

CMSI 284
COMPUTER SYSTEMS ORGANIZATION /
SYSTEMS PROGRAMMING
Spring 2010

Midterm Review Sheet

The midterm will take place as scheduled, on February 25. It will be open book, notes, and handouts, but not computer. This guide should help you to prepare for the midterm properly.

Covered Material

The midterm covers the following areas, including all handouts that have been distributed in support of this content:

- Fundamental parts of a computer system, their roles within that system, and the fetch-decode-execute cycle
- Numeric and character encoding
- Rudimentary programming in C

Sample Tasks and Questions

The following represent the types of questions or tasks that you may be asked to accomplish:

- Read/interpret consumer-level descriptions of computing systems and identify corresponding parts across different devices
- Convert between unsigned decimal, signed decimal, hexadecimal, and binary representations of words up to 16 bits in size
- Perform modular or saturated addition on signed or unsigned integers, and indicate carry and overflow occurrences
- Convert between unit prefixes such as kibi, mebi, gibi, kilo, mega, giga, and others
- Encode and decode floating-point values in the 32-bit IEEE-754 representation
- Produce UTF-8 and UTF-16 encodings of codepoints (character set lookups not needed)
- Given some C code of similar complexity to the programs provided in Dr. Toal's notes on C except for the *hashtable* example, find any errors or make some requested enhancements
- Write short C programs or fragments, appropriate scaled so as not to require a computer