JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATION SYSTEMS

UNIVERSITY EXAMINATION FOR BACHELORS DEGREE

2ND YEAR 1ST SEMESTER 2013/2014 ACADEMIC YEAR

REGULAR

COURSE CODE: IIT 3112

COURSE TITLE: INTRODUCTION TO PROGRAMMING

EXAM VENUE: LR 20   **STREAM: (BEd Arts and Science and actuarial science)**

DATE: 14/04/14   **EXAM SESSION: 2.00 – 4.00 PM**

TIME: 2.00 HOURS

Instructions:

1. **Answer question 1 (Compulsory) and ANY other 2 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 ONE 30 marks

a) What is an algorithm   [1mark]

b) Explain any four characteristics of an algorithm   [2 marks]

c) Using a block diagram explain the following control structures in C programming

      i. Sequence logic structure

     ii. Decision logic structure

    iii. Loop structure   [6 marks]

d) Explain the structure of C programing language   [2 marks]

e) Use appropriate diagram and an example illustrate the working of the following control structure{ illustration should include the syntax of each}   [6 marks]

      i. While

     ii. Do while

    iii. Switch statement

f) Write a C program which can solve any quadratic equation by using the if else statement when output is discriminately negative   [6 marks]

g) What is an array ?, Explain how a three dimensional array are declared.   [4 marks]

h) Define and explain following in introduction to programming

      i. Primitive data types used in java programming

     ii. Bitwise Operator

    iii. Tilde operator

    iv. Logical operators   [6 marks]

QUESTION TWO 20marks

a) Write a program in C to accept two numbers compare them and displays the output which is the greatest between them.   [6 marks]

b) Explain the following problem solving techniques used in programming.   [2 marks]

    i. Decision tables

    ii. Pseudo code

c) Explain any three operators in java programming.   [3 marks]

d) Differentiate between variables and constants .   [4 marks]

e) What is code re-use and how is it important in software development.   [3 marks]

f) Illustrate using an example how commenting can be done in java programming.[2 marks]

QUESTION THREE 20marks

a) Draw a flow chart to calculate the area of a triangle.   [4 marks]
b) Explain the following terms used in Unified modeling language.   [4 marks]
    i. Actor
    ii. Relationship
    iii. Extends
    iv. Uses
c) Write a simple program in java to display "welcome to programing lecture". [2 marks]
d) Write a program in java programming language to add 2 x2 matrix.   [4 marks]
e) Explain parameter passing in C programming.   [6 marks]

QUESTION FOUR 20marks

a) What is program documentation and enumerate four advantages associated with it
    .   [4marks]

b) Write a program in java to demonstrate the use of switch statements.   [4 marks]

c) Explain how throw and catch are used in exceptional handling .   [4 marks]

d) Explain the following four fundamental principles of object oriented programming
    .   [8marks]
    i. Abstraction
    ii. Inheritance
    iii. Encapsulation
    iv.   2 Class and object

QUESTION FIVE 20marks

a) Write a program in c programming language to perform a 3x3 multiplication matrix" .
   .   [10marks]

b) Write a program in java to illustrate the use of for loop.   [4 marks]

c) Draw a flow chart for a program that accepts each of the average mark of 10 students in a
   class and then compute it for the class an average mark. The computer class average is
   displayed appropriately.   [6 marks]