



## Chapter 6 Important Points

This is a summary of the parts of Chapter 6 that you should understand and be able to explain. In addition you should be able to solve problems related to them.

1. Definition and examples of race conditions.
2. Definition of a critical section
3. Criteria that solutions to critical section problem must satisfy:
  - (a) mutual exclusion
  - (b) progress
  - (c) bounded waiting
4. Definition of preemptive and non-preemptive kernels
5. Peterson's Solution - the algorithm for two processes
6. Hardware support for mutual exclusion:
  - (a) test-and-set instruction
  - (b) compare-and-swap instruction
  - (c) atomic variables
7. Mutex locks
8. Semaphores, binary and counting
  - (a) operations on semaphores
  - (b) those with implicit queues
  - (c) use of semaphores in critical section problems
9. Liveness properties
  - (a) deadlock
  - (b) starvation
  - (c) priority inversion and its solution using priority inheritance