

 W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

 **UNIVERSITY EXAMINATIONS 2017/2018**

**YEAR II SEMESTER I EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**

**ICS 2104: OBJECT ORIENTED PROGRAMMING I**

**DATE: FEBRUARY 2018 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

1. What is OOP? Give THREE examples of programming languages that use OOP features. [4 marks]
2. Explain, why so much attention of programming today is focused on OOP? [8 marks]
3. Discuss the meaning of the following objects as they are used in C++
* Endl
* Cont
* Operator <<
* Include <iostream> [8 marks]
1. Describe THREE access modifiers that are used in encapsulation (Data hiding). [6 marks]
2. Explain how you can define a function outside the class by using scope resolution operator. [4 marks]

**QUESTION TWO (20 MARKS)**

1. Discuss FOUR fundamental principles of OOP. [12 marks]
2. Write the short C++ program that asks the user to enter two numbers, obtain the numbers from the user and print the product of the two numbers entered by the user. [8 marks]

**QUESTION THREE (20 MARKS)**

1. What is a pointer? Provide the general form of the pointer variable declaration. [4 marks]
2. Mention THREE important steps which has to be done when dealing with pointers. [6 marks]
3. What is NULL pointer? Give examples. [4 marks]
4. What will be the output of the following program code;

 #include <iostream>

 Using namespace Std;

 Int main ( ) {

 Int var = 70;

 Int \*p;

 Ip = $ var;

 Count << var << endl ;

 Count << ip << endl;

 Count << \*ip << endl;

 Return 0;

 } [6 marks]

**QUESTION FOUR (20 MARKS)**

1. Discuss the characteristics and uses of the following function in OOP;
2. Constructors
3. Destructors
4. Setters
5. Getters [12 marks]
6. Write the general form or definition of inheritance class in C++. Give examples. [8 marks]

**QUESTION FIVE (20 MARKS)**

Differentiate between the following concepts of OOP. Give example for each concept;

1. Specialization and generalization
2. Method overriding and method overloading
3. Dynamic binding and Static binding
4. Local variable and global variable