

Data Structures and Algorithms Comprehensive Exam Topics

Reference Text

The reference sections and chapters listed next to each topic below are from the textbook “Introduction to Algorithms” by T. Cormen, C. Leiserson, R. Rivest, C. Stein, McGraw-Hill Science/Engineering/Math; 3rd edition

List of Topics

Big-O Notation 3.1

Growth of Functions and Series 2.2, 3.1

Hash Functions and Tables 11.1-11.4

Binary Heaps and Heapsort Chapter 6

Graph Terminology and Graph Traversal Algorithms Chapter 22

Binary Search Trees 10.4, Chapter 12

Sorting Algorithms 1.2, 2.1, Chapter 7, 8.1-8.3

Greedy Algorithms 16.1-16.3, Chapter 23, 24.3

Divide-and-Conquer Algorithms 4.1-4.5

Dynamic Programming Algorithms Chapter 15, 24.2, 25.1-25.2

Flow and Matching Algorithms 26.1-26.3

NP-Complete Problems and Polynomial-time Reductions Chapter 35

Note: students should expect 1-3 multiple-choice questions from each topic.