



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

ECV 102/ EEE 102: COMPUTER PROGRAMMING I

DATE: 18/6/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

a) Define the following terms as used in Programming. (2 marks)

- i. Program
- ii. Programming Language

b) Interpret the following sample program line by line. (4 marks)

```
#include <stdio.h>
main()
{
    int *p, q;
    q = 100;          /* assign q 100 */
    p = &q;           /* assign p the address of q */
    printf("%d", *p); /* display q's value using pointer */
    return 0;
}
```

c) Using an example explain operator and operand (4 marks)

d) What is the difference between source code and Object code? (4 marks)

- e) Differentiate between a variable and a constant. (4 marks)
- f) C Language is Portable and efficient. Explain (4 marks)
- g) Suggest, with examples two ways in which constant values can be used in C expression statements. (4 marks)
- h) Use the following code to identify syntactical error. (4 marks)

Code snippet

```
<stdio.h>
#define PI 3.14
main()
{
    FLOAT radius, larea
    printf("Enter the radius of the circle \n");
    scanf("%f", &radius);
    area = PI * radius * radius; /* PI is a symbolic constant */
    printf("Area is %f cm squared ",area);
    return 0;
}
```

QUESTION TWO (20 MARKS)

- a) A program is required that accepts the radius and height of a cylinder and computes the volume. Use a function to achieve this. (8 marks)
- b) Describe with examples, four relational operators. (4 marks)
- c) Using an example compare if—else and nested—if. (8 marks)

QUESTION THREE (20 MARKS)

- a) Define the term function as used in programming. (2 marks)
- A program is required that accepts marks a student gets in four units and computes the average. Depending on the average the student is graded according to the table below.*

70-100 =A

60-69=B

50-59=C

40-49=D

0-39=F

- b) Write a C program to achieve the above task. (8 marks)
- c) Define an array? (2 marks)

- d) After writing a code your friend a programmer complained because the program was not readable. Using example discuss how you can address this problem. (4 marks)
- e) What is the difference between global and local variable? (4 marks)

QUESTION FOUR (20 MARKS)

- a) Explain advantages of C as a programming language. (10 marks)
- b) You are required to write a program that displays the days of the month. Use array to achieve this. (6 marks)
- c) Distinguish between assembly language and Machine Language in programming. (4 marks)

QUESTION FIVE (20 MARKS)

- a) Explain TWO Advantages of modular programming. (2 marks)
- b) Explain the reason functions are favored in programming. (8 marks)
- c) Write a program that will output the day of the week when a number is entered from the keyboard. (10 marks)