



## **MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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### **University Examinations 2020/2021**

#### **FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY**

#### **CIT 2112: FUNDAMENTALS OF COMPUTER PROGRAMMING**

**DATE: JULY 2021**

**TIME: 1½ HOURS**

**INSTRUCTIONS:** *Answer question **one** and any other **two** questions*

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#### **QUESTION ONE (30 MARKS)**

- a) Describe any two features of C as a programming language that make it a preferable choice over most languages (2 marks)
- b) Describe the four basic data types in C programming language (4 marks)
- c) Differentiate the following as used in programming
  - i. Reserved word and an identifier (2 marks)
  - ii. Global variable and a local variable (2 marks)
  - iii. User defined functions and inbuilt functions (2 marks)
  - iv. While loop and Do... while loop (2 marks)
- d) Describe two qualities of a good program (2 marks)
- e) Identify four benefits of flow charts in program planning (4 marks)

- f) In program execution, operations are carried out on data in order to process it. There are three types of data operators that can be used within a program. Briefly describe them? (6 marks)
- g) Give the syntax of declaring an array in C programming, and state the meaning of each part of the declaration (4 marks)

### QUESTION TWO (15 MARKS)

- a) Write a program that uses a loop to generate and display numbers 0 to 9 (3 marks)
- b) Describe the limitations of machine languages which are not solved using assembly languages (3 marks)
- c) A local hotel at Thika offers two types of Menu; sit-in and Take away. For the same order, the sit-in order is charged an extra 12% service levy. The hotel also has daily promotional offers on some of the menu items where promotional sit-in menu items are not charged the service levy while those on the take away menu are charged at 5% less on the price

**Required:**

Represent the algorithm to automate this process using both a flow-chart and Pseudo code (9 marks)

### QUESTION THREE (15 MARKS)

- a) Correct errors, if any in the following C program (4 marks)
1. `#include<stadi.h>`
  2. `Main()`
  3. `{`
  4. `Int A;B;C;`
  5. `Product=a*b*c,`
  6. `Print("the product is,",product)`
  7. `}`

- b) Explain the steps that a programmer has to follow in the program development lifecycle (8 marks)
- c) Explain three advantages of high level languages (3 marks)

**QUESTION FOUR (15 MARKS)**

- a) Using the switch statement, create a C program that prints the grade of a unit based on the criteria

Mark	Grade
70-100	A
60-69	B
40-59	C
<40	F

The program should display the message “Failed Unit- student to re-sit the unit” when a student grade “F” (7 marks)

- b) Describe the importance for program documentation (4 marks)
- c) Describe the advantages of structured programming (4 marks)