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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY  
UNIVERSITY EXAMINATION, 2016/2017 ACADEMIC YEAR  
FIRST YEAR, FIRST SEMESTER EXAMINATION  
FOR THE DEGREE OF BACHELOR OF SCIENCE  
(COMPUTER SCIENCE)**

Date: 12<sup>th</sup> August, 2016.  
Time: 8.30am –10.30am

**KCS 101 - INTRODUCTION TO PROGRAMMING**

**INSTRUCTIONS TO CANDIDATES**

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

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**QUESTION ONE (30 MARKS)**

- a) Briefly describe all the forms of control needed to implement a program. (6 Marks)
- b) In order to functionally equate a program to another language one may need the help of a specialized computer program. Briefly describe three types of such a program and give examples. (6 Marks)
- c) Briefly explain the phases which a typical C++ program goes through? (12 Marks)
- d) Describe any three tokens and give relevant examples. (3 Marks)
- e) Write a simple program that displays the following words;  
Welcome to C++ Programming Language (3 Marks)

**QUESTION TWO (20 MARKS)**

- a) Write a simple program which adds two whole numbers and displays the results. (10 marks)
- b) Briefly explain the six major sections of a computer. (6 Marks)
- c) Distinguish the difference between pseudocode and algorithm. (4 Marks)

### **QUESTION THREE (20 MARKS)**

a) Write a program which uses a function that is declared in a class which is stored in a separate file. (10 Marks)

b) Mention the error and give the correction in each of the following;

i) 

```
while ( num1 <= 100 )  
{  
    product = num1 * 2;  
    num1+1;
```

ii) 

```
cin << value;
```

iii) 

```
if ( gender == 1 )  
    cout << "Woman" << endl;  
else;  
    cout << "Man" << endl;
```

c) Differentiate between whole numbers and real numbers and their representation in C++ programs. (6 Marks)  
(4 Marks)

### **QUESTION FOUR (20 MARKS)**

a) Write a program that calculates the factorials of 0 through 10.

(12 Marks)

b) Describe the ways used by programmers of high level languages to pass arguments to functions.

(4 Marks)

c) Differentiate between recursive functions and iterative functions.

(4 Marks)

### **QUESTION FIVE (20 MARKS)**

a) Write a program that declares an array using an initializer list and displays the array.

(10 Marks)

b) Briefly explain the major categories which are used to classify the programming languages.

(6 Marks)

a) Briefly explain the difference between the do while and the while repetition statements.

(4 Marks)