TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING
(BSME 14S Y1 S1)

ICS 2175: COMPUTER PROGRAMMING I

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*
This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (Compulsory)

a) Define the following terms/phrases:
   (i) System program
   (ii) Application program
   (iii) Programming
   (iv) Algorithm   **(4 marks)**

b) Identify FOUR tools that comprise the program development environment (PDE) state function of each tool   **(6 marks)**

c) Name FIVE steps towards solving a programming problem   **(5 marks)**

d) The quadratic formula can be used to get roots of an equation. Write a C program that implements the formula   **(10 marks)**

e) Identify FIVE application of computer programs in mechanical engineering   **(5 marks)**

Question Two

a) Give the basic structure of a C program. Write a C program that prompts the user for two numbers and gets the sum   **(5 marks)**

b) Write a C program that prompts user for his name   **(5 marks)**

c) Describe FIVE elements of the system development life cycle   **(10 marks)**

Question Three

a) What do you understand by the term recursive function?   **(2 marks)**

b) Write a C program that calculates the factorized of any positive number n   **(18 marks)**

Question Four

a) Write an algorithm that prompts the user for two numbers and computes the sum

b) Write the pseudo code for the algorithm and draw a flowchart

c) Implement the algorithm using a C programming language   **(20 marks)**

Question Five

Write a C program to input 20 students' marks in an array and then calculate and display:

a) Student marks		**(5 marks)**
b) The average grade		**(5 marks)**
c) The highest grade		**(5 marks)**
d) The lowest grade		**(5 marks)**