



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

BSC (INSTITUTIONAL BASED)

EIT 4102: FUNDAMENTALS OF PROGRAMMING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2011

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer booklet*

This paper consists of **FIVE** questions. Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are clearly shown.

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question 1

- a) Using the “Switch Statement”, implement a colour code system that prompts the user for a character then prints the colour donated by the character e.g R-RED, G-GREEN, Y-YELLOW, B-BLUE etc. In case the colour code does not exist, then the programs inform the user accordingly. (10 marks)
- b) (i) Explain any **THREE** quality requirements of a good program
(ii) Distinguish between the following programming Concepts
- I. Procedural programming and Object oriented Programming
 - II. High level and low level programming languages (10 marks)
- c) Describe any **FIVE** steps or Phase of program development cycle (10 marks)

SECTION B (Answer any TWO questions from this section - 20 marks each)

Question 2

- a) Outline the **THREE** characteristics of C variables (3 marks)
- b) Write a C program that prompts the user to type in two numbers adds them together and prints out the result (7 marks)
- c) (i) Describe the **THREE** logical operators used in C programming
(ii) Explain any **TWO** advantages of using comments in C programs (10 marks)

Question 3

- a) With the aid of a block diagram, explain how C source code is compiled into an executable program (10 marks)
- b) Using a ‘for-loop’ write a C-program that shows a count of numbers from ONE to TEN (6 marks)
- c) Distinguish between the **TWO** ways of parameter passing among functions in a program (4 marks)

Question 4

- a) (i) Define the term program algorithm and then outline any **TWO** of its properties
(ii) Describe the **TWO** common methods that programmers use in developing algorithms (6 marks)
- b) (i) List any **FOUR** items that appear in the program documentation
(ii) Outline any **FOUR** operations accomplished by program instruction execution in a

computer

(iii) Describe the **THREE** data types in C programming (14 marks)

Question 5

- a) Write a C program using a “Do while loop” that keeps prompting you for subject score until you types -1 to signal that you have finished entering your score and then outputs both the total and average (8 marks)
- b) Describe the following programming approach (4 marks)
- i. Top-down
 - ii. Bottom-up
- c) Distinguish between the following (8 marks)
- i. Global and Local variables
 - ii. Conditional and unconditional break statements