



TECHNICAL UNIVERSITY OF MOMBASA

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INSTITUTE OF COMPUTING AND INFORMATICS  
DEPARTMENT OF BUSINESS ADMINISTRATION  
UNIVERSITY EXAMINATION FOR:  
BBIT Y1S2  
EIT 4102: FUNDAMENTALS OF PROGRAMMING  
END OF SEMESTER EXAMINATION  
SERIES: APRIL 2016  
TIME: 2 HOURS  
DATE: Pick Date May 2016

**Instructions to Candidates**

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

**Do not write on the question paper.**

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**Question ONE**

- a) Provide definitions for the following terms/phrase.
- i. Programming syntax [2 marks]
  - ii. Program semantics [2 marks]
  - iii. Programming [2 marks]
  - iv. Algorithm [2 marks]
- b) Describe three programming constructs [3 marks]
- c) Write a C program to find the sum of the first 20 integers [5 marks]
- d) State two methods of defining constants in C. Illustrate how constants may be used in a program that calculates the area a rectangle [6 marks]
- e) Create a function called **max ()** that takes two parameters num1 and num2 and returns the maximum between the two. [3 marks]
- f) Outline the computer problem solving steps [5 marks]

## **Question TWO**

- a) Write a C program to perform basic arithmetic operations which are addition, subtraction, multiplication and division of two numbers. Numbers are assumed to be integers and will be entered by the user.

[10 marks]

- b) Write a C program that uses an array and outputs the following

[10 marks]

```
Element[0] = 100
Element[1] = 101
Element[2] = 102
Element[3] = 103
Element[4] = 104
Element[5] = 105
```

## **Question THREE**

- a) Explain the difference machine language, assembly language and high level language. Give one advantage and one disadvantage for each mentioning where each language may be applied

[10 marks]

- b) Write a C program to print a pyramid pattern as shown

[10 marks]

```
  *
 ***
*****
*****
*****
```

## **Question FOUR**

- a) Describe the key elements of a program development environment (PDE)

[4 marks]

- b) Write a program that stores a sentence entered by a user into a data file

[6 marks]

- c) Write a C program that prompts a user for marks and prints A if mark is  $\geq 70$ , B if marks is  $\geq 60$  and  $\leq 69$ , C if mark is  $\geq 50$  and  $\leq 59$ , D if mark is  $\geq 40$  and  $\leq 49$  and F if mark is  $< 40$

**Question FIVE**

- a) Write an algorithm that reads in, displays and exchanges integer values of two variables [4 marks]
- b) Draw a flow chart and write te pseudo code for the algorithm in part a [8 marks]
- c) Implement the algorithm using C programming language. [12 marks]