# Machine Organization and Assembly Language Programming

## Problem Set #7

Due: Wednesday, November 24 or before

This Problem Set is on cache memory. You should have read Chapter 7, Sections 1 through 3.

1. Exercises 7.7 and 7.8. Assume that instead of being initially empty the cache held already the contents of words 0 through 15 (of course at their right places in the cache). Pay particular attention to these problems because your next assignment will be to write a program to get the results you obtained by hand. Of course it will be on different input and different cache parameters. You should start thinking about the implementation of a "trace-driven simulator" that takes as input the characteristics of a cache (total capacity, block size, associativity, replacement algorithm, write policy) and a string of memory references and yields the number of cache misses as output. See also Exercise 7.39.

2. Exercise 7.20. Answer with the same assumptions as above with the additional assumption that initially the words at addresses 8 through 15 have been most recently addressed

3. Exercises 7.13, 7.14, 7.23 (you should need less than 10 memory references for each case).