

DSA MASTER SHEET (100 QUESTIONS)

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Prep Video1: https://youtu.be/8ZMDdgiXylk?si=l4m1vmz_INrw1qvH

Prep Video2: <https://youtu.be/r34B3cXY4j0?si=nXGtJBSkeisljd6S>

Prep Video3: <https://youtu.be/Xm4t72XRXmE?si=Lflfy3lQ9xD77JMX>

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🔗 *Any suggestion required, ping me on LinkedIn.*

Target: Infosys DSE, Specialist Programmer (L1 / L2 / L3)

Level: Easy → Medium → Hard → Complex

Includes: Interview + Competitive Programming (Codeforces-style)

🔗 EASY (25 Questions)

Goal: Above-easy / Easy+ (Infosys baseline filtering)

1. Rotate array by K (without extra space)
🔗 <https://leetcode.com/problems/rotate-array/>
2. Move all zeros to end (order preserved)
🔗 <https://leetcode.com/problems/move-zeroes/>
3. Second largest element (single traversal)
🔗 <https://www.geeksforgeeks.org/find-second-largest-element-array/>
4. Remove duplicates from sorted array (two pointers)
🔗 <https://leetcode.com/problems/remove-duplicates-from-sorted-array/>
5. Find missing number (XOR approach)
🔗 <https://leetcode.com/problems/missing-number/>
6. Find duplicate number (Floyd cycle detection)
🔗 <https://leetcode.com/problems/find-the-duplicate-number/>
7. Check if array is sorted and rotated
🔗 <https://leetcode.com/problems/check-if-array-is-sorted-and-rotated/>
8. Majority element ($> n/2$) – Boyer Moore idea
🔗 <https://leetcode.com/problems/majority-element/>
9. Two Sum (brute + optimized discussion)
🔗 <https://leetcode.com/problems/two-sum/>
10. Longest prefix which is also suffix
🔗 <https://practice.geeksforgeeks.org/problems/longest-prefix-suffix2527/1>
11. Check palindrome using two pointers
🔗 <https://leetcode.com/problems/valid-palindrome/>
12. Reverse words in a string (in-place idea)
🔗 <https://leetcode.com/problems/reverse-words-in-a-string/>
13. Valid anagram (frequency array)
🔗 <https://leetcode.com/problems/valid-anagram/>

14. Count frequency of elements (HashMap)
❓ <https://practice.geeksforgeeks.org/problems/frequency-of-array-elements-1587115620/1>
15. Find first non-repeating character
❓ <https://leetcode.com/problems/first-unique-character-in-a-string/>
16. Binary search (first & last occurrence)
❓ <https://leetcode.com/problems/find-first-and-last-position-of-element-in-sorted-array/>
17. Search in nearly sorted array
❓ <https://www.geeksforgeeks.org/search-almost-sorted-array/>
18. Power(x, n) – fast exponentiation idea
❓ <https://leetcode.com/problems/powx-n/>
19. Kadane's Algorithm (intro version)
❓ <https://leetcode.com/problems/maximum-subarray/>
20. Best Time to Buy & Sell Stock (single transaction)
❓ <https://leetcode.com/problems/best-time-to-buy-and-sell-stock/>
21. Merge two sorted arrays without extra space
❓ <https://practice.geeksforgeeks.org/problems/merge-two-sorted-arrays-1587115620/1>
22. Find peak element
❓ <https://leetcode.com/problems/find-peak-element/>
23. Leaders in an array
❓ <https://practice.geeksforgeeks.org/problems/leaders-in-an-array-1587115620/1>
24. Equilibrium index of array
❓ <https://practice.geeksforgeeks.org/problems/equilibrium-point-1587115620/1>
25. Subarray with given sum (positive numbers only)
❓ <https://practice.geeksforgeeks.org/problems/subarray-with-given-sum-1587115621/1>

❓ MEDIUM (25 Questions)

Goal: Core interview level + optimization (Infosys DSE / SP L2)

26. Two Sum (HashMap optimized)
❓ <https://leetcode.com/problems/two-sum/>
27. Longest subarray with sum K (positive + negative)
❓ <https://practice.geeksforgeeks.org/problems/longest-sub-array-with-sum-k0809/1>
28. Subarray sum equals K (count)
❓ <https://leetcode.com/problems/subarray-sum-equals-k/>
29. Kadane's Algorithm (Maximum Subarray)
❓ <https://leetcode.com/problems/maximum-subarray/>
30. Majority Element ($> n/2$) – Boyer Moore
❓ <https://leetcode.com/problems/majority-element/>
31. Longest Consecutive Sequence ($O(n)$)
❓ <https://leetcode.com/problems/longest-consecutive-sequence/>

