UNIVERSITY
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2nd Mid Term Examinations, June-2022

B. Tech CSE – IVth Semester

Design and Analysis of Algorithm

(CSL-0461)

Time: 1:30 hrs. Roll No: .....

Max. Marks: 30

Note: Attempt all questions. All questions carry equal marks.

1 Explain N- Queens problem with its constraints. Provide a solution for the 8- Queens problem using backtracking. 6

OR

What is Graph coloring? Explain two important properties of graph coloring regarding polygons. Also, explain how the map can be converted into a planar graph by taking suitable examples.

2 Explain the Knapsack problem. Solve the given Knapsack Problem. 6

M=20, N=5

Weights = (3,4,5,6,7)

Profits = (15,24,25,36,40)

OR

Find the Huffman codes for the following data items: 3,7,12,15,23,4,5,25,11,17,28,9 and 15 6

3. Design a 2-stage system with device types D1 and D2 and D3. The cost is $45, and $25, respectively, and the cost of the system is to be no more than $ 155. The reliability of each device type is 0.9, and 0.5 respectively 6

OR

Explain Prim's and Kruskal Algorithms by taking suitable 6

examples.

4. Find the optimal Binary Search Tree for the following 3 values: 1,2,3 with P(i)= 0.6, and Q(i) = 0.4. 6

OR

Explain Branch and bound method by taking a suitable example. 6

5. Explain Tree Vertex Splitting Problem by taking a suitable example 6

OR

Write Short notes on: 6

(i) Binary Search Tree
(ii) Dynamic Programming
(iii) Backtracking