



Name: **CP Lab - 4** Duration: **3 Hrs** Date: **14 Dec, 2022**

Maximum Marks: **20**

INSTRUCTIONS:

1. Please carefully read all assignment problems and write the required programs in C language.
2. All **PROBLEMS** are **COMPULSORY**.
3. **You should submit the following**
 - **Five C files** - Name the file as follows:
 - **Program1_S2022xxxxxx.c**
 - **Program2_S2022xxxxxx.c**
 - **Program3_S2022xxxxxx.c**
 - **Program4_S2022xxxxxx.c**
 - **Program5_S2022xxxxxx.c**
 - **Five text files** containing output of running the programs
 - **Output1_S2022xxxxxx.txt**
 - **Output2_S2022xxxxxx.txt**
 - **Output3_S2022xxxxxx.txt**
 - **Output4_S2022xxxxxx.txt**
 - **Output5_S2022xxxxxx.txt**
4. Replace the “S2022xxxxxx” in the filenames with your full roll number.
5. **DO NOT zip**. Upload the files directly to your submission in the common Google classroom.
6. Don't share or copy the codes. If malpractice is found, you will be awarded **Zero**.
If you do not follow the above-mentioned instructions, a strict penalty would be imposed

ASSIGNMENT PROBLEMS

1. Read a character array of length at-most 10 characters (it might include newline or tab or space character) and print its reverse. Do not use any library functions related to strings. Use EOF to mean end of the input, **[4 Marks]**
2. **Fibonacci** numbers are $F_0=0$, $F_1=1$, $F_2=1$, $F_3=2$, ..., $F_n=F_{n-1}+F_{n-2}$. For a given n write a program to print F_n . Use while loops only. **[4 Marks]**
3. **Selection sort**: read an array of 10 integers. Sort them using the selection sort. In selection sort, an array of zero integers is already

sorted. If the first m elements of the array are sorted then we select the correct element for the position $(m+1)$ from the remaining array. If the remaining array is empty we can stop. Display the sorted output on the screen. Use nested for loops. Print number of comparisons and number of swaps done. **[4 marks]**

4. For a given positive integer add the individual digits. For example if the given integer is 123, your answer should be 6. **[4 marks]**
5. Write a program to compute the sum of the first 10 prime numbers. You need to find whether a number is prime or not as part of solving this. **[4 Marks]**