(Knowledge for Development)

# KIBABII UNIVERSITY

(KIBU)

## UNIVERSITY EXAMINATIONS
## 2021/2022 ACADEMIC YEAR

## END OF SEMESTER EXAMINATIONS
## YEAR ONE SEMESTER TWO EXAMINATIONS

## FOR THE DEGREE OF
## (CS & SMA)

**COURSE CODE : CSC 125/CSC121**

**COURSE TITLE : PROCEDURAL PROGRAMMING**

**DATE: 13/5/2022** **TIME: 02.00 P.M – 04.00 P.M**

**INSTRUCTIONS TO CANDIDATES**

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

## QUESTION ONE (COMPULSORY) [30 MARKS]

a) What do you understand by the following terms as used in C++? **[3 Marks]**

i. Identifier

ii. Function Signature

iii. Array

b) Write a program to calculate compound interest and draw appropriate flowchart **[6 Mark]**

c) Describe the advantages for using C++ language as a program language of choice **[4 Marks]**

d) Discuss various types of errors in C++ language **[3 Marks]**

e) What extension is used for C++ source file **[2 Marks]**

f) Describe four rules for naming the C++ variables? **[6 Marks]**

g) Write a program with three functions. One of the functions should be main and the second function should calculate area of a circle and the last function area of a rectangle. The two functions should be linked to the main function **[6 Marks]**

## QUESTION TWO [20 MARKS]

a) Using example, explain different types of functions in C++? **[4 Marks]**

b) Explain the structure of C++ user defined functions. **[4 Marks]**

c) Write C++ function that will return interest given Principle, Time and Rate. The simple interest **I** is calculated given the Principle as **P**, Rate per annum as **R** (%) and Time **T** in years using the formula **I=PTR/100.** **[6 Marks]**

d) Using examples differentiate call-by-value and call-by-reference **[6 Marks]**

## QUESTION THREE [20 MARKS]

a) Describe how constants are declared in C++. **[4 Marks]**

b) Using examples differentiate literal constant from symbolic constant. **[4 Marks]**

c) Write a C++ program to display every third number from the even numbers from 1 to the number entered by the user. **[6 Marks]**

**Enter Positive number:16**

**Expected output:**

**Numbers are:**

d) Explain several categories of operators in C++. **[6 Marks]**

## QUESTION FOUR [20 MARKS]

a) Define *Comments* and their use in C++. **[4 Marks]**

b) C++ has been designed in such a way that data is handled efficiently; using examples, explain various data types that help in achieving the goal above. **[6 Marks]**

c) A good program is a result of equally good program development practice, explain step by step procedure of developing good programs **[6 Marks]**

d) Distinguish between a variable and a constant **[4 Marks]**

## QUESTION FIVE [20 MARKS]

a) Write a code segment to create a file named **temp.txt** if it does not exist. **[4 Marks]**

b) Write a simple program that writes ***Welcome to C++ programming file operations.*** to a file named ***welcome.txt*** **[4 Marks]**

c) Write a C++ program that reads the content in file above (***welcome.txt***) and display the results on the screen. **[4 Marks]**

d) What is a recursion? **[2 Marks]**

e) Write a recursive function that calculates the factorial of a number. **[6 Marks]**