



(Knowledge for Development)

KIBABII UNIVERSITY COLLEGE

A CONSTITUENT COLLEGE OF

MASINDE MULIRO UNIVERSITY OF

SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF COMP SCIENCE & BIT

COURSE CODE: CSC 121 A

COURSE TITLE: PROCEDURAL PROGRAMMING

DATE: 27TH APRIL, 2015

TIME 3.00PM-5.00PM

INSTRUCTIONS TO CANDIDATES

Answer Question One in Section A and Any other **TWO** (2) Questions in Section B

Instructions:

Answer Question 1 and two questions from section B. Time: 2 Hours

SECTION A (Compulsory – 30 Marks)

QUESTION ONE

- a) Explain a C++ identifier (4 Marks)
- b) Describe the following concepts in relation to the C++ Programming Language
 - i) Dynamic Memory Allocation (2 Marks)
 - ii) Array (2 Marks)
 - iii) Pointer (2 Marks)
 - iv) Object (2 Marks)
 - v) Class (2 Marks)
- c) Discuss Procedural Programming Languages (5 Marks)
- d) (i) Write down an array that can store ten values of type int (2 Marks)
(ii) Write the syntax of a typical declaration for an array in C++ (3 Marks)
- e) The C++ standard libraries provide an extensive set of input/output capabilities. If bytes flow from a device like a keyboard, a disk drive, or a network connection etc. to main memory, this is called input operation and if bytes flow from main memory to a device like a display screen, a printer, a disk drive, or a network connection, etc, this is called output operation.

Explain each of the following I/O Library Header Files. (6 Marks)

- (i) iostream
- (ii) iomanip
- (iii) fstream

SECTION B (Attempt any TWO Questions from this section – 40 Marks)

QUESTION TWO

- a) (i) Write the general form of a C++ function definition. (3 Marks)
(ii) Explain the main parts of a function (8 Marks)
(iii) Explain the concept of memory leak in C++. (3 Marks)

- b) Write a function that takes two integers a and b and returns the maximum. (6 Marks)

QUESTION THREE

- a) To call a function, you simply need to pass the required parameters along with function name, and if function returns a value, then you can store returned value.

Explain each of the following function call types (6 Marks)

- i.) Call by value
- ii.) Call by pointer
- iii.) Call by reference

- b) To read to a file and write from a file requires a standard C++ library called **fstream**, which defines three new data types:

- i) ofstream
- ii) ifstream
- iii) fstream.

Explain each of these new data types. (6 Marks)

- c) Write down the format of declaring a class structure in C++.

Give a specific example (8 Marks)

QUESTION FOUR

- a) Explain a data structure and show the syntax of declaring such a structure. (5 Marks)

- b) Write the code in C++ that creates a data structure called “Product” whose elements are: weight and price, giving an example of three different object names. (5 Marks)

- c) Explain the concept of a structure in C++ showing clearly how it is defined, declared and initialized considering the structure “Student” (10 Marks)

QUESTION FIVE

- a) (i) Consider the following short program: (10 Marks)

```
1.#include <iostream>
2.int main(void)
3. {
4.  cout << "Welcome to the C++ World!";
5.  return 0;
```

6. }

Explain each of the six lines in the program.

b) Write a program that will produce the correct size of each of the following data types.

(10 Marks)

- i.) Character
- ii.) Integer
- iii.) Short integer
- iv.) Long integer
- v.) Float
- vi.) Double
- vii.) Wide character