INSTITUTE OF SOFTWARE ENGINEERING

GRADUATE DIPLOMA IN SOFTWARE ENGINEERING

ASSIGNMENT NAME

Programming fundamentals

ASSIGNMENT NO

06

NUMBER OF QUESTIONS: 26

NUMBER OF COMPLETED QUESTIONS: 26

NUMBER OF REMAINING QUESTIONS: 00

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BATCH NO: 63

01. Write is the correct method declaration? Give reason

for illegal declaration.

a. public static void myMethod() { } ; (; is not used when a method ending)

b. public static void main() { }

c. public void static subMethod( ); ({} must be used to find the method range and ; is not used when a method ending)

d. public static void () { } (We must name the method after void keyword)

e. public static void_(); (There is a symbol combined with void keyword therefor jvm cannot find void keyword and ; is used when ending the method and {} isn't used for declare the method range)

f. public static void _(){}

g. public static void myMethod(int x;){ } (there is ; after declarering parameter .)

h. public static void myMethod(x) { } (There is not a valid parameter declarering statement)

i. public static void myNewMethod(100) { } (There is not a valid parameter declarering statement)

j. public static void m(int a){return 0;} (We cannot return a value in a void method)

k. public static void m1(){return;}

l. 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 (There is not an argument.we must pass an argument when using return type method)
        printName("CMJD"); //Line 2 (There is no variable to get the return variable of printName method)
        Example.printName("IJSE"); //Line 3     (There is no variable to get the return variable of printName method)
        MyClass.printName("IJSE"); //Line 4     (This is valid if method is in a different class which included printName
                                                 method and class name must be Myclass)
        MyClass.printName(); //Line 5           (This is valid if method is in a different class which included printName
                                                 void method and class name must be Myclass )
```

```
String name1 =MyClass.printName(“CMJD”);//Line 6      (This is valid if method is in a different class which included
                                                        printName return type method  that return a string variable and
                                                        class name must be Myclass)
String name2 = Example.printName(" ");//Line 7
String name3 = printName(); //Line 8                   (There is no argument)
        }
}

class MyClass{
public static void printName(String name){
System.out.println("My Name is : " + name);
}
public static String printName(){                      (There is no parameter to take the argument )
return "Java";
}
}
```

Both method of Myclass class file is named printname.We cannot create methods in a same class in a same name)

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

```
public static void calcTotandAvg(){
        Scanner input=new Scanner(System.in);
        int total=0;
        for(int i=1 ; i<=10 ; i++){
                System.out.print("Input mark "+i+" : ");
                int x=input.nextInt();
                total=total+x;
                }
        double avg=(double)total/10;
        System.out.println("Total is : "+total);
        System.out.println("Avarage is : "+avg);
```

```
}
```

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

```
public static void findMax(){
        Scanner input=new Scanner(System.in);
        int max=0;
        for(int i=1 ; i<=3 ; i++){
            System.out.print("Input an integer : ");
            int x=input.nextInt();
            if(x>max){
                max=x;
                }

            }
```

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

```
public static void findArea(){
        Scanner input=new Scanner(System.in);
        double a=0;
        double g=(double)22/7;
        System.out.print("Input The Radius : ");
        double x=input.nextInt();
        a=g*x*x;
        System.out.println("Area of the circle is : "+a);
        }
```

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

```
public static void findSumOfDigits(){
        Scanner input=new Scanner(System.in);
```

```
System.out.print("Input an integer : ");
int x=input.nextInt();
int y=x;
int sum=0;
int l_d=0;
do{
        l_d=x%10;
        sum=sum+l_d;
        x=x/10;
        }while(x!=0);
System.out.println("Sum of digits ("+y+") is : "+sum);
}
```

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.

