

Pratham Badge

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149

ODPT

CT

2nd Year

4th Sem

Unit 2

✓ Algo & its properties

✓ AP & GP

Recurrence relations

└ Character equation

└ Recursion Tree Method

└ Master Method

└ Inflow ✓

└ Homos ✓

└ Log

✓ Asymptotic Notation

✓ Insertion sort

└ Best case

└ Worst case

Unit 2

✓ Divide & Conquer

└ Binary Search

└ Merge sort

└ Quick sort

└ Strassen's Matrix

Greedy Approach

✓ └ Fractional Knapsack

✓ └ Huffman coding algo

✓ └ Travelling Salesman Problem

✓ └ Activity Selection

✓ └ Job Sequencing with deadline

✓ └ Minimum Spanning cost tree

└ Single source shortest path

└ Dijkstra's Algo ✓

Prim's Algo ✓

Kruskal's algo ✓

Unit 3

Dynamic Programming Strategy

- ✓ - Longest Common Sequence (LCS)
- ✓ - Single source shortest paths \rightarrow Bellman-Ford
- ✓ - Travelling salesman Problem
- ✓ - All pair shortest path \rightarrow Floyd Warshall
- Matrix Chain Multiplication
- ✓ - Multistage Graphs
- Optimal Binary Search Trees
- ✓ - 0/1 Knapsack problem

Unit 4

Backtracking Strategy

- n-Queen's Problem
- Sum of subsets
- Graph coloring
- Hamiltonian Cycle

Unit 5

NP-hard & NP-complete problems

- Non deterministic algo
- NP hard & NP complete
- decision & optimization problems
- Clique
- Polynomial Reduction
- Cook's theorem
- graph based on problems on NP principle