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

Date: 05TH December 2023
Time: 11:30AM – 1:30PM

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)
a) Distinguish between the following terminologies as used in C Programming Language
   i) While loop and do while loop
   ii) Variables and Constants
   iii) Printf and Scanf   (6 Marks)
b) Describe why the function main () is special in a c program   (2 Marks)
c) Discuss the two methods of including comments in your C program   (2 Marks)
d) Write a simple program in C Programming Language using the while and do while loops. (5 Marks)
e) i. Define a data type   (1 Mark)
   ii. Describe the four categories of data types in C Programming Language   (4 Marks)
f) i. Create a structure named salary to store the information about an employee with the following elements   (4 Marks)
- Name (up to 20 characters)
- Department (up to 10 characters)
- Basic_ pay
- House_ allowance

   ii. After creating the structure declare a variables named employee from the structure   (2 Marks)
g) Explain four rules what should be followed when declaring variables   (4 Marks)

QUESTION TWO (20 MARKS)
a) Why files are commonly used in C programming   (3 Marks)
b) Write a C programming code that create a file (kwust.txt) with a list a 10 students in it   (5 Marks)
c) Explain different files opening modes, and write a C programming language applying any of the file opening mode to read (kwust.txt)   (6 Marks)
d) Write a simple program that demonstrates the if…else if and else control statement.   (6 Marks)

QUESTION THREE (20 MARKS)
a) What is Recursion and it benefits in C programming   (3 Marks)
b) Write a C program that can generate Fibonacci series using recursive function   (6 Marks)
c) What is Error handling and its applicable uses in program development   (5 Marks)
d) Write a C program of your choice, with error handling functionality and explain what it does
     (6 Marks)

QUESTION FOUR (20 MARKS)

a) Differentiate between recursive functions and iterative functions. (4 Marks)

b) i. Explain the importance of the function prototype (2 Marks)

ii. Explain any two benefits of using a function (2 Marks)

iii. Write a program that computes both the area and circumference of a circle. Define two functions called area () and circum () to compute and return the area and circumference of the circle respectively (8 Marks)

c) Explain the following data structured used in c; include a program illustration.

i. Arrays

ii. Structures (4 Marks)

QUESTION FIVE (20 MARKS)

a) What is array and applicable uses of arrays (2 Marks)

b) Write a C program, where user input numbers are stored in arrays, and compute total, average, maximum and minimum number (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 nested if else statement. The else option should print an error message "Wrong Marks" (6 Marks)

d) Using relevant examples and C programming codes describe 3 string functions (6 Marks)