

Lecture 9: Exam Review

- Last Time
 - Computers have finite resources, but real numbers are infinite
 - Use of 2's complement & IEEE 754 FP conventions standardize meaning of math on computers
 - Optimize data path of add, multiply, and divide to reduce critical path by performing operations in parallel
 - Context determines the meaning of bits
 - Floating point instructions, integer instructions
- Today
 - Exam review
 - Format
 - Topics
 - Questions

Format

- Open book and open notes
 - including homework, notes, printed lectures, etc.
- Calculator (No other electronic devices)
- 75 minutes
- 4 Sections
 - Section 1: multiple choice, true/false, short answer
 - Topics will range over all the material
 - Section 2 through 4: multiple parts on a single topic
 - Topics: Amdahl's law, Performance, ISA design, MIPS code, floating point,

Things you should know

- What is performance?
 - Amdahl's law, optimizing an implementation/ISA
 - Concurrency, throughput
- What is an ISA vs an implementation?
 - computation, memory state, control
 - What is RISC, CISC?
 - ISA design goals and principles
 - Registers vs memory
- Execution & Compiler Basics
- Interpreting Bits
 - Data representation (char, int, floating point), bit layout, addressing, instructions
 - bit, byte, word, hexadecimal, computer arithmetic, rounding

Things you should be able to do

- Reason about performance
- Act like a compiler
- Read and write MIPS instructions
- Convert between data types

Questions & Answer
