

DAA Suggestions

1. Calculate the total number of edges in a complete graph with a 6 vertices. = 15
2. Choose the time complexity of solving 0/1 Knapsack problem using dynamic programming. = $n * W$
3. Which algorithm design technique is used in matrix multiplication problem to break the problem into smaller subproblems? = Divide and Conquer
4. In fractional Knapsack problem what kind of items can be taken? = Both the complete item and fractional part of the item
5. Compute the number of edges in a spanning tree for a graph with 9 vertices and 14 edges. = 8
6. Prime focus of dynamic programming when solving problems like matrix chain multiplication. = To store the result of the subproblems and reuse them to reduce redundant calculations
7. Which design technique is used in job sequencing with deadline problem. = Greedy Approach
8. Enqueueing problem = Backtracking
9. Main object of dynamic programming in 0/1 Knapsack programming. = To optimize the decision making process.
10. Space complexity of storing a graph using a adjacency matrix with V vertices. = Order of V^2
11. Choose the data structure commonly used in fractional knapsack problem. = Array
12. How Floyd Versal differs from Dijkstra algorithm. = Floyd Warshall finds all pair shortest path, Dijkstra Algorithm finds single source shortest path, Floyd Warshall = $O(V^3)$ & Dijkstra = $O(V+E)*\log V$
13. DFS = $O(V+E)$ & BFS = $O(V+E)$
14. Job sequence problem with deadlines, choose the strategy used by the greedy algorithm to minimize the profit. = Select the job with highest profit and place them in available time slot before their deadline
15. characteristics of brute force algorithm. = Explore all possible solutions
16. Choose the number of solutions for the 8 Queen problem. = 92
17. Worst case complexity of the Naiv String Matching algorithm. = $O(mn)$
18. Number of operations made in the best case recursing min max problem using divide and conquer. = $2n - 2$
19. Time complexity of matrix multiplication using the standard conquer method. = $O(n^2.81)$
20. KMP String matching algorithm compare to the Naiv approach. = KMP reduce the number of comparisons by preprocessing the pattern to avoid redundant check
21. Data Structure used to implement DFS and BFS. = Stack & Queue

22. Bellman-Ford Algorithm preferred over Dijkstra Algorithm. = When the graph has negative weight edge.
23. Which characteristics best describe prims algorithm. = It grows a minimum spanning tree from a single node.
24. Most efficient way to store a graph with thousand vertices and two thousand edges. = adjacency series.
25. Why spanning tree always has $v-1$ edges. = It has no cycle.