

QP CODE 2120552101

Reg.No

--	--	--	--	--	--	--	--	--	--



DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – DECEMBER 2023

Semester: II 055CS21 INTRODUCTION TO PROGRAMMING USING C

Time: 3:00 Hours

Max. Marks: 100

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) Convert the decimal number 650 to hexadecimal number. (5 Marks)
b) Write the flowchart of an algorithm to find the average grade from the input of grades obtained in four subjects M1, M2, M3, and M4. If the average grade is less than 60 the algorithm should print FAIL otherwise it should print PASS. (10 Marks)
c) Explain the difference between high level programming language and low level language. (5 Marks)
2. a) Explain the rules for naming valid identifiers in C with example. (5 Marks)
b) What is the basic structure of a C program? (5 Marks)
c) Write a C program to find the sum of digits of N digit number less than 100. (10 Marks)
3. a) Define an array. Explain what is meant by multi-dimensional array? (5 Marks)
b) Explain a string in C. (5 Marks)
c) Write a program C to find the maximum and minimum elements in an integer array of size N. (10 Marks)
4. a) Write a program using pointers to read an array of integers and print its elements. (10 Marks)
b) You have an integer variable num with a value of 42. Write a C program to create a pointer variable ptr that points to the address of num. Then, print the value of num using both the variable itself and the pointer ptr. (10 Marks)
5. a) What is the memory allocation and size of a union in C? (5 Marks)

- b) Create a structure named "Point" to represent a point in a 2D Cartesian coordinate system with members "x" and "y" (both are integers). Write a C function that takes two "Point" structures as input and calculates the Euclidean distance between these two points. Write a program to test this function. **(15 Marks)**
6. a) Convert the following Octal number to hexadecimal number 5766. **(5 Marks)**
b) List and explain five hardware components of computer system. **(5 Marks)**
c) Draw a flowchart diagram to print sum of n numbers. **(10 Marks)**
7. a) Write a program in C to find the average of the elements of an integer array of size N. **(10 Marks)**
b) Write C Program to add 2 M x N matrices. **(10 Marks)**