Study Guideline for MS Final Exam on Algorithm (CS456)

Text: “Algorithm Design” by Jon Kleinberg & ´ Eva Tardos, Addison Wesley, 2006

Research Article: Adel Hlaoui, Shengrui Wang, "A New Algorithm for Inexact Graph Matching," icpr, vol. 4, pp.40180, 16th International Conference on Pattern Recognition (ICPR'02) - Volume 4, 2002

Material: Chapters 1 – 9

1. Understanding basic concepts, properties of flow graph, recurrence relation, dynamic programming, divide and conquer, the matrix, etc
2. Be able to give your best argument on whether certain statements related to graph, time complexity, max flow, divide and conquer, dynamic programming. NP-completeness. You must either prove or disapprove (with counter example).
3. Understand how algorithms work and be able to illustrate with results as well as intermediate steps. Examples of algorithms: counting inversion, closest pair of points, weighted interval scheduling, knapsack, sequence alignment, max flow/min cut (Ford-Fulkerson & capacity scaling), bipartite matching, edge-disjoint path, network connectivity, circulation with demands, survey design, image segmentation, project selection, baseball elimination,
4. Design simple algorithms by using dynamic programming, divide and conquer, or applying graph algorithms such as max flow.
5. Summarize the research article.