

CSE 421
Introduction to Algorithms
Review Topics for Final

Winter 1999

Handout 10

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12 Mar 99

All the stuff on the midterm review sheet, plus...

- Breadth-first search.
- Depth-first search. Tree-, cross-, forward-, back-edges; DFS numbering.
- Strongly connected components. Definitions, exits, LOW function.
- Maximum Flow. Capacity, flow, residual capacity/graph, augmentation, Max Flow/Min Cut Theorem. Ford-Fulkerson and Edmonds-Karp algorithms. Bipartite matching; reduction to flow.
- NP-completeness. P, NP, verification/certificates/witnesses, nondeterminism, reduction, completeness. Example problems: **SAT**, clique, vertex cover, 0-1 knapsack, sub-graph isomorphism.

Midterm Review/Study Session Monday 12:00–1:00, Sieg 2nd floor hall.