```
public static int findReverse(int x){
        int r_n=0;
        int l_d=0;
        do{
                l_d=x%10;
                r_n=r_n*10+l_d;
                x=x/10;
                }while(x!=0);
        return r_n;
        }
```

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

```
public static boolean isArmstrong(int x){
        int y=x;
```

```
        int l_d=0;
        int sum=0;
        do{
                l_d=x%10;
                sum=sum+(l_d*l_d*l_d);
                x=x/10;
                }while(x!=0);
                if(sum==y){
                        return true;
                        }
                return false;
}
```

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.)

```
public static void findNum(){
        int num=0;
        int reminder=0;
        int count=0;
        do{
                num++;
                count=0;
                for(int i=20;i>0;i--){
                        reminder=num%i;
                        if(reminder!=0){
                                count++;
                                break;
                                }
                        }
                }while(count!=0);
                System.out.println(num);
```

```
}
```

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

```
public static void findLeepYear(){
    Scanner input=new Scanner(System.in);
        System.out.print("Input a Year : ");
        int y=input.nextInt();
        if (y%4==0){
            System.out.println(y+" is a leep year.");
            }else{
                System.out.println(y+" is not a leep year.");
                }
}
```

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.

```
public static void findFibonacci(){
        Scanner input=new Scanner(System.in);
        int i=input.nextInt();
        int x=0;
        int y=1;
        int total=0;
        int count=0;
        System.out.print("[ ");
        while(total<i){
            if(count==2){
                System.out.print(1+",");
                }
            System.out.print(total+",");
```

```
                    total=x+y;
                    x=y;
                    y=total;
                    count++;
                    }System.out.print("\b ]");
        }
```

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// This is a valid statement,but this statement create only the int variable that
                                called myMethod.
                myMethod; //Line 2// we should use () after the Method name to call it in the main method.
                myMethod(); //Line 3//This is a valid statement for calling the myMethod.
                myMethod(){ } //Line 4//We don't use {} after the method name without using ; after the  ()  for calling
                                a method in main method.
                myMethod(){ }; //Line 5// We don't use {} after the method name without using ; after the  ()  for calling
                                a method in main method.

                Example.myMethod(); //Line 6//Valid statement.
                System.out.println("myMethod()");//Line 7//Valid statement but this isn't call mymethod.this statement
                                                        is only print myMethod string output of this sop
                System.out.println(myMethod()); //Line 8//We cannot call an void type method in a sop.only return
                                                        type Methods can be used in a SOP.
        }
}
```

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//getNumbers method cannot take arguments.
		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//A method cannot return two values.
	}
	public static int getNumbers(int x){
		x = r.nextInt(x); //Line 9 // method cannot find object r because there is no object declaration.
		return x; //Line 10
	}
	public static int getTotal(int x, double d){
		return x+d; //Line 11 // the total of x+d is a double type data.So we cannot return double data from int
				return type method.
	}
	public static double getTotal(double x, int d){
		return x+d; //Line 12//When passing arguments in the main method fist passed an int and next passed
				double type data.double type data cannot assign in to int data because of losing
				data.
	}
}
```

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

```
public static void checkPlindrome(){
		Scanner input=new Scanner(System.in);
		System.out.print("Input an intger : ");
		int num=input.nextInt();
		int l_d=0,sum=0,temp=num;
		do{
			l_d=num%10;
			sum=sum*10+l_d;
			num=num/10;

			}while(num!=0);
		if(temp==sum){
			System.out.println(temp+" is a plindrome number.");
			}else{
				System.out.println(temp+" is not a plindrome number.");
				}
		}
```

15)

```
public static void convertDecimalToBinary(){
	Scanner input=new Scanner(System.in);
	System.out.print("Input an Integer : ");
	int x=input.nextInt();
	int reminder=0;
	int b_n=0;
	int count=0;
```

```
int count2=0;
do{
        reminder=x%2;
        b_n=b_n*10+reminder;
        x=x/2;
        count++;
        }while(x!=0);
        reminder=0;
        int l_d=0;
        int rev=0;
do{
        l_d=b_n%10;
        rev=rev*10+l_d;
        b_n=b_n/10;
        count2++;
        }while(b_n!=0);
System.out.print(rev);
while(count!=count2){
        System.out.print(0);
        count2++;
        }
}
```

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(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,

Compile Error

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

