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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATIONS, 2020/2021 ACADEMIC YEAR**  
**FIRST YEAR, SECOND SEMESTER EXAMINATIONS**  
**FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**

**KBI 2109 - FUNDAMENTALS OF PROGRAMMING**

Date: 16<sup>th</sup> December, 2020  
Time: 11.30am – 1.30pm

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**INSTRUCTIONS TO CANDIDATES**

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

**QUESTION ONE COMPULSORY (30 MARKS)**

- a) Describe four types of variables used in C language. (4 Marks)
- b) Write a simple program in C Programming Language using the **switch...case**. (6 Marks)
- c) Explain the structure of a program in C programming language and the process it goes through during execution? (6 Marks)
- d) Write a program that displays the prime numbers using control structures? (6 Marks)
- e) Write a C program that uses a function to calculate the volume of a cone. (8 Marks)

**QUESTION TWO (20 MARKS)**

- a) Distinguish between call by value and call by reference. (4 Marks)
- b) Explain the categories which are used to classify programming languages. (6 Marks)
- c) Write a simple program that displays the contents of a 2-dimensional array. (10 Marks)

**QUESTION THREE (20 MARKS)**

- a) Differentiate between relational and logical operators used in C? (4 Marks)
- b) Write a program in C Programming Language that demonstrates how to define various kinds of variables. (8 Marks)
- c) Write a C Program to calculate factorial of a given number using recursion. (8 Marks)

**QUESTION FOUR (20 MARKS)**

- a) What is a variable? Describe the rules for defining variables? (4 Marks)
- b) With the aid of flow diagrams explain how selection statements are used in C Language. (6 Marks)
- c) Write a program that demonstrates the various parts of a function. (10 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Distinguish between a structure and an array. (4 Marks)
- b) Using relevant code snippets and syntax explain the various types of repetition statements. (8 Marks)
- c) Write a program which uses a structure to capture four properties of a Patient. (8 Marks)