KISII UNIVERSITY
University Examinations 2019/2020

YEAR 1 SEMESTER 2 EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE MATHEMATICS AND COMPUTING /BIOMETRY
COMP 103: FUNDAMENTALS OF PROGRAMMING

DATE: AUG 2020   **TIME:** 2 HOURS

INSTRUCTIONS:

Answer Question One **and** Any Other Two **questions**

SECTION A

QUESTION 1 (30 MARKS)

a. Design an algorithm and the corresponding flowchart for finding the sum of the numbers 2, 4, 6, 8, …, n (5marks)

b. Using flowcharts, write an algorithm to read 100 numbers and then display the sum.

(5marks)

c. Write an algorithm to read 100 numbers then display the largest.
(4marks)

d. Write an algorithm and flowchart to display area and circumference of circle.
(6marks)

e. Bernard wrote a computer program using C++ programming language and the program was not running .Explain two probable reasons why the program was not running. (4marks)

f. Outline Six characteristics of Algorithms as used in fundamentals of programming

(6marks)

SECTION B

QUESTION 2 (20 MARKS)

(a) Explain the difference between the following concepts as used in fundamentals of programming
    (i) Syntax error (2marks)
    (ii) Sematic error (2marks)
    (iii) Run time error (2marks)
(b) Illustrate the difference between a psuedocode and an algorithm (6marks)
(c) Outline the general rules for flowcharting clearly showing some of the common symbols used in flowcharts (8marks)

QUESTION 3 (20 MARKS)

(a) Explain the following concepts as used in fundamental of programming
    (i) An assembler (2marks)
    (ii) A compiler (2marks)
    (iii) An interpreter (2marks)
(b) Explain the difference between a loader and a linker as used in fundamental programming (4marks)

(c) Draw a flowchart to find greatest number among three numbers.   (10marks)

QUESTION 4 (20 MARKS)

a) List any four rules to consider when defining variable names in C++. (4 marks)
b) Write algorithm and flowchart to display H.C.F and L.C.M of given to numbers.
                                                                         (10marks)
c) Design a psudocode for b) above   (6marks)

QUESTION 5 (20 MARKS)

(a) Explain the following programming paradigms
      (i)   High level programming language   (3marks)
      (ii)   Low level programming language   (3marks)
      (iii)   Machine programming language   (3marks)
      (iv)   Assembly programming language   (3marks)
(b) Software development consists of three overlapping phases namely Development and
Design phase, Documentation phase and Maintenance phase. Explain the Four steps
of the Development and design phase   (8marks)