```
import java.util.*;
        class Example{
        public static boolean isPass(double avg){
                if(avg>=50){
                        return true;
                        }
                        return false;
                }
        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{
                public static int abs(int rand){
                        if(rand<0){
                                return -rand;
                                }
                                return rand;
                        }
                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{
        public static boolean isEven(int rand){
            if(rand%2==0){
                return true;
                }
            return false;
            }
        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);      //print 100;
        increment(x);                      //print 101;
        System.out.println("x : "+x);      //Line 3 //print 100;
        x=increment(x);                    //print 101
        System.out.println("x : "+x);      //print 101
    }
}
```

First SOP prints 100 and next call the increment method and pass the value of x and run the method and print 101 but there is no variable to take the return value so the value of x in main method doesn't changed.so again print 100 in second sop of line 3.agin call the increment method now there is a variable to take the return value of increment method.first print 101 and return value to x variable in main method and again print the value of x in main method 101.

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;                                  //Illegal
}
```

B.
```
public static void printTotal(int a, b){
//body                                              //Illegal
}
```

C.
```
public static void myMethod(int x){
        System.out.println("myMethod : "+x);        //Illegal
        return x;
}
```

D.
```
public static void myMethod(int x){
        System.out.println("myMethod : "+x);
        return;                                     //legal
}
```

E.
```
public static void myMethod(int x){
        System.out.println("myMethod : "+x);
        return;                                     //illegal
        System.out.println(“Returned..”);
}
```

F.
```
public static int myMethod(int x){
        System.out.println("myMethod : "+x);        //legal
        }
```

G.
```
public static int myMethod(int x){
        System.out.println("myMethod : "+x);        //legal
        return x;
}
```

H.
```
public static int myMethod(int x){
        System.out.println("myMethod : "+x);        //illegal
        return x;
        System.out.println(“Returned..”);
}
```

26. Write all the methods to get the correct output

```
import java.util.Scanner;
class Example{
        public static int toBinaryString(int x){
                int reminder1,b_n=0,rev=0,count1=0,l_d,count2=0;
                do{
                        reminder1=x%2;
                        b_n=b_n*10+reminder1;
                        x=x/2;
                        count1++;
                        }while(x!=0);

                do{
                        l_d=b_n%10;
                        rev=rev*10+l_d;
                        b_n=b_n/10;
                        count2++;
                        }while(b_n!=0);

                while(count1!=count2){
                        rev=rev*10;
                        count2++;
                        }
                        return rev;
                }
        public static int toOctalString(int x){
                int reminder=0,count1=0,count2=0,rev=0,o_n=0;
```

```
        do{
                reminder=x%8;
                //System.out.print(reminder+"  ");
                o_n=o_n*10+reminder;
                x=x/8;
                count1++;
                }while(x!=0);

        do{
                reminder=o_n%10;
                rev=rev*10+reminder;
                o_n=o_n/10;
                count2++;
                }while(o_n!=0);

        while(count1!=count2){
                rev=rev*10;
                count2++;
                }
                return rev;
        }

public static int toHexString(int x){
        int reminder=0,hd_n=0,count1=0;
        do{
                reminder=x%16;

                hd_n=hd_n*10+reminder;
                x=x/16;
                count1++;
                }while(x!=0);
```

```
        int l_d=0,rev=0,count2=0;

        do{
            l_d=hd_n%10;
            rev=rev*10+l_d;
            hd_n=hd_n/10;
            count2++;
            }while(hd_n!=0);

        while(count1!=count2){
            hd_n=hd_n*10;
            count2++;
            }
        return rev;
        }

    public static void main(String args[]){
        System.out.println(toBinaryString(100)); //1100100
        System.out.println(toOctalString(100)); //144
        System.out.println(toHexString(100)); //64
    }
}
```