32. Next Greater Element I
? <https://leetcode.com/problems/next-greater-element-i/>
33. Next Greater Element II (Circular Array)
? <https://leetcode.com/problems/next-greater-element-ii/>
34. Valid Parentheses
? <https://leetcode.com/problems/valid-parentheses/>
35. Stock Buy and Sell (Multiple transactions)
? <https://leetcode.com/problems/best-time-to-buy-and-sell-stock-ii/>
36. Rotate Matrix by 90 degrees
? <https://leetcode.com/problems/rotate-image/>
37. Spiral Traversal of Matrix
? <https://leetcode.com/problems/spiral-matrix/>
38. Search in Rotated Sorted Array
? <https://leetcode.com/problems/search-in-rotated-sorted-array/>
39. Merge Intervals
? <https://leetcode.com/problems/merge-intervals/>
40. Set Matrix Zeroes
? <https://leetcode.com/problems/set-matrix-zeroes/>
41. Kth Largest Element in Array
? <https://leetcode.com/problems/kth-largest-element-in-an-array/>
42. Top K Frequent Elements
? <https://leetcode.com/problems/top-k-frequent-elements/>
43. Find Duplicate Number (Cycle detection)
? <https://leetcode.com/problems/find-the-duplicate-number/>
44. Trapping Rain Water
? <https://leetcode.com/problems/trapping-rain-water/>
45. Count Inversions (idea level)
? <https://www.geeksforgeeks.org/counting-inversions/>
46. Power(x, n) – Binary Exponentiation
? <https://leetcode.com/problems/powx-n/>
47. Longest Common Prefix
? <https://leetcode.com/problems/longest-common-prefix/>
48. Find Peak Element
? <https://leetcode.com/problems/find-peak-element/>
49. Aggressive Cows (Binary Search on Answer)
? <https://www.spoj.com/problems/AGGRCOW/>
50. Minimum Platforms (Trains)
? <https://practice.geeksforgeeks.org/problems/minimum-platforms-1587115620/1>

🔍 HARD (25 Questions)

Goal: Infosys SP L2 / L3 DP-heavy & algorithmic problems

51. 0/1 Knapsack Problem
🔍 <https://practice.geeksforgeeks.org/problems/0-1-knapsack-problem0945/1>
52. Unbounded Knapsack Problem
🔍 <https://practice.geeksforgeeks.org/problems/unbounded-knapsack/0>
53. Subset Sum Problem
🔍 <https://practice.geeksforgeeks.org/problems/subset-sum-problem-1611555638/1>
54. Count of Subsets with Given Sum
🔍 <https://practice.geeksforgeeks.org/problems/perfect-sum-problem5633/1>
55. Partition Equal Subset Sum
🔍 <https://leetcode.com/problems/partition-equal-subset-sum/>
56. Coin Change – Minimum Coins
🔍 <https://leetcode.com/problems/coin-change/>
57. Coin Change – Number of Ways
🔍 <https://practice.geeksforgeeks.org/problems/coin-change2448/1>
58. Rod Cutting Problem
🔍 <https://practice.geeksforgeeks.org/problems/rod-cutting0840/1>
59. House Robber I
🔍 <https://leetcode.com/problems/house-robber/>
60. House Robber II
🔍 <https://leetcode.com/problems/house-robber-ii/>
61. Longest Increasing Subsequence – $O(n^2)$
🔍 <https://leetcode.com/problems/longest-increasing-subsequence/>
62. Longest Increasing Subsequence – $O(n \log n)$
🔍 <https://leetcode.com/problems/longest-increasing-subsequence/>
63. Largest Rectangle in Histogram
🔍 <https://leetcode.com/problems/largest-rectangle-in-histogram/>
64. Maximal Rectangle in Binary Matrix
🔍 <https://leetcode.com/problems/maximal-rectangle/>
65. Sliding Window Maximum (Deque)
🔍 <https://leetcode.com/problems/sliding-window-maximum/>
66. Allocate Minimum Number of Pages
🔍 <https://practice.geeksforgeeks.org/problems/allocate-minimum-number-of-pages0937/1>
67. Aggressive Cows (Binary Search on Answer)
🔍 <https://www.spoj.com/problems/AGGRCOW/>
68. Word Break (Boolean DP)
🔍 <https://leetcode.com/problems/word-break/>
69. Edit Distance
🔍 <https://leetcode.com/problems/edit-distance/>

