

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

CHUKA/THARAKA

**FIRST YEAR EXAMINATION FOR THE AWARD OF CERTIFICATE IN
COMPUTER SCIENCE**

COSC 00103: INTRODUCTION TO PROGRAMMING AND ALGORITHMS

STREAMS: CERT COMP SCI.

TIME:2 HOURS

DAY/DATE: TUESDAY 5/12/2017

11.30 A.M – 1.30 P.M

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.**

SECTION A

Question one (30 marks)

- a. Distinguish between Source code and object code [4 marks]
- b. To create C programs, you must know how to create variable names. Name four conventional rules for naming variables in C. [4 marks]
- c. List four basic steps followed by a programmer when asked to produce a computerized solution to a problem. [4 marks]
- d. Write syntax of the following loops.
 - i. For loop [2 marks]
 - ii. Do-while [2 marks]
- e. Programming errors are likely to appear during program development. Explain any two types of such errors [4 marks]
- f. Write a C program that prompts for the first name and age from a user, then displays them as 'your first name isand your current age is [4 marks]

- g. To make programs understandable, you should include some explanatory notes at important places in the program known as comments. Using examples explain two types of comments used in programming. [4 marks]
- h. Name two common methods used to represent algorithms. [2 marks]

SECTION B

Question two (20 marks)

- a. In today's world of computer programming, there are many high-level languages to choose from, such as C, Pascal, BASIC, and Java. These are all excellent languages suited for most programming tasks. Explain five reasons why many computer professionals feel that C is at the top of the list. [10 marks]
- b. An array is a collection of variables all of the same data type that are referred to by a common name. Write a C program that creates a 5-element array and initializes the array elements using user input and shows the values afterwards. [10 marks]

Question three (20 marks)

- a. A function is a group of statements that together perform a task. Illustrate using an example the four parts of a function. [10 marks]
- b. There are certain characters in C when they are preceded by a backslash they will have special meaning. Write the description of the following escape sequence
 - i. `\n` [2 marks]
 - ii. `\t` [2 marks]
 - iii. `\r` [2 marks]
 - iv. `\\` [2 marks]
 - v. `\"` [2 marks]

Question four (20 marks)

- a. Reserved words are predefined words of any programming language that are used for special purposes in the source program. List four examples of reserved words in C. [4 marks]
- b. An algorithm to add test scores 26, 49, 98, 87, 62 and 75 is given below.
 - i. *Start*
 - ii. *Sum = 0*
 - iii. *Get a value*
 - iv. *If the value is equal to -1, go to step 7*
 - v. *Add to sum (sum = sum + value)*
 - vi. *Go to step 3 to get next Value*
 - vii. *Output the sum*
 - viii. *Stop*

Use flow chat symbols to represent the algorithm. [6 marks]

- c. In a tabular format, give five differences between a compiler and an interpreter [10 marks]

Question five (20 marks)

- a. Explain three levels of programming languages. [6 marks]
 - b. With an aid of a diagram, explain the four major program execution stages [10 marks]
 - c. Define what is an infinite loop, and give two conditions that can cause infinite loop . [4 marks]
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