**Theory Final Exam Question**

Total Marks 100

**Question:1**

a) Define ternary operator. Write a C program to find the maximum of two numbers using ternary operators. **(2+5)**

b) Write down the differences between local and global variables. **(3)**

**Question:2**

You want to build a fibonacci series up to n terms. Now solve these problems without using an array and at first write the steps to solve these problems and then write a C program for it.

**Note -** The Fibonacci sequence is a sequence where the next term is the sum of the previous two terms. The first two terms of the Fibonacci sequence are 0 followed by 1.

**Input Format:**

You are given a positive integer n.

**Output Format:**

Print the fibonacci series up to n terms.

See the sample input output for more clarification

| **Sample input** | **Sample output** |
| --- | --- |
| 10 | 0, 1, 1, 2, 3, 5, 8, 13, 21, 34 |

**Question - 3**

Define pointers of C. What are the differences between pass by value and pass by references, Explain it with C program using function. **(1+3+6)**

**Question - 4**

You are given a string S of small letters.Now sort the string in ascending order using frequency array.Write the steps to solve this problem with proper diagram.Lastly write a C program for it and use function in this program. **(10)**

**Note** - The given input may contain duplicate characters

| **Sample input** | **Sample output** |
| --- | --- |
| adsarbrro | aabdorrrs |

**Question - 5**

What is the difference between malloc and calloc? Write a c program to take **N** elements in an array. You must use malloc to declare this array and show the output of the array. **(4+6)**

**Question - 6**

What is a function? Types of user-defined functions explain with proper examples. What are the benefits of using user-defined functions? **(2+5+3)**

**Question - 7**

You have been given **an NxM** matrix, Now your task is to take two matrix as input and find the sum of this two matrix.  **(10)**

| **Sample Input** | **Sample Output** |
| --- | --- |
| 3 3  1 2 3  4 5 6  7 8 9  1 1 1  3 2 4  2 1 2 | 2 3 4  7 7 10  9 9 11 |

**Question -8**

a) What is structure? Explain Why we use it? **(2)**

b) How many ways to access structure members? Explain with example. **(3)**

c) Write a C program to store the information of a student using structure. **(5)**

| **Sample Input** | **Sample Output** |
| --- | --- |
| Enter information:  Enter name: Vanya  Enter roll number: 25  Enter marks: 80 | Displaying Information:  Name: Vanya  Roll number: 25  Marks: 80 |

**Question -9**

a) Explain 5 types of Errors in C with Example (You have to write program) **(10)**

**Question - 10**

**(Think out of the Box)**

**( 5x2 = 10)**

### a) Why is C called the Mother of all Languages?

b) What is source code & **.obj** file and **.exe** file?

c) When you run a C program How many files are created on your device?

What are they?

d) What is the base condition in the recursion function? Describe a real-life example of recursion.

e) Why should we declare large data type first in structure?