**PF-Quiz**

**30th October 2022, 08:35 pm – 09:25 pm**

**Instructor: Sir Shahbaz**

**TA: Muhammad Aaliyan Khan**

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

Instructions:

● Read each question completely before answering it. Understanding the questions is part of the examination. There are 3 questions and 3 pages.

● You are to submit separate .c files for each question.

● The name of the submitted file must be in the format **question-no.c.**

● The Paper is 45 min long. The rest of the 5 min are to wind up and submit the scanned copy.

● Recommended time to spend on a question is given on top of it.

Time: 45 minutes. Max Marks: 50

**15-min**

Question 1: /15

Given an array of integers nums and an integer target, return indices of the two numbers such that they add up to*target*.

You may assume that each input would have ***exactly* one solution**, and you may not use the same element twice.

You can return the answer in any order.

**Example 1:**

Input: nums = [2,7,11,15], target = 9

Output: [0,1]

Explanation: Because nums[0] + nums[1] == 9, we return [0, 1].

**Example 2:**

Input: nums = [3,2,4], target = 6

Output: [1,2]

**Example 3:**

Input: nums = [3,3], target = 6

Output: [0,1]

**10-min**

Question 2: /15

Write a program that finds the frequency of substring in the given string. Both the substring and the string is to be taken as input from the user.

**Example:**

*Input:*

Enter the string:

prrrogram is prrrogramming

Enter the substring to be matched:

rr

*Output:*

No of matches of substring in main string is: 4

**15-min**

Question 3: /20

Given an integer array nums sorted innon-decreasing order, remove some duplicates in-place such that each unique element appears atmosttwice, and return the new length.

Do not allocate extra space for another array, you must do this by modifying the input array.

**Example:**

**Input: nums = [1,1,1,2,2,3]**

**Output: 5** // nums = [1,1,2,2,3,\_]---------> This array is just for explanation. Do no print it.

Explanation: Your function should return k = 5, with the first five elements of nums being 1, 1, 2, 2 and 3 respectively.

It does not matter what you leave beyond the returned k (hence they are underscores).

**--------------------------------------------------- BEST OF LUCK! --------------------------------------------------**