THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

AUGUST - DECEMBER 2016 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

REGULAR PROGRAMME

DIT 004: INTRODUCTION TO PROGRAMMING TECHNOLOGIES

Date: DECEMBER 2016	Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and ANY other TWO Questions

Q1. a) What is Computer programming?   **(2 Marks)**

b) State and explain two ways of how computer programming is important?

(4 Marks)

c) Write simple C++ code to output the following.   **(4 Marks)**

  i) I love programming. Will keep programming

  ii) "Programming is simple especially using high level programming languages"

d) State and Explain the different Languages Used in Computer Programming.   **(6Marks)**

e) Explain how a for loop differ from a while loop.   **(2 Marks)**

f) Describe the output of the following code?   **(5 Marks)**

int j;

for (j=1; j<=20; j++){

ISO 9001:2008 Certified by the Kenya Bureau of Standards

```
std::cout<<( "%10d", 1+ ( rand() % 6));
if (j% 5==0){
    std::cout<<( "\n");
}
}
```

g) Programs regardless of the languages they are written in contain two fundamental parts. Clearly state and explain these Fundamental parts.

(4 Marks)

h) What is logical error? **(3 Marks)**

Q2. a) Distinguish between instance Variables and global variables as used in Computer Programming. **(4 Marks)**

b) Write a C++ program to initialize a 10 element integer array n to zeros and print the array in a tabular format. **(4 Marks)**

c) State and Explain any two roles that computer Programmingplays.

(4 Marks)

d) Explain how comments are done in C++ and give one example of a comment

(4 marks)

e) Explain how repetition can be achieved in Programming. **(2 Marks)**

f) What are conditional Statements? **(2 Marks)**

Q3. a) Describe the output of the following Code. **(5 Marks)**

```
int main ()

{

int biology, physics, mathematics, cre, history, chemistry, geography;

float average;
```

ISO 9001:2008 Certified by the Kenya Bureau of Standards

```
biology=67;

physics=80;

mathematics=90;

cre=92;

history=68;

chemistry=80;

geography=95;

average=(biology+physics+mathematics+cre+history+chemistry+geography)/7;

        std::cout<< ( average);

        return 0;

}
```

b) Give two examples of high level programming languages.   **(4 Marks)**

c) Write a program that outputs the square root of 900 and the square root of 9 when run   **(4 Marks)**

.

d) Explain and give two examples of how computer programming can be used to solve day to day problems in organizations   **(4 Marks)**

e) Give Examples and uses of three data types?   **(3 Marks)**

Q4. a)   How do Semantic Errors occur in the written code?   **(3 Marks)**

    b) Explain your understanding of syntax error. Give at least two examples of syntax errors.   **(4 Marks)**

a) What is the distinction in terms of display output between the following two lines of code? **(4 Marks)**

    i) printf

    ii) scanf

b) What is the output of the following code? **(6 Marks)**

```
#include <iostream>
int main(int argc, char** argv) {
    int x =2;
    int y =8;
    std::cout <<x+y;
            int miles, yards;
            float kilometers;
    yards = 400;
    miles = 90;
    kilometers = 1.609 * (yards +miles);
    std::cout<<("%d miles,%d yards");
    system ("PAUSE");

    return 0;
}
```

c) What is displayed when this code is executed? **(3 Marks)**

```
for (int i = 1; i <= 10; i++)

    std::cout<<(i * i);
```

Q5. a) Explain the meaning of the following terms as used in Computer Programming **(6 Marks)**

    i) Variables

    ii) Source code

    iii) Execution

ISO 9001:2008 Certified by the Kenya Bureau of Standards

b) Explain the meaning of the following terms as used in computer Programming **(6 Marks)**

    i) Writing Program

    ii) Compiling Program

    iii) Executing Program

c) Explain what is a Computer and how does a Computer works?**(4 Marks)**

d) What is an Array? **(4 Marks)**

END