

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- December-2021
V Semester

COURSE CODE: 18B11BI511

MAX. MARKS:35

COURSE NAME: Design and Analysis 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,10) (e,15) (i,12) (o,3) (u,4) (s,13) (t,1) [5]
2. Given items as {value, weight} pairs {{60, 20}, {50, 25}, {20, 5}}. The capacity of knapsack = 40. 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 "GHOST"? [5]
4. Prove the statements with help of an example of coin changing problem that some time greedy algorithm does not give optimal solution. As well as also prove that some time solution of coin changing problem does not exist through greedy approach? [5]
5. Construct the tries with strings {"bear", "bid", "bulk", "bull", "sun", "sunday"} 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