

CMSI 182

INTRODUCTION TO COMPUTER SCIENCE

Fall 2006

Final Review Sheet

The final exam will take place on Thursday, December 14, at 11am. It will be open book, notes, and hand-outs, but not open computer. This guide should help you to prepare for it properly.

Covered Material

The final covers the non-asterisked sections of Chapters 0 to 6 in-depth, and an overview-level understanding of Chapters 8 to 11 in the Brookshear textbook. Coverage also includes all hand-outs and sample code that have been distributed in support of this content. Make sure you have some working knowledge of pseudocode, JavaScript, and XHTML (i.e., you can read and understand fragments written in those idioms, and you can write simple short segments with them).

Sample Tasks and Questions

The following represent the types of questions or tasks that you may be asked to accomplish (in addition to those listed in the Midterm Review Sheet):

- Break down a segment of XHTML source code into its underlying document/tree structure
 - Given a description of a short document, write out a segment of XHTML that accurately reflects the content of that document
 - Given some problem or task, specify an algorithm that solves that problem, either in plain English, pseudocode, or JavaScript
 - Given an algorithm, make an assessment of this algorithm's efficiency (i.e., big theta)
 - Given two or more alternative algorithms for solving the same problem, indicate which one might be preferable based on some objective criteria (conciseness, efficiency, etc.)
 - Briefly explain algorithm concepts such as conditions, iteration, recursion, and complexity
 - Solve a puzzle that uses reasoning similar to what is required for formulating algorithms
 - Describe or explain the overall programming process, ranging from the human-readable source code in some programming language to its eventual conversion into instructions that a machine can understand directly
- Describe or explain some key concept regarding database systems, artificial intelligence, or the theory of computation
 - Perform some simple relational database operations on a given set of tables
 - Given a description of a particular Turing machine (alphabet, states, rules) and the initial content of its tape, perform a "run" of this machine, showing how its tape and state changes as it follows its rules.
 - Given a description of a particular robot (sensors, motors, physical components), provide a "stimulus-response" sequence for getting that robot to perform some task