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**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR**  
**FIRST YEAR, FIRST SEMESTER EXAMINATION**  
**FOR THE BACHELOR OF BUSINESS AND INFORMATION TECHNOLOGY**  
**KBI 2109 – FUNDAMENTALS OF PROGRAMMING**

Date: 9<sup>th</sup> August, 2023  
Time: 8:30am – 10:30am

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) Distinguish between the following terms
- i) Local variable and global variable (2 Marks)
  - ii) Object code and source code (2 Marks)
  - iii) Compiler and interpreter (2 Marks)
  - iv) Constant and variable (2 Marks)
- b) Describe four advantages of C programming over other programming languages (4 Marks)
- c) With exemplification, analyze three types of program errors (6 Marks)
- d) Elucidate any two features of a good programming language (2 Marks)
- e) Explain the phases of a typical C program (6 Marks)
- f) Elaborate on the following terms
- i) Top-down design and bottom-up design (2 Marks)
  - ii) Union and structure (2 Marks)

**QUESTION TWO (20 MARKS)**

- a) Discuss the steps followed in program development (8 Marks)
- b) An IT student want to create a C program that compute the area of a circle after reading the radius from the user
- i) Write a pseudocode (4 Marks)
  - ii) Draw a flow chart the student will use (4 Marks)
  - iii) Write the program (4 Marks)

**QUESTION THREE (20 MARKS)**

- a) i) Describe the importance of the function prototype (3 Marks)
- ii) Define the term recursive function (2 Marks)
- iii) Highlight any three benefits of using a function (3 Marks)
- b) Expound the three levels of programming languages (6 Marks)
- c) Define the term array (2 Marks)
- d) Enumerate four variable naming rule that are used in C programming language (4 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Using an example declare a pointer (2 Marks)
- b) Illustrate the three control structures used in programming (6 Marks)
- c) A program is required to process and award students grades for students in a class according to the following summary table.

Marks%	Grade
80 – 100	A
60 – 79	B
40 – 59	C
Below 40	Fail

Write a C program that prompts the user for the student’s Marks and outputs the appropriate grade using a nested if-else statement. The else option should print an error message “Wrong Marks”

(6 Marks)

- d) There are several operators in the C language. Define an operator and discuss any three data operators (6 Marks)

**QUESTION FIVE (20 MARKS)**

- a) i) Define a data type (2 Marks)
- ii) Explain the categories of data types in C Programming Language. (8 Marks)
- b) Discuss the two methods of including comments in your C program (2 Marks)
- c) Describe why the function main ( ) is special in a c program (2 Marks)
- d) Explain three classification of the programming languages (6 Marks)