

COSC 00103

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

CHUKA & EMBU

EXAMINATION FOR THE AWARD OF CERTIFICATE IN  
COMPUTER SCIENCE

COSC 00103: INTRODUCTION TO PROGRAMMING AND ALGORITHMS

STREAMS: CERT COMP SCI

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 31/03/2021

11.30 A.M. – 1.30 P.M.

**INSTRUCTIONS:**

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

**SECTION A**

**QUESTION ONE (30 MARKS)**

- a. Explain what the following Operators mean [4 marks]
- &&
  - ||
- b. List any four major characteristics of an algorithm [4 marks]
- c. Write Syntax of a simple C++ Programme outputting the result “Hello, World!” [4 marks]
- d. Differentiate an Interpreter from a Compiler [4 marks]
- e. Explain the following types of program errors: [6 marks]
- Syntax errors:
  - Semantic errors:

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iii. Logical errors:

- f. List Four General Naming conventions for a good Programming Style [4 marks]
- g. A student is interested in Learning C programming from Basics, List Four resource tools you would recommend to him/her [4 marks]

### SECTION B (ANSWER ANY TWO QUESTIONS ONLY)

#### QUESTION TWO (20 MARKS)

- a. Write a statement for variable declaration in Java [4 marks]
- b. Draw a clearly labelled flowchart to calculate the average of two numbers [6 marks]
- c. LIST the stages a Software Developer goes through in order to develop a successful and beneficial computer programme [10 marks]

#### QUESTION THREE (20 MARKS)

- a. Outline History of Programming Languages between the year 1945 & 2021 [10 marks]
- b. Write a C Function Using Call by Reference [10 marks]

#### QUESTION FOUR (20 MARKS)

a. Assume given marks are x for a student:

If given marks are more than 95, then

Student is brilliant

If given marks are less than 30, then

Student is poor

If given marks are less than 95 and more than 30, then

Student is average

- i. Draw Flow chart for above Programme [5 marks]
- ii. Write Pseudocode for above FLOWCHART [5 marks]
- iii. Write a C program with the help of **if conditional statements** to convert the above given situation into a programming code [10 marks]

**QUESTION FIVE (20 MARKS)**

a. You have two variables, a with stored value of 10 and b with stored value of 20 [7 marks]

Declare the variables, assign the stored values and print the values in Python

b. Assign relevant keywords & value range for the following data types in C and Java:[10 marks]

Type	Keyword	Value range which can be represented by this data type
Character		
Number		
Small Number		
Long Number		
Decimal Number		

c. List any three Variable types in Java [3 marks]

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