Allowed Time: 70 Minutes Total Marks: 30 Marks

Instructions:

1. Gossips are not allowed.
2. Read the Questions Carefully.
3. Teacher assistants are for your help, so be nice with them. Respect them as they are teaching you. Raise your hands if you have some problem and need help from TA. Avoid calling them by raising your voice and disturbing the environment of Lab.
4. TA may deduct your marks for any kind of ill-discipline or misconduct from your side.
5. Evaluation will be considered final and you cannot debate for the marks. So, focus on performing the tasks when the time is given to you.

Task 01: (5 Marks, 10 min)

Write a C program to take a string input and count the number of uppercase and lowercase letters without using built-in functions.

Example:
Enter a string: Hello World! 123
Uppercase: 2
Lowercase: 8

Task 02: (5 Marks, 10 min)

Write a C program to take a string input and reverse it manually (without using built-in functions). Print the reversed string.

Example:
Enter a string: Programming
Reversed string: gnimmargorP

Task 03: (10 Marks, 15 min)

Write a C program to take a string input and split it into two strings: one containing all alphabetic characters and another containing all non-alphabetic characters (in their original order)

Example:
Enter a string: Hello123!@#
Alphabetic: Hello
Non-alphabetic: 123!@#

Task 04: (10 Marks, 15 min)

Write a C program to remove all duplicate characters from a string, keeping only the first occurrence of each character. The program should take a string as input and output the modified string without duplicates.

Example:
Enter a string: programming
String after removing duplicates: progamin

Enter a string: aabbccdd
String after removing duplicates: abcd

Task 05: (15 Marks, 20 min)

You are given two strings word1 and word2. Write a C program to merge the strings by adding letters in alternating order, starting with word1.
If one string is longer than the other, append the remaining characters at the end of the merged string.
Return the merged string.

Example 1: word1 = "abc" word2 = "pqr" Output= "apbqcr" Explanation: The merged string will be merged as so: word1: a b c word2: p q r merged: a p b q c r	**Example 2:** Input: word1 = "ab", word2 = "pqrs" Output: "apbqrs" Explanation: Notice that as word2 is longer, "rs" is appended to the end. word1: a b word2: p q r s merged: a p b q r s