

CHUKA



UNIVERSITY

SUPPLEMENTARY / SPECIAL EXAMINATIONS

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

COSC 120: FUNDAMENTALS OF COMPUTER PROGRAMMING

STREAMS: B.SC COMPUTER SCIENCE Y1S2

TIME: 2

HOURS

DAY/DATE: WEDNESDAY 18/11/2020

2.30 P.M – 4.30 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. **[4 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) Describe ways by which input can be read in PYTHON. **[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. [6 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 part of a high-level program. [6 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) Discuss the difference between the **Do-While** and **While** loop controls and write an example program that implements either. [6 marks]
- b) Draw a flowchart that explains the **if...else** selection construct. [4 marks]
- c) 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]
- d) Explain the differences between *lists* and *tuples* data types in Python programming language. [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]

