



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: APRIL 2016

TIME: 2 HOURS

DATE: 18 Apr 2016

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 (Compulsory) and any other **TWO** questions.

Do not write on the question paper.

Question ONE

- a) Describe the term plant maintenance (2marks)
- b) Give any three examples of data types (3marks)
- c) Describe the basic structure of a C programming language (5marks)
- d) Define the following terms giving examples of how each is used;
 - i. Identifiers
 - ii. Variables
 - iii. String (6marks)
- e) Point out the difference between a local and a global variable (4marks)

Question TWO

- a) Differentiate between each of the following terms giving examples of how they are used
- printf and scanf
 - Logical and assignment statement (8marks)
- b) Write a source code for a function called max(). The function takes two parameters num1 and num2 and returns the maximum between the two (7marks)
- c) Rewrite the C sample code shown below using an if statement (5marks)

```
switch (x)
{
case 1:
printf("x is 1");
break;
case 2:
printf("x is 2");
break;
default:
printf("value of x unknown ");
}
```

Question THREE

- a) What is matlab programming language? Give its features (6marks)
- b) What is a comment? giving example of how it is used in C (4marks)
- c) Write a simple code using matlab that can compute the following program (5marks)

$$C^2 = a^2 + b^2 - 2ab\cos C$$

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

```
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1. APPLICATION
2. SOFTWARE
3. PRINTING
4. OUTPUT
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```

Question FOUR

Discuss the benefits of each of the following software used in marine engineering

- i. AMOS Software (10marks)
- ii. CAD software (10marks)

Question FIVE

Using examples describe the purpose of each of the following marine scientific packages giving benefits for each.

- i. Finite Element Analysis (10marks)
- ii. Computational Fluid Dynamics (CFD) (10marks)