DEPARTMENT OF COMPUTER SCIENCE

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MCA (III-Sem) Sessional Examination, 2021

CSC37: Lab-VI (ADA)

Date: Sunday October 17, 2021   Max. Marks: 25   Time: 2:30 PM – 4:30 PM

Instructions:

(i)   Attempt ALL questions.
(ii) Write your Roll Number, Name at the top of the program as comment.
(iii) Send your program through mail at **jahir.jmi@gmail.com**.
(iv) The program sends after the 5:00 PM will be not accepted.
(v)   The students are advised to not share their program with other student. In case they have shared it, marks will be deducted.

Q 1.   Let a[0:n-1] is an array that stores the positive and negative integers. Write an efficient function *void* **(15)** *segregateBubble(int a[], int n)* based on bubble sort **(without extra array)** to segregate positive and negative integers without changing the relative order of elements of same sign. In the output there should be negative numbers followed by positive numbers and order among negative and positive numbers does not change. For example if input is [9, -3, 5, -2, -8, -6, 1, 3] then output should be [-3, -2, -8, -6, 9, 5, 1, 3]. Also determine the best and worst time complexity of this function.

Q 2.   Let a[0:n-1] is an array that stores the positive integers and *int compute(int a[], n)* compute the sum **(10)** of absolute value of difference of adjacent elements. For example if array 'a[]' is [1, 2, 3, 4] then the *compute(a, 4)* function calculate the value |1-2| + |2-3| + |3-4| = 1 + 1 + 1 = 3 and returns 3. Write an efficient function *void sortSpecialSelection(int a[], int n)* based on selection sort **(without extra array)** to arrange the elements of array in a given order such that the compute function gives the maximum value.