

MA/CSSE 473

Day 19

Exam Prep



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- If you want additional practice problems for Tuesday's exam:
 - The "not to turn in" problems from various assignments
 - Feel free to post your solutions in an ANGEL discussion forum and ask your classmates if they think it is correct.
- Allowed for exam:
Textbook, calculator, one piece of paper (2 sided)
- Not allowed:
Anything that can communicate electronically, anything with headphones/earphones.
- Material for Exam:
 - Chapters 1-4 and Appendices A and B in Levitin.
 - HW 1-7.
 - Class days 1-14 (not decrease-and-conquer)



About the exam

- Mostly it will test your understanding of things in the textbook and things we have discussed in class.
- Will not require a lot of creativity (it's hard to do much of that in 50 minutes), but you will have to think!
- Mostly about analysis, rather than design.
- Many short questions, a few calculations.
 - Perhaps some T/F/IDK questions (3/-1/1)
- You may bring a calculator.
- Open book, but beware of time!
 - No time to read new stuff
 - First do the questions you can do quickly



Possible Topics for Exam

- Formal definitions of O , Θ , Ω .
- Master Theorem
- Fibonacci algorithms and their analysis
- Efficient numeric multiplication
- Proofs by induction (ordinary, strong)
- Trominoes
- Extended Binary Trees
- Modular multiplication, exponentiation
- Extended Euclid algorithm
- Modular inverse
- Fermat's little theorem
- Rabin-Miller test
- Random Prime generation
- RSA encryption
- What would Donald (Knuth) say?



Possible Topics for Exam

- Brute Force algorithms
- Selection sort
- Insertion Sort
- Amortized efficiency analysis
- Analysis of growable array algorithms
- Divide-and-conquer
- Closest Points
- QuickHull
- Merge Sort
- Quicksort
- Binary Search
- Binary Tree Traversals
- Strassen's Matrix Multiplication algorithm
- Basic Data Structures (Section 1.4)
- Graph representations



Questions?



Q1-4