TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MARINE ENGINEERING

EMR 2215: ICT IV

END OF SEMESTER EXAMINATION

SERIES:APRIL2016

TIME:2HOURS

DATE:18Apr2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

a) Give any four types of data variables giving examples of each (4marks)

b) Describe the basic structure of a c programming language (6marks)

c) Define the following terms giving examples of how each is used;

   i. Functions

   ii. String

   iii. Control structures

(6marks)

d) Point out the difference between a local and a global variable (4marks)

Question TWO

a) Differentiate between each o the following terms
   i. Assignment operator and an expression statement
   ii. Local and global variables
   iii. While loop and do while (6marks)

b) Write a for loop statement that would give the following output

   10, 9, 8, 7, 6, 5, 4, 3, 2, 1, FIRE! (6marks)

c) Write a source code for a function called max(). The function takes two parameters num1 and num2 and returns the maximum between the two (8marks)

Question THREE

a) Differentiate between mat lab and C programming language? Giving their features (6marks)

b) What is a comment? giving example of how it is used in mat lab (4marks)

c) Write a simple code using mat lab that can compute the following program (5marks)

$$C^2 = a^2 + b^2$$

d) Write a program to display the following (5marks)

A. EXCELLENT
B. CREDIT
C. PASS
D. FAIL

Question FOUR

Discuss the benefits of each of the following software packages as used in plant maintenance in marine engineering

i. AMOS(Asset Management Operating System) (10marks)
ii. Finite Element Analysis (10marks)

Question FIVE

Using examples, describe the distinctions of each of the following software packages used in engineering

i. Spreadsheets (5marks)
ii. CAD (5marks)
iii. Computational Fluid Dynamics (CFD) (5marks)
iv. Database (5marks)