

Final Exam Topics

CMPS 102, Spring 2004

Here are the topics we have covered since the second midterm. The final will be comprehensive, covering all of the topics presented in the course. See the midterm review sheets for topics covered earlier. As before, “(HW)” indicates a problem appearing only on the homeworks.

You are responsible for Sections 16.1, 16.2, and 8.1.

1. Greedy Algorithms:

- Activity Scheduling
- Minimum cost spanning trees
- Fractional Knapsack
- Coin Changing
- Packing Videos on CD (HW)
- Showing a greedy algorithms doesn't always find an optimal solution.

2. Lower bounds (on worst-case performance of best algorithm for a problem)

3. Decision tree (information theoretic) lower bounds

- Finding heavy item using balance scale.
- Binary search
- Sorting
- sequential search
- merging

Students should expect longer question dealing with each of: induction, dynamic programming, greedy algorithms and decision tree lower bounds. There may also be a longer problem on divide and conquer, backtracking, or branch and bound.