.println("myMethod()");//Line 7
        System.out.println(myMethod()); //Line 8
    }
}
```

13. Which line will occur a compile error and give the acceptable reason for the error?

```
import java.util.*;
class Example{
    public static void main(String args[]){
        Random r = new Random();
        getNumbers();           //Line 1
        int x = getNumbers(10);  //Line 2
        getTotal(100, 10.0);     //Line 3
        int total = getTotal(10.0,100); //Line 4
    }
    public static int getNumbers(){
        Random r = new Random();//Line 5
        int x = r.nextInt(10);    //Line 6
        int y = r.nextInt(5);     //Line 7
        return x,y;               //Line 8
    }
    public static int getNumbers(int x){
        x = r.nextInt(x);         //Line 9
        return x;                 //Line 10
    }
    public static int getTotal(int x, double d){
        return x+d;               //Line 11
    }
    public static double getTotal(double x, int d){
        return x+d;               //Line 12
    }
}
```

14. Write a Java method to check if a number is a Palindrome?

15. Write a method to convert a decimal number into a binary number, printing the binary number.

16. Which of the following code can be inserted at line 1 and still code will compile?

```
class Example{
    public static void myMethod(int x){
        System.out.println("myMethod(int)");
    }
    public static void main(String args[]){
        //Insert code here //Line 1
        myMethod(y);        //Line 2
    }
}
```

A. byte y=100; B. short y=122;
C. int y=100; D. long y=3300;
E. float y=1.3f; F. double y=12.2323;
G. boolean y=true; H. char y='A';

17. What is the output of following program?

```
class Example{
    public static void printNumber(int i){
        System.out.print(i+" ");
    }
    public static void main(String as[]){
        int i=1,j=2,k=3;
        printNumber(i++);
        printNumber(++j);
        k=i++ + j++;
        printNumber(k++);
        System.out.print(i+" "+j+" "+k);
    }
}
```

A. prints 2 4 5 4 6 6 B. prints 2 4 6 4 5 9
C. prints 1 3 5 3 4 6 D. prints 1 3 5 7 5 9
E. Compile Error F. None of the above

18. Given Code:

```
class Demo{
    public static int m(int i) {
        System.out.print(i + " ");
        return i;
    }
    public static void main(String s[]) {
        int i=0;
        int j = m(++i) + m(++i) * m(++i) %m(++i) + m(++i);
        System.out.print( j % 5);
    }
}
```

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

- A. Prints: 1,2,3,4,5,1 B. Prints: 1,2,3,4,5,2
 C. Prints: 1,2,3,4,5,3 D. Prints: 1,2,3,4,5,4
 E. Prints: 1,2,3,4,5,5 F. Compiler error

19. Given Code:

```
class M {
    public static int m(int i) {
        System.out.print(i + " ");
        return i;
    }
    public static void main(String s[]) {
        m(m(1) + m(2) % m(3) * m(4));
    }
}
```

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

- A. Prints: 1, 2, 3, 4, 0, B. Prints: 1, 2, 3, 4, 12,
 C. Prints: 1, 2, 3, 4, 3, D. Prints: 2, 3, 4, 1, 9,
 E. Prints: 1, 2, 3, 4, 9, F. Prints: 2, 3, 4, 1, 3,

20. Create a method called “isPass()” to complete the following program.

```
import java.util.*;
class Example{
    //-----
    //Insert codes for the method called in the main
    method
    //-----
    public static void main(String args[]){
        Scanner input=new Scanner(System.in);
        System.out.print("Input average marks : ");
        double avg=input.nextDouble();
        System.out.println(isPass(avg) ? "Pass":"Fail");
    }
}
```

21. Create a method called “abs ()” to Complete the following program.

```
import java.util.*;
class Example{
    //-----
    //Insert code for the method declaraiion
    //-----
    public static void main(String args[]){
        Random r=new Random();
        for(int i=0; i<10; i++){
```

```
            int rand=r.nextInt();
            System.out.println("Absolute value of
            "+rand+" : "+abs(rand));
        }
    }
}
```

22. Create a method called “isEven ()” to complete the following program.

```
import java.util.*;
class Example{
    //Insert Code here

    public static void main(String args[]){
        Random r=new Random();
        for (int i = 0; i < 10; i++){
            int rand=r.nextInt(100);
            System.out.println(isEven(rand) ? rand+" is an
            even number" : rand+" is an odd number ");
        }
    }
}
```

23. Briefly explain outputs for the following program.

```
import java.util.*;
class Example{
    public static int increment(int x){
        x++;
        System.out.println("x : "+x);
        return x;
    }
    //-----
    public static void main(String args[]){
        int x=100;
        System.out.println("x : "+x);
        increment(x);
        System.out.println("x : "+x);
        x=increment(x);
        System.out.println("x : "+x);
    }
}
```

24. Which of the following can be inserted to line 10 in order to be a legal code fragment

```
class Example{
    public static boolean isPass(double avg){
        //Insert code here //Line 10
    }
}
```

- A. return;
- B. return true;
- C. return avg>=50;
- D. if(avg>=50){return true;}else{return false;};
- E. if(avg>=50){return true;};
- F. return avg>=50 ? true:false;
- G. if(avg>=50){return true;} return false;

25. Which of the following method declarations are legal?

- A. public static void printTotal(int a, int b){
 int a,b,c;
}
- B. public static void printTotal(int a, b){
 //body
}
- C. public static void myMethod(int x){
 System.out.println("myMethod : "+x);
 return x;
}
- D. public static void myMethod(int x){
 System.out.println("myMethod : "+x);
 return;
}
- E. public static void myMethod(int x){
 System.out.println("myMethod : "+x);
 return;
 System.out.println("Returned..");
}
- F. public static int myMethod(int x){
 System.out.println("myMethod : "+x);
}
- G. public static int myMethod(int x){
 System.out.println("myMethod : "+x);
 return x;
}
- H. public static int myMethod(int x){
 System.out.println("myMethod : "+x);
 return x;
 System.out.println("Returned..");
}

26. Write all the methods to get the correct output.

```
class Example{
    // method 1 comes here
    // method 2 comes here
    // method 3 comes here
    public static void main(String args[]){
        System.out.println(toBinaryString(100)); //1100100
        System.out.println(toOctalString(100)); //144
        System.out.println(toHexString(100)); //64
    }
}
```