

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
CHUKA/THARAKA**

**FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE COMPUTER SCIENCE**

COSC 120: FUNDAMENTALS OF COMPUTER PROGRAMMING

STREAMS: BSC. COMPUTER SCIENCE Y1S2

TIME: 2 HOURS

DAY/DATE: TUESDAY 09/04/2019

11.30 A.M – 1.30 P.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) Differentiate between compiled programs and interpreted programs. [2 Marks]
- b) What is an identifier? Outline three basic rules of naming identifiers. [5 Marks]
- c) A program is required that prints "PASS" if the score captured is above 40 and "FAIL" if otherwise
 - i) Write an algorithm for the problem described above. [3 Marks]
 - ii) Draw a flowchart for the algorithm. [4 Marks]
 - iii) Write a python program that solves the problem. [4 Marks]
- d) Justifying your answer, state whether the python code snippet below is correct or not.
$$y = 5$$
$$x = y + 2$$
$$y + 2 = x$$
 [2 marks]
- e) Explain the common types of programming errors. [3 Marks]
- f) Explain the aspects of a python function. [4 Marks]
- g) Outline any **THREE** properties of a good algorithm. [4 Marks]

SECTION B (ANSWER ANY TWO QUESTIONS FROM THIS SECTION)

QUESTION TWO [20 MARKS]

- a) Using functions, write a program that accepts any whole number from the user. The program then computes the square and reciprocal of the number and returns the result. [8 Marks]
- b) Outline any four features of python as a programming language. [4 Marks]
- c) Differentiate between source code and object code. [4 Marks]
- d) Outline the basic parts of a high-level program. [4 Marks]

QUESTION THREE [20 MARKS]

- a) Write a program that accepts a whole number and then determines whether the number is even or odd and returns the answer. [6 Marks]
- b) Write a Python program that prompts a user to enter a name of a person and then print all the letters in the entered name. [6 marks]
- c) Write a program that stores 5 integers into a list. [4 marks]
- d) Write the syntax for *if ... else statement* decision making in Python. [4 marks]

QUESTION FOUR [20 MARKS]

- a) Consider the following pseudocode
 - set sum to 0
 - get a number, num
 - while num is not 0 do
 - addnum to sum
 - get another number, num
 - endwhile
 - print sum
 - i) Write a python program that implements the pseudocode above [6 Marks]
 - ii) Draw a flow chart for the program. [4 Marks]
- b) Write a Python program which prints "Odd Number" if the `int` variable "number" is odd or "Even Number" otherwise. The program should prompt the user to enter the number. [6 marks]
- c) Explain the differences between *lists* and *tuples* data types in Python programming language. [4 marks]

QUESTION FIVE [20 MARKS]

- a) Write a Python program that allows the user to enter exactly twenty non-negative floating-point values. The program then prints the sum, average (arithmetic mean),

maximum, and minimum of the values entered. The program should display an error message if the user enters an integer and not a floating point value or if the value entered is negative. [10 Marks]

- b) Discuss the steps involved in coming up with a program solution to a problem. [10 Marks]
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