



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2023/2024

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

### CIT 2112: FUNDAMENTALS OF COMPUTER PROGRAMMING

DATE: APRIL 2024

TIME: 1<sup>1</sup>/<sub>2</sub> HOURS

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#### INSTRUCTIONS:

1. Answer Question ONE, and any other TWO
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#### QUESTION ONE (30 MARKS)

- a. Differentiate the following as used in computer programming
  - i. Reserved word and an Identifier (2 Marks)
  - ii. Function and an array (2 marks)
  - iii. For loop and while loop (2 Marks)
  - iv. Syntax errors and logical errors (2 marks)
- b. Describe two qualities of a good program (2 Marks)
- c. Outline the rules for naming variables in programming. (4 marks)
- d. Identify four benefits of flow charts in program planning. (4 Marks)
- e. Describe any two types of operators used in programming. (4 marks)
- f. Describe two limitations of machine languages. (4 mks)
- g. Briefly describe two ways of stating algorithms. (4 mks)



## QUESTION TWO (15 MARKS)

- a. Explain two advantages of an algorithm. (4 marks)
- b. Write a program that uses a loop to generate and display numbers 10 to 20 (5 Marks)
- c. A local hotel at Meru 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

- i) Use a flowchart to automate this process. (6 Marks)

## QUESTION THREE (15 MARKS)

- a) Write a C program that uses any loop to compute the sum of all numbers between 1 and 10 that are even. The program then outputs the sum suitably. (5 marks)

- b) Study the following sample segment of codes and answer the question below;

```
Int y=5, sum=10
```

```
While (y<=0)
```

```
{
```

```
Printf("\nY is % d",Y);
```

```
Sum =Sum+Y;
```

```
Y=Y-1;}
```

```
Printf("\n The sum is %d,sum);
```

- i. Re-write the above segment of code using for... loop. (4 Marks)
- ii. Write the output produced by the above segment of code if embedded in a computer C Program. (2 Marks)



c) Give the syntax of declaring an array in C programming, and state the meaning of each part of the declaration. (4 marks)

**QUESTION FOUR (15 MARKS)**

- a. Explain the steps that a programmer has to follow in the program development lifecycle. (7 marks)
- b. Write a C program to calculate the area of a circle and output it. (4 marks)
- c. Write a C program that prompts for the input of two integer values and if the first is greater than the second their product is computed and output. (4 marks)

