Problem Solving Roadmap

The order of the learning process is General=> Bronze=> Silver => Gold=> platinum

General Knowledge Level

1- Data types
2- Input and output (read input and print output)
3- How to debug
4- How to Practice
5- Contest Strategy
6- Fast Input Output
7- Basic debugging
8- C++ debugging

Bronze Level

1- Time Complexity
2- Introduction to data structures
3- Introduction to Sets and maps
4- Stacks and queues
5- Introduction to sorting
6- Simulation
7- Ad Hoc
8- Introduction to Greedy Algorithm

Silver Level

1- prefix sum
2- 2 pointers
3- Binary search
4- Sliding windows
5- Custom comparator and coordinate compression
6- Priority queue
7- Basic Complete Search
8- Complete Search with Recursion
9- Intro to bit manipulation and bitmasks
10- Number theory (GCD, LCM, sieve of Eratosthenes, prime factorization)
11- Introduction to Combinatorics (NCR, NPR)

Gold Level

1- Introduction to Graph and Graph traversal and introduction to trees
2- Topological sort
3- Shortest path with Unweighted Edges
4- Shortest path with weighted Edges
5- Introduction to Dynamic programming and knapsack
6- Paths on grids
7- Longest increasing subsequence
8- Range Dynamic programming
9- Disjoint set union
10- Minimum spanning Tree
11- Advanced Number Theory (Counting devisors, Euler's Totient Function, Modular Arithmetic)
12- Advanced Combinatorics(Binomial Coefficients, Derangements, Stars and Bars, Expected Value, Linearity of Expectation**,** Expected Products)

Platinum Level

1- Digit Dynamic programming
2- Bitmask Dynamic programming
3- Sparse Table
4- Segment Tree (Point Update Range Sum)
5- Segment Tree With Lazy Propagation
6- Binary Indexed Trees (Fenwick tree)
7- Mo Algorithm
8- SQRT decomposition
9- Floyd Warshall and Bellman Ford
10- KMP and KMP with Dynamic programming
11- Hashing
12- Trie (prefix tree)
13- Suffix array
14- Binary Jumping and LCA
15- Euler Tour
16- DP on Trees