

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATION

**RESIT/SUPPLEMENTARY / SPECIAL EXAMINATIONS
EXAMINATION FOR THE AWARD OF BACHELOR OF COMPUTER SCIENCE**

COSC 104: INTRODUCTION TO COMPUTER PROGRAMMING METHODOLOGIES

STREAMS:

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 11/08/2021

8.30 A.M - 10.30 A.M.

INSTRUCTIONS:

- Answer question 1 and any other two
- Do not write on the question paper

SECTION A: Answer all questions in this section

QUESTION ONE (30 Marks)

- a) Distinguish between **Selection** and **Iteration** control structures. **[4 marks]**
- b) Using a control structure of your choice:
- i) Write a program that prints all the **ODD** numbers less than 10 in reverse order. **[6 marks]**
- ii) Draw a flowchart for your program in i) above. **[4 marks]**
- c) Describe **TWO** ways by which string input can be read to a variable in C. **[4 marks]**
- d) Outline any 4 rules in naming identifiers. **[4 marks]**
- e) Write a program that accepts two numbers. The program then displays the Sum, Product, Quotient and Remainder (Modulus) separated by tabs. **[6 marks]**
- f) Giving examples define escape sequences in C. **[2 marks]**

SECTION B: ATTEMPT ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO (20 MARKS)

- a) Highlight the aspects of a function in relation to the C programming language giving the syntax for each aspect in C. **[6 marks]**
- b) Differentiate between interpreters and compilers. **[4 marks]**
- c) Write a program that stores the first 20 prime numbers into an array. **[6 marks]**
- d) Write the algorithm for the program in c) above. **[4 marks]**

QUESTION THREE (20 MARKS)

- a) Define what a data type is and define any **TWO** primitive data types used in most programming languages. (Use a programming language of your choice). **[4 marks]**
- b) Explain Polymorphism, Abstraction and Inheritance as used in object oriented programming. **[6 marks]**
- c) Discuss the difference between the **Do-While** and **While** loop controls and write an example program that implements either. **[6 marks]**
- d) Draw a flowchart that explains the **if...else** selection construct. **[4 marks]**

QUESTION FOUR (20 MARKS)

- a) Outline the features of high-level programming languages. **[4 marks]**
- b) Differentiate between Source code and Object Code in compiled programs. **[4 marks]**
- c) Suppose a set of integer values are stored in an array:
 - i) Write a function to determine the largest value in the array. **[4 marks]**
 - ii) Write a pseudocode for your program in i) above. **[4 marks]**
- d) Outline the properties of an effective algorithm. **[4 marks]**

QUESTION FIVE (20 MARKS)

- a) Outline the merits of dividing large programs into functions. **[4 marks]**
- b) Outline the generic steps in any software development process. **[5 marks]**
- c) A computer repair shop charges KSh. 100 per hour for labour plus the cost of any parts used in the repair. The minimum charge for any job is however Ksh. 150.
 - i) Write a program that prompts for the number of hours worked and the cost of parts and displays the charge for the job. Use symbolic constants. **[6 marks]**
 - ii) draw a flowchart for your program in i) above. **[5 marks]**

