TECHNICAL UNIVERSITY OF MOMBASA

Institute of Computing & Informatics

UNIVERSITY EXAMINATION FOR

BACHELORS OF SCIENCE IN MATHEMATICS AND COMPUTER SCIENCE
BMCS SEPT 2015 J-FT Y2 S
EIT 4251 SCIENTIFIC COMPUTING
SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of Five questions. Attempt Question One and any two other
Do not write on the question paper.

Question ONE (30 marks)

(a) Explain the following terms:
   i. Programming paradigm.
   ii. Preprocessor.
   iii. White space.
   iv. Constant. (8 marks)
(b) Describe five attributes of a C variable. (5 marks)
(c) Given the principal amount, the payment period and the interest rate, write a simple C program to evaluate the simple interest. (8 marks)
(d) Distinguish between an algorithm and a pseudo code. (4 marks)
(e) With examples, describe the four types of constant used in a c program. (8 marks)
(f) Explain the difference between the following c commands: "**const int d= 5**" and "**int const d=5**". (2 marks)

Question TWO (20 marks)

(a) A simple electronic circuit has several capacitors connected in parallel. Write as simple c program to evaluate effective capacitance of this circuit. (10 marks)

(b) Outline the main difference between a compiler and an interpreter. (10 marks)

Question THREE (20 marks)

(a) Write a simple c program to evaluate the sum of two square matrices. (10 marks)
(b) What is a token as used in C program? (2 marks)
(c) With examples, outline the basic tokens used in a C program. (8 marks)

Question FOUR (20 marks)

(a) Write a simple C program to convert temperature from Degrees centigrade to Degrees Fahrenheit. (8 marks)
(b) Explain the importance of the loop statement in C program. (2 marks)
(c) Outline any four ways in which the ***for*** loop statement may be used in a C program**.** (8 marks)
(d) Explain the term storage class. (2 marks)

Question FIVE (20 marks)

(a) Explain the following terms:
    i. Array.
    ii. Pointer. (4 marks)
(b) With respect to C storage class, explain the following terms:
    i. Scope.
    ii. Extent. (4 marks)
(c) What an error is as applied to programming? - (2 marks)
(d) Outline the six phases of executing a C program. (8 marks)