CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

CHUKA / EMBU

SECOND YEAR EXAMINATION FOR THE AWARD OF
DEGREE OF BACHELOR OF COMMERCE

COSC 104 : INTRODUCTION TO COMPUTER PROGRAMMING METHODOLOGIES

STREAMS:

TIME: 2 HOURS

DAY/DATE : TUESDAY 28 /09/ 2021   **11.30 AM – 10.30 AM**

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, No reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.
- Marks are awarded for clear and concise answers.

SECTION A (Answer ALL questions)

QUESTION ONE (COMPULSORY) [30 MARKS]

(a) Define each of the following computer programming terms;   (4 marks)

i) Literals

ii) Pointers

iii) Variable

iv) Functions

(b) Differentiate between a global variable and a local variable   (2 Marks)

(c) Distinguish between the use of pseudo-codes and flowcharts as computer programming problem solving techniques   (4 Marks)

(d) Computer programming uses various data types to declare placeholders for different data items;

   i) Outline the Four Data types classification available in C.   (4 Marks)

   ii) Explain what we mean by the term Variable Declaration in C Programming.
                                                                                  (3 Marks)

   iii) Explain the two ways in which a constant variable can be declared in C. (4 Marks)

   iv) Using any of the above ways, define a constant variable called PI whose value is 3.142   (2 Marks)

(e) Consider the following program.

```
#include <stdio.h>

int main ()

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INT sum;

/* COMPUTE RESULT

sum = 25 + 37 - 19

/* DISPLAY RESULTS //

printf("The answer is " sum);

return 0

}
```

   i. Identify the syntactic errors in the following program   (4 Marks)

   ii. Rewrite the corrected program   (3 Marks)

QUESTION TWO [20 MARKS]

(a) Using a flowchart, design an algorithm for a program that takes a list of three integer

values a, b and c, and displays the largest of the three.   (10 marks)

(b) Write a C program to implement your flowchart in (a) above   (5 Marks)

(c) Explain the role of comments in a computer program. Using an example, explain the two

types of comments in C.   (5 Marks)

QUESTION THREE [20 MARKS]

(a) Discuss the difference between the Do-While and While loop controls and write an example
    program that implements each of the loops.   (6 marks)

(b) Draw a flowchart and explain the **if…else** selection statement.   (6 marks)

(c) Write a C program that accepts an integer score value from the user. The program checks for
valid scores and then displays the grade corresponding to the score using the grading table
below. If the score is outside the acceptable range (less than 1 or greater than 100), the program
displays INVALID SCORE. Use the SWITCH Case decision making structure.   (8 Marks)

Score	Grade
1 – 39	F
40 – 49	D
50 – 59	C
60 – 69	B
70 – 100	A

QUESTION FOUR [20 MARKS]

(a) Write a C program that outputs a pattern of stars as shown below. Remember to use any looping structure in generating the resulting pattern.   (6 marks)

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(b) Distinguish between each of the following pair of operators;

i. = and +=   (2 Marks)

ii. ++and --   (2 Marks)

iii. = = and !=   (2 Marks)

(c) Write a C program the gets the principal amount from the user, investment period in years and the interest rate. The program then computes and displays the simple interest and the total amount to be recouped after the investment   (8 Marks)

QUESTION FIVE [20 MARKS]

(a) Explain the use and the difference between the Break Statement and the Continue Statement as used in C programming.   (6 Marks)

(b) Write a C program that accepts two numbers. The program then displays the Sum, Product, Quotient and Remainder (Modulus) separated by tabs.   (8 marks)

(c)A scope in any programming is a region of the program where a defined variable can have its existence and beyond that variable cannot be accessed. Explain the THREE places where variables can be declared in C programming language   (6 Marks)

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