Individual Assignment of Introduction to algorithm Analysis

I. All questions in this assignment are based on Greedy Algorithms. Write an explanation, algorithm, complexity analysis and suitable example for the first 9 problems.

1. Binary knapsack
2. Fractional knapsack
3. Job scheduling
4. Minimum Spanning tree using Prim's Algorithm
5. Minimum Spanning tree using Kruskal's Algorithm
6. Dijkstra's Algorithm
7. Activity Selection Problem
8. Huffman Coding
9. optimal caching
10. Compare and contrast: Greedy Algorithm vs. Divide and Conquer
11. compare and contrast: Greedy Algorithm vs. Dynamic Programming

II. All questions in this assignment are based on Dynamic Programming. Write an explanation, algorithm, complexity analysis and suitable example for problems 4-14.

1. Write a note on dynamic programming. Explain the principle of optimality.
2. Compare and contrast: Divide and conquer vs. Dynamic Programming
3. Compare and contrast: Branch and Bound vs. Dynamic Programming
4. Binomial Coefficient
5. Making change problem
6. Assembly Line-Scheduling
7. Knapsack problem
8. All Points Shortest path
9. Matrix chain multiplication
10. optimal binary tree
11. Multistage graph
12. Longest Common Subsequence.
13. Longest common Substring
14. Shortest path in graph