Department of Computer Science and Engineering

Faculty of Science & Information Technology
Quiz Exam Examination, Summer 2021 @ DIU Blended Learning Center
Course Code: CSE214 (Day), Course Title: Algorithm
Level: 2   Term: 2   Section:
Instructor: TAR   Modality: Open Book Exam
Date: 7 Thursday July, 2021   Time: 08:00pm-8:30pm
Half hour, Marks: 25

1. Little Rapunzel was prisoned by a witch who kept her locked in a room. The room was located on the top floor of a deserted tower. She manipulated the poor fellow as the world is a very heinous place. But with time, when the little girl grew up she realized the vice- versa. She requested the witch to set her free, showing the reason that she has nothing to do in that desert place. She asked for the reason for staying the whole day locked in that room. The only thing that could make her feel light was singing songs. She used to sing sad songs out of the window to get out of the blue. One day the poor soul planned to fly away from the castle. The only way to fly away from the castle was to get down by the stairs. But the witch was smart enough to break all the stairs with black magic. As every magic has a remedy one day Rapunzel found out the breakage of the black magic of the witch which has been done to the stairs. She found a room full of alphabetical characters. They were the key to her getting out of the tower. She found a book where the technique was written on how to fix those stair steps. All she has to do is to collect the alphabets & count them. If the same character frequency results in a prime number then she could build a step in the staircase. Moreover she needs to collect alphabetic characters and build the steps of the stairs. Now help Rapunzel to collect the alphabets & fix the stairs. Find out how many stairs can be made with the alphabets.

   - Describe the solution theoretically.   2.5

   - Consider your name as Input and calculate how many stairs she can   2.5
     make

   - Write the proper pseudocode to implement your program   5

   - Write the proper code to implement your pseudocode.   5