CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

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

ACSC 121: PROGRAMMING PARADIGMS

STREAMS: APPLIED COMP SCI. Y1S1   **TIME: 2 HOURS**

DAY/DATE: MONDAY 11/12/2017   **8.30 A.M – 10.30 A.M**

INSTRUCTIONS:

- **Answer QUESTION ONE and any other TWO questions.**
- **This is a CLOSED BOOK exam. No reference materials are allowed in the exam room.**
- **No mobile phone allowed in the exam room** *(make sure to switch it off and leave it with the invigilator if you carried one).*
- **Write your answers legibly and use your time wisely**

SECTION A (COMPULSORY)

Question One (Compulsory) (30 marks)

Instructions: Answer Question 1 and Any Other Two.

QUESTION ONE (30 Marks)

a) Describe the procedural programming paradigm and its advantages.   (6 Marks)
b) Define the terms below.   (6 Marks)
   i)   Interpreter.
   ii)   Algorithm.
   iii) Pseudocode.
c) Write a program that returns the reciprocal, square and modulus of any whole number a user enters. Use a procedural programming language of choice.   (8 marks)
d) Outline the characteristics of a good algorithm.   (4 Marks)
e) Discuss the different control structures you can find in a program.   (6 marks)

SECTION B: ATTEMPT ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO (20 MARKS)

a) Describe the OO programming paradigm. (6 Marks)
a) Discuss any three common software process models. (9 Marks)
b) What are functions and why are they important in programming? (5 marks)

QUESTION THREE (20 MARKS)

a) Describe any three types of errors you can encounter in a program. (6 marks)
b) Why are comments necessary in a program? Highlight two types of comments in a program. (4 Marks)
c) How do procedural programming languages compare with object oriented programming languages? (6 marks)
d) Using a flowchart, explain the do.. while coop control. [4marks]

QUESTION FOUR (20 MARKS)

a) Differentiate between High – Level and Low – Level programming languages. (4 Marks)
b) Discuss the major parts of a program. (8 Marks)
c) Distinguish between *source code, object code* and *executable code.* (6 marks)
d) Define the term *identifiers* as used in programs. (2 marks)

QUESTION FIVE (20 MARKS)

a) Using an object oriented programming language, write a program that captures the Name, Gender, Title and Salary of an employee and stores this information in an array that can hold 20 items. (10 marks)
b) Distinguish between imperative and declarative programming languages. (4 Marks)
c) Discuss primitive data types in programs. (6 Marks)