

**Total Marks:** 30

**Due Date and Time:** March 9, 2021 6 pm

**No late submission will be permitted.**

**Submission Procedure:** Upload the C program file by the due date and time. The file should be named as specified in the problem statement. Replace ROLLNO with your roll no (all small letters). **Do not upload exe files.**

**Problem 1.** [using `fgets` command and functions] Write a C program called `ROLLNO_string_manipulate.c` that reads an input string using the C command `fgets`, stores it in a pointer, and performs the following operations on it. Each operation is to be written as a separate *function*.

1. A function `strlen` with input a string pointer which returns an integer  $n1$ , the length of the string
2. A function `strcpyn` with input a string pointer and an input integer  $n2$ , copies the first  $n2$  characters from the string to another string pointer and returns the output string pointer. This function also checks for appropriate error conditions such as  $n1 > n2$  or  $n1 < n2$ .
3. A function `strcmpn` with two string inputs and an integer  $n3$ , compares the first  $n3$  characters of the strings and returns an output 1 (for MATCH) or 0 (for NO MATCH) depending on the outcome.

When you read an input using `fgets` if there is a newline character at the end, it should be removed. String pointer elements and integers may be used as temporary variables.

Restriction: Only `stdio.h` can be included in your code. You cannot include `string.h`.

Marks: 25

**Problem 2.** Follow good programming practice such as documenting with meaningful comments, using meaningful names for variables, and formatting the program. TAs will evaluate if you followed good programming practice in your code and if you printed the results of the above programs in an understandable format.

Marks: 5