MURANG'A UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture and Technology)

UNIVERSITY EXAMINATIONS 2015/2016

YEAR TWO SEMESTER ONE EXAMINATION FOR THE DIPLOMA IN

INFORMATION TECHNOLOGY

SCI 1202: OBJECT ORIENTED PROGRAMMING

COURSE: DIT   **TIME: 2HRS**
DAY/TIME: Tuesday 8:30Am -10:30Am   **DATE: 15th Dec 2015**

INSTRUCTIONS: *Answer question one and any other two questions*

QUESTION ONE

a. Define the following terms as used in OOP

    i.   Encapsulation   [2 Marks]

    ii.   Array   [2 Marks]

b. State **two** hardware requirements that should be considered when installing an OOP

    compiler in a computer   [2 Marks]

c. Outline the steps followed when overloading an operator.   [3 Marks]

d. Explain two reasons for the use of OOP in system development   [4 Marks]

e. Differentiate between private and protected member as used in OOP   [4 Marks]

f. Using an example in each case, outline four types of operators in C++ program.

                                                                                               [4 Marks]

g. Describe operator precedence for arithmetic operators.   [4 Marks]

h. A C++ program has two classes named A and B. Each class has two public functions and

    two objects. Illustrate the syntax of the program   [5 Marks]

QUESTION TWO

a. Outline two advantages of class inheritance as used in OOP [2 Marks]

b. With the aid of a diagram in each case distinguish between single inheritance and multiple inheritance [2 Marks]

c. Explain the function of a constructor as used in OOP. [2Marks]

d. Differentiate between a virtual function and a concrete function [4 Marks]

e. The following is a list of programming languages. (Java, C, C++, Python, Simula, Stella, Smalltalk, C#, Javascript) Identify four OOP languages from the list [4 Marks]

f. Write a C++ program that computes the square of the number entered by the user. Illustrate the use of a constructor in the program [6 Marks]

QUESTION THREE

a. Outline three advantages of using Object Oriented databases [3 Marks]

b. Using clearly labeled diagrams describe the **is-a** and **has-a** relation in OOP [6 Marks]

c. Describe the following terms as used in OOP

    i. Data abstraction

    ii. Nesting of classes

    iii. Scope Resolution [6Marks]

d. Write a C++ program that displays the sum of all the even numbers between 5 and 10. Use a for loop. [5Marks]

QUESTION FOUR

a. Differentiate between source code and object code as used in programming. [4 Marks]

b. Show the difference between the execution flow of the **if else** statement and the **if else if.** [4 Marks]

c. Explain **three** different features of a good algorithm as used on OOP. [6 Marks]

d. Write a C++ program that outputs the statement "MY FIRST PROGRAM" using the *iostream* and *string* library [4 marks]