复旦大学博士生入学考试大纲

高校算法

1. Asymptotic analysis
2. Algorithms for arithmetic operations
3. Primality testing
4. Divide and conquer algorithms (Master Theorem for Recurrences, multiplication, mergesort, median, fast Fourier transform)
5. DFS and strongly connected components
6. BFS
7. Single source shortest path (with and without negative edges)
8. Greedy algorithms (Huffman trees, minimum spanning trees, Horn formulas, set cover)
9. Dynamic programming (longest increasing subsequence, edit distance, knapsack, chain matrix multiplication, shortest paths)
10. Linear programming (flows, bipartite matching, duality, zero-sum games, Simplex algorithm)
11. NP completeness (reductions, approximation algorithms)