Strathmore
UNIVERSITY

SCHOOL OF COMPUTING AND ENGINEERING SCIENCES (SCES)

BACHELOR OF SCIENCE IN COMPUTER NETWORKS AND CYBER SECURITY
END OF SEMESTER EXAMINATION
CNS 1102: INTRODUCTION TO PROGRAMMING

DATE: 21st December 2021   **Time: 2 Hours**

Instructions
1.   This examination consists of **FIVE** questions.
2.   Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

Question One [30 Marks]

a) Explain the following 5 terms as used in Computer programming: **(10 Marks)**

   i. Variable

   ii. Constant

   iii. Array

   iv. Algorithm

   v. Loop

b) Describe the C++ development cycle. **(6 Marks)**

c) Using code segments, describe what a function is as used in programming. **(6 Marks)**

d) Briefly explain at least 4 types of relational operators. **(8 Marks)**

Question Two [15 Marks]

a) Explain one importance of programming to the society. **(2 Marks)**

b) Explain the concept of translation as used in Computer programming. **(2 Marks)**

c) Using examples, differentiate between a compiler and an interpreter. **(6 Marks)**

d) Write a C++ program that prompts a user to enter his/her birth year. The program should calculate the age and display the age of the user. **(5 Marks)**

Question Three [15 Marks]

a) Define the term *string* as used in Computer programming. **(2 Marks)**

b) Using examples, differentiate between a 1-dimensional array and 2-dimensional array. **(4 Marks)**

c) The following lines of code are not correct. Give reason(s) why each of them is not correct. **(6 Marks)**

```
int arr[3] = {a,b,c};
int arr[5] = {23,54,87};
float 4four[4];
```

d) Write the correct lines of code for Part 3(c) above. **(3 Marks)**

Question Four [15 Marks]

a) Explain the significance of using control structures in programming. **(2 Marks)**

b) Using code segments, differentiate between an *if-statement* and *if-else-if* statement. **(6 Marks)**

c) Using a *for-loop*, write a C++ program that will sum up all even numbers from 0 to 20. **(7 Marks)**

Question Five [15 Marks]

a) Differentiate between a *function argument* and a *function parameter*. **(2 Marks)**

b) Describe the concept of variable scope as used in functions. **(4 Marks)**

c) Write a C++ program that will use functions to calculate and display the perimeter and area of a rectangle. The program should prompt the user for the width and height. **(9 Marks)**