Final Review
SE/CS 3SH3, 2013

1. Synchronization.

   - Application of semaphore, lock, and condition variables.
   - Timer interrupt and its handler (Alarm CallBack).

2. Deadlocks.

   - Four necessary conditions
   - Resource allocation graph
   - Safe state and Banker's algorithm

3. Memory management.

   - Paging and segmentation and fragmentation.
   - Page table and translation of virtual addresses into physical addresses
   - TLB, TLB miss
   - Demand paging and virtual memory, page fault
   - Page replacement policies, clock algorithm (an approximation of LRU)

4. Network.

   - Protocols and layering structure
   - A simple TCP, alternating bit protocol
   - Client-server systems, iterative and concurrent servers

5. File-system

   - File-system structure
   - Directory structure
   - File header (i-node) structure
   - Multilevel indexed file (direct, single indirect, double indirect), maximum file size

6. CPU scheduling

   - CPU burst and I/O burst
   - Statistics (criteria)
   - Algorithms: First-come first-serve, shortest-job-first, priority, multilevel priority queue, fair-share (adaptive).

7. Assignments 2 and 3.