Roadmap for competitive programming -

1. Pattern printing problems.
2. Analysis of the time complexity.
3. Linear Search & circular array.
4. Palindrome and other numbers (Perfect, armstrong etc).
5. Simple hashing problems.
6. Prefix sum (1D & 2D).
7. Sliding window technique. (2/5 contests)
8. Binary Search. (2/5 contests)
9. GCD in logn (Euclidean and extended euclidean)
10. Linear Diphantine equation.
11. Checking Primes in Sqrt(n).
12. Sieve of Eratosthenes.
13. Segmented Sieve.
14. Prime factorization in logn.

15. Euler Totient function.

16. Fermat Little Theorem.

17. Wilson's theorem.

18. Finding x^n in logn.

19. Modular Arithmetic.

20. Modular Inverse of a number.

21. Modular Exponentiation.

22. Chinese Remainder Theorem.

23. Factorial modulo mod

24 nCr and nPr in constant time.

25 Inclusion Exclusion Principle.

26 Sorting Algorithms.

27 Problems with constructive and swapping term in it.

28. Problems on 2-pointer approach.

Bit mask

29. Bit Manipulation.

26. Power set of a given array or a string using Bit Manipulation.

27. Number of subarrays with XOR as zero.

Greedy

28. Problems on Greedy Algorithms.

29. kadane's Algorithm and problems related to them.

30. Job Sequencing and Activity Selection Problem.

Recursion

31. Basic Recursion.

32. Binary Search using recusion.

33. Modular Exponentiation using recursion.

34. Problems on recursion (subset, given sum...etc).

Merge Sort

35. Merge Sort and Quick sort.

36. Problems related to Merge sort.

Backtracking

37. Bactracking problems like Sudoko and N queen (help in DP path problem).

38. Meet in the Middle Algorithms and problems.

39. Divide and Conquer problems (codeforces).

Stack

40. Next Greater / Next smaller element using stack.

41. Problems on parenthesis.

42. Largest Rectangular Area in Histogram.

43. Problems on Heap (Priority Queue).

String

44. Hashing on strings problems (CP Algorithms).

45. Rabin karp Algo (CPAlgo).

45 Prefix function.

46. KMP Algorithm.

47. Z-function.

48. Manachers Algo

49. 25-30 problems on above Algo.

Trees

50. Tree / Graph representation.

51. DFS / BFS Traversal in graph / tree.

52. Diameter of tree.

53. Finding LCA using Euler Tour.

54. LCA using binary lifting.

55. Distance between two nodes.

56. Subtree Problem.

57. Problems on above algo (SPOJ for trees, D or E on codeforces).

Graph.

58. Connected components.

59. Topological sort.

60. Cycle detection in Graph.

61. Bipartite check in graph.

62 SCC using kosaraju's Algo.

63. Dijakstra's Algo.

64. Bellman Ford Algo.

65 Floyd warshell Algo.

66 Problems on above algos (SPOJ & Codeforces).

67. Bridges in Graph.

68. Articulation Point in Graph.

69. Minimum Spanning Tree using kruskals Also.

70. Prim's Algo.

71. 0/1 BFS. (CPAlgo).

72. Solve problems on above algos.

DP

73. Get strong in Recursion.

74. Memoization.

75. Solve common DP problems (LCS, knapsack, etc).

76. Atcoder Educational content on Dynammic Programming (26 problems).

77. Problems on DP (SPOJ, codeforces).

78. Digit DP (CF blog).

79. Problems on Digit DP.

80. DP with bitmask (Hackerearth).

81. DP on trees (GFG or rachit jain youtube).

82. SOS DP.

83. Solve problems.

DSU

84. Disjoint Set. (CPAlgo).

85. Offline queries using disjoint set.

86. Kruskal's Algo.

87. Problems.

88. Sparse table (Not that much important).

89. Fenwick tree (Range update).

90. Binary lifting on fenwick tree.

91. Problems (CF).

92. Matrix exponentiation.

93. Sqrt Decomposition (GFG, CPA, CF Blog).

94. Update and query operations.

95. MO's Algo (powerful array CF).

96. MO's Algos on Trees. (Not that important).

97. Segment Trees (Range queries and point updates).

98. Lazy propagation on segment trees.

99.

99. Sprague-Grundy theorem.

100. Flows and Related problems (CPAlgo).

101. Heavy light Decomposition (cnudcap).

102. Convex Hull Algo (~~Hetu~~ mewa)

103. FFT / NTT .