|  |  |
| --- | --- |
| **EWULogo.png Mn nh** | **EAST WEST UNIVERSITY** |
| **Department of Computer Science and Engineering** |
| **B.Sc. in Computer Science and Engineering Program** |
| **Mid Term I, Spring 2022** |

|  |  |
| --- | --- |
| **Course:** | **CSE246 (Algorithms), Section - 1** |
| **Instructor:** | **Taskeed Jabid** |
| **Full Marks:** | **20** |
| **Time:** | **1 Hour and 15 Minutes + 10 Minutes** |

**Note:** There are Four questions, answer ALL of them.

1. Write down the LCS table of two DNA sequences (string consists of letters from A, T, C, G) – Ensure that no DNA sequence is not less than 6 letters.
2. Choose the frequency of the following characters as instructed and generate the Huffman tree with that specific input frequencies. Also, write down the code of each character and achieved efficiency using this coding scheme.

A: Random number between 50-70

B: Random number between 20-30

C: Random number between 35-50

D: Random number between 50-70

E: Random number between 85-99

F: Random number between 30-40

G: Random number between 15-25

H: Random number between 10-20

1. Write down the pseudocode of fractional knapsack problem and show the working steps with any sample data of your own.
2. Write down the pseudocode of bubble sort and explain the time complexity of bubble sort in best case and in worst case