

MACHAKOS UNIVERSITY COLLEGE

PROGRAMME: B.SC ELECTRICAL AND ELECTRONICS ENGINEERING

YEAR ONE SEMESTER TWO

UNIT NAME: COMPUTER PROGRAMMING 1

UNIT CODE: EEE 102

SEMESTER: JAN- APRIL 2015

EEE 102 COMPUTER PROGRAMMING 1

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER TWO QUESTIONS IN THIS PAPER

QUESTION 1 (COMPULSORY) (30 marks)

(a) State three guidelines of modular programming (3 marks)

(b) Briefly elaborate five reasons of using a flow chart as a program design tool (5 marks)

(c) Distinguish between a flow chart and a pseudo code in program design (2 marks)

(d) Differentiate between the following terms as used in Object Oriented Programming

(4 marks)

i) Public access and Private access

ii) Aggregation and Composition

(e) Define the following terms as used in programming, giving an example of each.

i. Computer program

ii. Scripting

iii. Compiler

iv. Paradigm

(8 Marks)

(f) Using examples, explain four major methodologies used in programming

(8 Marks)

QUESTION 2 (20 MARKS)

- a) Differentiate between a local and global variable in C? (4 Marks)
- b) i) Briefly explain pointer arithmetic in C. (4 marks)
ii) Write an example code showing the use of a pointer. (6 Marks)
- c) Define the term polymorphism? (2 marks)
- d) Briefly discuss a null pointer in programming? (4 Marks)

QUESTION 3 (20 MARKS)

- (a) Briefly discuss five advantages of structured programming (10 marks)
- (b) Construct a flowchart diagram for the scenario given below.
“The annual subscription fee for a man is 200/=. If he is still a student, the subscription is half that amount. The annual subscription for a woman is 160/=. Again if she is a student she pays half that amount. Married women pay half the amount students pay.” (5 marks)
- (c) With the aid of a pseudocode design an algorithm that
 - prompt the user to enter two numbers X and Y
 - divide X and Y. however if the value of Y is 0, the program should display an error message “Error: Division by Zero” (5 marks)

QUESTION 4 (20 MARKS)

- (a) Illustrate by use of examples two types of comments as used in C programming language (4 marks)
- b) Data types are important in C programming. Briefly discuss any five data types used in C Programming giving examples for each (10 marks)
- (b) Briefly discuss three control structures used in programming (6 marks)

QUESTION 5 **(20 MARKS)**

In this question, where appropriate, you may use a short fragment of code to complement your explanation.

- (a) Differentiate between declaration and definition? (6 Marks)
- (b) Write a C program to print student name, roll no, marks (6 Marks)
- (c) (i) Define the term array as used in C programming (2 marks)
- (ii) Explain three rules used to declare the array (6 Marks)