KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2009/2010
INSTITUTE OF OPEN LEARNING EXAMINATION FOR THE DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY

SIT 310: FUNDAMENTAL OF PROGRAMMING

DATE: Monday 15th February, 2010 **TIME:** 11.00 a.m. – 1.00 p.m.

INSTRUCTIONS

Attempt question one and any other two questions

Question One (30 marks)

a) Explain the difference between C programming language and C++ programming language (3 marks)

b) Giving two examples of each explain the three types of words used in C++ programs . (9 marks)

c) While declaring int variables in C++ there is a limitation on the largest and smallest integers that can be stored. Explain how this limitation is handled stating the subsequent data types introduced. (6 marks)

d) Explain how strings are represented in C++ programming taking into consideration that, "`string`" is not a fundamental data type such as "`int`", "`float`" or "`char`". (5 marks)

e) Explain the interpretation of the following declaration when executed by C++ compiler "`unsigned short int year_now, age_now, another_year, another_age;`" (7 marks)

Question Two (20 marks)

Study the following programand anwer the questions that follow.

```
1       #include <iostream>
2       #include <fstream>

3       using namespace std;

4       int main()
        {
5               char character;
6               int integer;
7               ofstream out_stream;
8               ifstream in_stream;
```

```
9               out_stream.open("Integers");
10              out_stream << 123 << ' ' << 456;
11              out_stream.close();

12              in_stream.open("Integers");
13              in_stream >> character >> integer;
14              cout << "character: '" << character << "'\n";
15              cout << "integer: " << integer << "\n";
16              in_stream >> character >> integer;
17              cout << "character: '" << character << "'\n";
18              cout << "integer: " << integer << "\n";
19              in_stream.close();

20              return 0;
        }
```

a) State and explain the output of the above C++ program. (8 marks)

b) Explain the purpose of line 1 and 2 in a C++ program (2 marks)

c) Explain the purpose and what is accomplished by line 4 and 20 (3 marks)

d) Explain what is accomplished by lines 9 to 11 (3 marks)

e) Explain what is accomplished by lines 12 to 20 (4 marks)

Question Three (20 marks)

Write a C++ program which takes a single integer argument between 1 to 20 (the program should test this range and give a response accordingly while out of range, otherwise displays a "pyramid" of a height of input value made up of of "A" characters on the screen. The program should not be function based it should b a single program. Test the program and save a screen shot of the results while the input is out of range while within the range.

Question Four (20 marks)

a) Explain the three rules that must be observed while using integer values in C++ programming (6 marks)

b) Explain the basic data types available in C++ programmer giving two examples of each (9 marks)

c) Explain the purpose and what is accomplished by using the statement `using namespace std;` (5 marks)

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