



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

## *Faculty of Engineering and Technology*

### DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY (DIT 10M, DIT 2K 11M)  
YR 2 SEM I

**ECS 2204, ECT 2102: STRUCTURED PROGRAMMING (C)**

**END OF SEMESTER EXAMINATIONS**

**SERIES: AUGUST/SEPTEMBER 2011**

**TIME: 2 HOURS**

#### **Instructions to Candidates:**

Answers **MUST** be written clearly within the answer booklets provided with the exam paper  
Answer questions **ONE (COMPULSORY)** and any other **TWO** questions from the list of questions below

This paper consists of **THREE** printed pages

**SECTION A (30 MARKS) – Answer all Questions in this section**

**Question 1 (Compulsory)**

- a) Briefly explain the following programming paradigms stating **ONE** example for each
- i) Event-Driven
  - ii) 4GL's (6 marks)
- b) State any **FOUR** data types used in C programming (4 marks)
- c) Write a simple c program to read a positive number N, then read N integers (10 marks)
- d) Write a pseudo code for a program to compute the powers of 2 up to  $2^N$  (6 marks)
- e) Explain the following program design tools used in structured programming
- (i) Algorithms
  - (ii) Structure Charts (4 marks)

**SECTION B (40 MARKS) – Answer any TWO questions from this section**

**Question 2 (20 marks)**

- a) Explain the term “array” as used in C programming (2 marks)
- b) (i) Draw a program flowchart to read any TWO numbers (+ve, -ve) then calculate the Sum, subtraction, multiplication and division operations on the numbers (8 marks)
- (ii) Implement the above problem using C programming language (10 marks)

**Question 3 (20 marks)**

- a) (i) Explain the purposes of comments in programming (2 marks)
- (ii) State any **FOUR** properties of arrays (4 marks)
- (iii) Write a C program to calculate the Factorial of a number entered by the user (6 marks)
- (iv) Explain the use of the following control sequence as used in C programming language
- (i) \b
  - (ii) \?
  - (iii) \v
  - (iv) \t (4 marks)
- (v) Explain the use of the following statements in control structures
- (a) Break
  - (b) Continue (4 marks)

**Question 4 (20 marks)**

a) Explain the following concepts in C programming

- (i) Function
- (ii) Formal parameter
- (iii) Pointer
- (iv) Global variable
- (v) Struct

(10 marks)

b) Write a program that prints out the first N Fibonacci numbers

(5 marks)

c) If (x = 1)

```
Printf ("choice is 1");
```

```
    if (x = 3)
```

```
Printf("choice is = 3")
```

```
else
```

```
printf ("wrong choice");
```

Rewrite the above code correctly using the switch case structure

(5 marks)