

4

**THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
DIPLOMA IN INFORMATION SYSTEMS & TECHNOLOGY- LEVEL 3**



ECX3162/EEX3362 – INTRODUCTION TO OBJECT ORIENTED PROGRAMMING

004

FINAL EXAMINATION 2017/2018

Date: 21st of October 2018

Time: 0930 – 1230 Hours

Answer question one (Q1) and three(3) other questions

Question 1[40 Marks]

a) Explain the difference of “String” with other data types. (10 Marks)

b) Briefly explain the following concepts in java (15 Marks)

- double
- Object
- void
- Instance Variable
- Constructor

c) Write a program to generate the following design (15 Marks)

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

Question Q2 [20 Marks]

a) Write java code for the following steps. (10 Marks)

1. Write a class named “Parent”.
2. Include a constructor in class “Parent” which takes an int argument.
3. Write a method “myMethod” inside class “Parent”.
4. Write a class “Child” which is a subclass of the class “Parent”.
5. Override the method myMethod in class “Child”.
6. Overload the method myMethod.

b) Explain the difference between a variable in a class that is declared static and one that is not: (4 Marks)

c) Explain what is meant by polymorphism using examples of overloading and overriding. (6 Marks)

Question 3 [20 Marks]

a) What is an abstract class in java?

(5 marks)

b) What is bytecode? Explain its usefulness while translating a Java program in a wide variety of environments.

(10 marks)

c) What do you mean by dynamic initialization of a variable in Java? Give an example.

(5 marks)

Question 4 [20 Marks]

a) Explain the access modifiers 'default', 'private' and 'protected' in Java.

(9 marks)

b) Explain the following terms with respect to exception handling.

(6 marks)

- try/catch
- throw
- finally

c) What is an Anonymous class in java?

(5 marks)

Question 5 [20 Marks]

Write the output for the following source codes.

a)

```
class A{
    void method1(){
        System.out.println("hello method1");
    }
    void method2(){
        System.out.println("hello method2");
        this.method1();
    }
}
class TestThis1{
    public static void main(String args[]){
        A a=new A();
        a.method2();
    }
}
```

b)

```
class A{
    A getA(){
        return this;
    }
    void msg()
    {
        System.out.println("Hello java");
    }
}
class TestThis7{
    public static void main(String args[]){
        new A().getA().msg();
    }
}
```

c)

```
class Student{
    int regNo;
    String name,course;
    double fee;

    Student(int regNo,String name,String course)
    {
        this.regNo=regNo;
        this.name=name;
        this.course=course;
    }
    Student(int regNo,String name,String course,double fee)
    {
        this(regNo,name,course);
        this.fee=fee;
    }
    void display()
    {
        System.out.println("\nReg. No : "+regNo+"\nStudent Name
:"+name+"\nCourse :"+course+"\nFee :"+fee);
    }
}
class TestThis4{
    public static void main(String args[])
    {
        Student s1=new Student(7046,"Sasikala","EEX3362");
        Student s2=new Student(7047,"Sampath","EEX3362",4500.00);
        s1.display();
        s2.display();
    }
}
```

d)

```
class A{
    A()
    {
        System.out.println("hello a");
    }

    A(int x)
    {
        this();
        System.out.println(x);
    }
}
class TestThis2
{
    public static void main(String args[]){
        A a=new A(10);
    }
}
```

e)

```
class B
{
    TestThis6 obj;
    B(TestThis6 obj)
    {
        this.obj=obj;
    }

    void display()
    {
        System.out.println(obj.data);
    }
}

class TestThis6
{
    int data=10;

    TestThis6()
    {
        B b=new B(this);
        b.display();
    }
    public static void main(String args[])
    {
        TestThis6 a=new TestThis6();
    }
}
```