



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
SUPPLEMENTARY/SPECIAL EXAMS
FOR THE DEGREE**

IN

**CIVIL AND STRUCTURAL ENGINEERING/ ELECTRICAL AND
COMMUNICATION ENGINEERING/ MECHANICAL AND INDUSTRIAL
ENGINEERING**

COURSE CODE: CSC 201

COURSE TITLE: COMPUTER PROGRAMMING I

DATE: 29/07/2022

TIME: 8:00a.m-10:00a.m

INSTRUCTIONS TO CANDIDATES

Answer **Question ONE (1)** and any other **TWO**

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 5 Printed Pages. Please Turn Over.

QUESTION ONE [30marks]

- a) Define the following terms: [4marks]
- i. Variable
 - ii. assembler
 - iii. loop
 - iv. object code
- b) Outline rules followed when declaring variables in programming. [3Marks]
- c) Explain any two limitations of low level languages. [2Marks]
- d) What effects do comments have on a program? [2Marks]
- e) Mary, a student in MMUST wrote the following code during a programming session

```
#include <stdio.h>

int main ( );
char ch='A';
char str[20]="fresh2refresh.com";
float flt=10.234;
int no=150;
double dbl=20.123456;
printf("character is %d \n",ch);
printf("string is %s \n",str);
printf("float value is %f \n",flt);
printf("integer value is %d \n",no);
printf("double value is %lf \n",dbl);
printf("octal value is %o \n",no);
printf("hexadecimal value is %x \n",no);
return 0;
}
```

Required: identify three errors in the above program. [3 marks]

- f) Explain each of the following terms as used in programming. [2Marks]
- i. scanf
 - ii. return 0;

g) Write a C program that uses a function to compute circumference of a circle.

[4marks]

h) .develop a flowchart that accepts marks scored by a student in three units; calculate the total marks and average marks. Depending on average marks the grades are assigned as follows:

A=70 – 100

B=60 - 69

C=50 – 59

D= 40 – 49

E= 1-39

[10Marks]

QUESTION TWO [20marks]

- a) Using examples, explain FIVE major classifications of programming languages. [10 Marks]
- b) Using appropriate examples, describe any TWO unary operators used in C programming. [4Marks]
- c) Describe any three preprocessor directives. [3marks]
- d) Write a C statement to evaluate the following equation. [3marks]
$$\text{Side} = \sqrt{a^2 + b^2} - 2ab \cos(x)$$

QUESTION THREE [20marks]

- a) Write a program to display the following output using **while** loop. [6Marks]

20
15
10
5
0

- b) Write a C program that can be used to give an award depending on the average mark of a student using the criteria below [8 marks]

Average mark	Award
≥ 80	Distinction
≥ 65	Credit
≥ 50	Pass
< 50	Fail

- b) Briefly describe any two classifications of control structures. [4Marks]
- c) Distinguish between the **while** and **do while** control structures. [2 marks]

QUESTION FOUR [20marks]

a) Write a C program to calculate the roots of a quadratic equation [12 marks]
Use the quadratic formula

b) Study the program below and answer the questions that follow:

```
1. #include<stdio.h>
2. Int main( )
3. {
4. Int a,b,c;
5. Printf("enter value of a:");
6. Scanf("%d",&a);
7. Printf("enter value of b:");
8. Scanf("%d",&b);
9. Printf("enter value of c:");
10. Scanf("%d",&c)
11. Return 0;
12. }
```

Explain the function of line 2,4,5,6 and 11. [5 marks]

c) Give three differences between compilers and interpreters. [3 marks]

QUESTION FIVE [20marks]

a) Define the term system development? [2Marks]

b) What is a pointer? [2Marks]

c) Write a c program that uses a recursion to compute the factorial of a number which is entered by the user. [6 marks]

d) Program control structures dictate the flow and execution of the program. Explain the following types of control structures. [6Marks]

i. sequence

ii. Selection

iii. Iteration

e) Using an illustration differentiate between local and global variables [4 marks]