

SESSIONAL ONE EXAMINATION
B.TECH, December- 2021

Paper Code: PCC-CSE-307G

Subject: DAA

Time: Two Hours

Max.Marks:30

Note: Attempt *anythree* questions including Q.no. 1 which is compulsory. All questions carry equal marks.

Q.1. Write short notes on the following :

a) Asymptotic Notations b) Dynamic programming 2x5=(10)

Q.2. (a) Do the complexity analysis for quick sort, merge sort and selection sort and compare them
(10)

OR

(b) What is Greedy Technique?. Explain fractional knapsack and minimum spanning tree using Greedy approach. (10)

Q.3. (a) Solve the Optimal Binary Search Tree (OBST) problem using Dynamic programming and draw OBST if : $n=4$, keys or nodes are (10,20,30,40) , successful search probability are (3,3,1,1) and unsuccessful search probability are (2,3,1,1,1) . (10)

OR

(b) Suppose we have a bag of maximum capacity $C = 8$ units. We have a total of $n = 4$ items to choose from. The values of each item are given as a list $v = [1, 2, 5, 6]$ and their corresponding weights are given as a list $w = [2, 3, 4, 5]$. Since this is a 0/1 knapsack problem, we can either include an item in the bag or cannot include it. We need to take the items in such a way so that the total profit is maximized and the total weight of items taken is less than or equal to the capacity C . Solve above problem using Dynamic Programming. (10)
