



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

DIPLOMA IN TECHNOLOGY

ELECTRICAL POWER ENGINEERING
TELECOMMUNICATION ENGINEERING
INSTRUMENTATION & CONTROL ENGINEERING
ELECTRONICS ENGINEERING
COMPUTER SCIENCE ENGINEERING
MECHATRONICS & ROBOTICS ENGINEERING
INSTALLATION WORKS AND SERVICE ENGINEERING
ELECTRONICS WORKS ENGINEERING

PROGRAMMING & SOFTWARE ENGINEERING II

SEMESTER III EXAMINATIONS

SERIES: MAY/JUNE 2010

TIME: 2 HOURS

Instructions to candidate:

- This paper consists of **TWO** Sections, **A** & **B**.
- Answer any **TWO** questions practically in Section **A** and save your work in a folder bearing your student number and class.
- Answer any **TWO** questions in Section **B** (Theory) in the answer booklets provided.
- Section **A** takes 2 hours
- Section **B** takes 1 hour

SECTION A (PRACTICAL)
(Answer any **TWO** questions.)

QUESTION ONE

- (a) Using while loop, write a C program that prompts the user for six scores of a student. The program should then output the average of the six scores. (10 marks)
- (b) Making use of a recursive function call, implement a program that will prompt the user for an integer value then the program prints the factorial of that number. e.g. the factorial of 5 is 120. (10 marks)

QUESTION TWO

- (a) Write a C program that uses for loop to calculate the total and average of six days' wages of a casual employee. The program should request the user for the individual six days wages before performing any calculations. (10 marks)
- (b) Using the switch statement, implement a colour code system that prompts the user for a character then prints the colour signified by the character e.g. R-RED, G-GREEN, Y-YELLOW, B-BLUE etc. In case the code does not exist, let the program inform the user that the colour code does not exist. (10 marks)

QUESTION THREE

The following table is called STUDENTS.

NAME	SEAT NO	SCORE
Magongo	DIT 001	20
Mkomani	BSC 003	70
Mikindani	CERT 001	40

- (a) Implement it in structures. (6 marks)
- (b) There exists three types of students; Diploma, Bachelors, Certificate. Create them in the structure and input the above details of the students. (9 marks)
- (c) Output the above details making use of escape sequence to format the outlook of your output. (5 marks)

SECTION B (THEORY)

(Answer any **TWO** questions from this Section.)

QUESTION ONE

- (a) (i) Define the term algorithm as used in program development.
- (ii) Describe the **TWO** common methods that programmers use in developing algorithms. (6 marks)
- (b) (i) State the **TWO** main advantages of using a function prototype.
- (ii) Explain any **TWO** advantages of using comments in C programs.
- (iii) List and explain any **THREE** data types in C programming. (9 marks)

QUESTION TWO

- (a) Describe the following stages of system development life cycle (SDLC).
- (i) Feasibility Study
(ii) Program design
(iii) Code implementation. (9 marks)
- (b) Describe, giving an example in each, the **THREE** categories of control structures. (6 marks)

QUESTION THREE

- (a) Explain the purpose of each of the following components in a C program.
- (i) Preprocessor
(ii) Editor
(iii) Linker
(iv) Loader (4 marks)
- (b) State the **TWO** differences between DO..... While and White loops. (5 marks)
- (c) Describe the **THREE** logical operators used in C programming. (6 marks)