



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN
SECURITY AND FORENICS**

1st YEAR 2nd SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: IIT 3112

COURSE TITLE: INTRODUCTION TO PROGRAMMING

EXAM VENUE: STREAM: BSc BIS, Forensics

DATE: Dec 2016 EXAM SESSION:

TIME: 2.00 HOURS

INSTRUCTIONS:

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION 1 30 MARKS

- a) Explain the difference between local and global variable (4 marks)
- b) Design a Java program of not more than 7 lines that has a logical error but debugs and runs successfully. (8 marks)
- c) Insert an additional code that if included in b) would eliminate the run time error (3 marks)
- d) Give a brief description on how class and objects are related in Object Oriented Programming. (6 marks)
- e) If two selected inputs in the program below are as shown, find the outputs in the programme below for following inputs
 - (i) p=2 and q =3
 - (ii) p=5 and q =5
 - (iii) p=4 and q=2

```
import java.util.Scanner;
public class FunctionCall {
    public static int Prod(int a, int b){
        return (a*b); }
    public static int Rem (int x,int y) {
        return (x%y);}
    public static void main(String args[] ) {
        int p, q;
        Scanner input = new Scanner(System.in);
        System.out.println("Enter the first integer ");
        p=input.nextInt();
        System.out.println("Enter the second integer ");
        q = input.nextInt();
        if(p>q)

        {System.out.println( FunctionCall.Rem(p,q));}
        else
        { System.out.println(FunctionCall(Prod(p,q));}
        }
    }
}
```

(9 marks)

QUESTION 2 20 MARKS

Study carefully the Java programme below;

```
public class Exam {
public static void main(String Args[])
{
    String name="Simon";
    double decimal= 3.123;
    int num =1, num2=0, div;
    div=num/num2;
    System.out.println(String is +name);
    System.out.println("The result is " + add +"" +decimal);
    System.out.println("The new result is " + div);
}
}
```

- Briefly explain two different roles of the symbol “+” in the programme **(6 marks)**
- Provide the names of the errors in the programme **(6 marks)**
- Rewrite the corrected programme using only the provided variables so the programme can debug and run successfully. **(8 marks)**

Question 3 20 MARKS

Design a Java programme that when compiled successfully and run, produces the output in the format given below;

[0,0,0], [0,0,1], [0,1,0], [1,0,0], [1,0,1], [1,1,0], [0,1,1], [1,1,1] **(20 marks)**

QUESTION 4 20 MARKS

Inheritance is a very important aspect in Object Oriented Programming. Use an example to illustrate how inheritance improves programming in Java. **(20 marks)**

QUESTION 5 20 MARKS

- Define the term programme as used in computer science **(2 points)**
- Explain the difference between systems software and application software **(5 points)**
- A good computer programme is Readable, Portable and Efficient. Give a brief description of readability, portability and efficiency of a computer programme. **(15 marks)**