CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF BACHELOR OF COMMERCE, BACHELOR OF COOPERATIVE MANAGEMENT & BACHELOR OF ENTREPRENEURSHIP MANAGEMENT

COSC 104: INTRODUCTION TO COMPUTER PROGRAMMING METHODOLOGIES

STREAMS: BCOM, BCOP, BENS   **TIME: 2 HOURS**

DAY/DATE: TUESDAY 30/03/2021   **11.30 A.M. – 1.30 P.M**

INSTRUCTIONS: ANSWER QUESTION 1 AND ANY OTHER TWO.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 Marks)

a) Define the following terms as used in computer programming   **[3 marks]**

  i.   Algorithm

  ii.   Pseudocode

  iii. Flowchart

b) Consider a program that reads two values and compares them in order to display the larger of the two.

  i.   Draw the flowchart   **[4 marks]**

  ii.   Write the program   **[6 marks]**

c) Explain the following flow control approaches work   **[4 marks]**

  i.   Iteration

  ii.   Selection

d) Describe the structure of a C function   **[3 marks]**

e) Write a function that calculates the area of a circle.   **[4 marks]**

f) Define the term array   **[2 marks]**

g) Write a program that creates an array of 10 integers then displays them in reverse order.

                                                                                                          [4 marks]

SECTION B: ATTEMPT ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO (20 MARKS)

a) Show, using C programming language statements, how you would declare variables to contain the following values. Use variable names of your choice.   **[4 marks]**

    i.   The age of an individual

    ii.   The value 42.36

b) Write a program with a function containing an array of five names. The function should then display the names on the screen when called.   **[6 marks]**

c) Mrs. Oriedi wants a program to help her track her monthly household expenditure. Usually she makes sure that one third of the total household expenditure equivalent is put in a savings account. Write this program.   **[6 marks]**

d) In what way are strings handled in C programming? Give an example.   **[4 marks]**

QUESTION THREE (20 MARKS)

a) Describe any **THREE** types of errors you can encounter in a program   **[6 marks]**

b) Why are variables important in a program?   **[2 marks]**

c) Use the while statement to write a program that calculates the product of the numbers 1 to 10.   **[6 marks]**

d) Use a flow chart diagram to explain how the if …. else statement works   **[6 marks]**

QUESTION FOUR (20 MARKS)

a) Write a program that stores the following statement: "Programming is the cornerstone of software applications". Make sure the statement is read through the keyboard and stored in a string variable before it is displayed.   **[6 marks]**

b) Describe the relationship between **printf()**, **scanf()** and the **<stdio.h>** header file.

    [6 marks]

c) A program is required to sum all the even numbers from 1 to 20.

    i.   Write the pseudocode for this program   **[2 marks]**

    ii.   Write the program   **[4 marks]**

d) List any **TWO** rules followed when choosing variable names.   **[2 marks]**

QUESTION FIVE (20 MARKS)

a) Explain the role of the following parts of a C program   **[6 marks]**

    i.   #include <stdio.h>

    ii.   #include <conio.h>

    iii.   int main()

b) Write a program in C that receives the value of radius, which is passed to a function named CIRC_AREA that computes and returns for display the area of the circle. PI is declared as a symbolic constant.   **[6 Marks]**

c) Write a code segment that can display numbers divisible by either 7 or 8 in the range 20 and 80. The values are displayed in descending order(largest first)   **[6 Marks]**

d) Change the code in c above to display numbers divisible by both   **[2 Marks]**