- 70. Minimum Subset Sum Difference
 - 🔗 <https://practice.geeksforgeeks.org/problems/minimum-sum-partition3317/1>
- 71. Matrix Chain Multiplication
 - 🔗 <https://practice.geeksforgeeks.org/problems/matrix-chain-multiplication0303/1>
- 72. Count Inversions (Merge Sort)
 - 🔗 <https://practice.geeksforgeeks.org/problems/inversion-of-array-1587115620/1>
- 73. Target Sum
 - 🔗 <https://leetcode.com/problems/target-sum/>
- 74. Unique Paths (DP)
 - 🔗 <https://leetcode.com/problems/unique-paths/>
- 75. Decode Ways
 - 🔗 <https://leetcode.com/problems/decode-ways/>

🔗 **COMPLEX (25 Questions)**

Goal: Infosys SP L3 + Competitive Programming (Advanced Thinking)

- 76. House Robber III (Tree DP)
 - 🔗 <https://leetcode.com/problems/house-robber-iii/>
- 77. Binary Tree Maximum Path Sum
 - 🔗 <https://leetcode.com/problems/binary-tree-maximum-path-sum/>
- 78. Diameter of Binary Tree
 - 🔗 <https://leetcode.com/problems/diameter-of-binary-tree/>
- 79. Lowest Common Ancestor of Binary Tree
 - 🔗 <https://leetcode.com/problems/lowest-common-ancestor-of-a-binary-tree/>
- 80. Detect Cycle in Directed Graph (DFS)
 - 🔗 <https://practice.geeksforgeeks.org/problems/detect-cycle-in-a-directed-graph/1>
- 81. Topological Sort (DFS / BFS)
 - 🔗 <https://practice.geeksforgeeks.org/problems/topological-sort/1>
- 82. Course Schedule (Cycle Detection)
 - 🔗 <https://leetcode.com/problems/course-schedule/>
- 83. Dijkstra's Algorithm
 - 🔗 <https://practice.geeksforgeeks.org/problems/implementing-dijkstras-algorithm/1>
- 84. Bellman Ford Algorithm
 - 🔗 <https://practice.geeksforgeeks.org/problems/negative-weight-cycle3504/1>
- 85. Floyd Warshall Algorithm
 - 🔗 <https://practice.geeksforgeeks.org/problems/implementing-floyd-warshall2042/1>
- 86. Minimum Window Substring
 - 🔗 <https://leetcode.com/problems/minimum-window-substring/>
- 87. Longest Palindromic Substring
 - 🔗 <https://leetcode.com/problems/longest-palindromic-substring/>

88. Palindrome Partitioning II (Min Cuts)
? <https://leetcode.com/problems/palindrome-partitioning-ii/>
89. Word Break – Count Ways
? <https://practice.geeksforgeeks.org/problems/word-break-part-23249/1>
90. DP on Trees (Generic Pattern)
? <https://leetcode.com/problems/binary-tree-cameras/>
91. KMP Algorithm (Pattern Matching)
? <https://practice.geeksforgeeks.org/problems/search-pattern0205/1>
92. Z-Algorithm (Pattern Matching)
? <https://codeforces.com/problemset/problem/126/B>
93. Trie – Insert, Search, Prefix
? <https://leetcode.com/problems/implement-trie-prefix-tree/>
94. Segment Tree (Range Sum Query)
? <https://leetcode.com/problems/range-sum-query-mutable/>
95. Fenwick Tree (Binary Indexed Tree)
? <https://www.geeksforgeeks.org/binary-indexed-tree-or-fenwick-tree-2/>
96. LRU Cache
? <https://leetcode.com/problems/lru-cache/>
97. LFU Cache
? <https://leetcode.com/problems/lfu-cache/>
98. N-Queens Problem
? <https://leetcode.com/problems/n-queens/>
99. Sudoku Solver
? <https://leetcode.com/problems/sudoku-solver/>
100. Codeforces DP Problem (Div2 C/D Level)
? https://codeforces.com/problemset?order=BY_RATING