**CSE 378 Midterm Review**

- Moore’s Law – What are the two versions?
- Is Moore’s Law a law?
- Explain what an instruction set architecture is [ISA]
- What do the terms RISC and CISC mean?

**MIPS ISA**

- Give the uses of the fields of an R-type instruction:
  - [31-26], [25-21], [20-16], [15-11], [10-6], [5-0]
- Give the numbers of two registers whose use is specified in the ISA
- Give the numbers of two registers whose use is agreed-on by programming language convention
- Give the numbers of two registers whose use is agreed-on by programming convention
- Explain big-endian and little-endian memory layout

**More MIPS**

- Explain the difference between instructions performing “signed” and “unsigned” arithmetic
- Explain the operation of the MIPS memory operations: Load and Store
- What is a “pseudo-op” or “pseudo instruction”? How is it that the add and subtract instructions can have the same opcode?
- Explain how to load a full word constant into register $4$

**ALU Bit-slice**

- Give the control signals for NOR
- What value does “Less” get assigned?
- Write a poem about the beauty of 2s-complement math

**Load Word**

- Give the control line settings for LW

**Decoding SW**

- Explain what changes if SW’s opcode were 110000, and the “don’t cares” were to be 1
Multicycle MIPS

- Explain purpose of MDR
- Give control for 2nd cycle