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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
TEST -3 EXAMINATION- February-2021  
IV Semester

COURSE CODE: 10B11CI411

MAX. MARKS:35

COURSE NAME: Fundamental of Algorithm

COURSE CREDITS: 03

MAX. TIME: Two Hours

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. A file contains the following characters with the frequencies as shown. If Huffman Coding is used for data compression, determine the Huffman Code for each character (a, 12) (e, 25) (i, 22) (o, 13) (u, 14) (s, 3) (t, 18) [5]
2. Given items as {value, weight} pairs {{40, 25}, {60, 20}, {40, 8}}. The capacity of knapsack = 32. Find the maximum value output assuming items to be divisible and non divisible respectively? [5]
3. Find the minimum edit distance using tabular method between two strings "HOUSE" and "ROSE"? [5]
4. Compare between adjacency list and adjacency matrix of graph representation? Also describe the situation when you prefer adjacency matrix over adjacency list? [5]
5. Construct the tries with strings {"batting", "bat", "batsman", "bath", "battery"} and then convert it to compact tries? [5]
6. Define the following types of algorithms with an example [2\*5]
  - a) Simple recursive algorithm
  - b) Divide and conquer algorithm
  - c) Dynamic programming algorithm
  - d) Greedy algorithm
  - e) Brute force algorithm