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**Quiz #2 Solutions**  
COMP 3000B: Operating Systems  
January 26, 2006

You have 10 minutes to answer the following questions. Please circle the letter of the most appropriate answer. When you are finished, you may turn in your quiz and leave.

1. When a regular process is (actively) running on a single-CPU system, all of the following are true **except**:
  - (a) The kernel is not running.
  - (b) Disks can be writing data to memory.
  - (c) The CPU will generate an exception (software interrupt) if certain addresses are accessed.
  - (d) **The CPU is in supervisor mode.**
2. A user-level thread implementation typically
  - (a) is slower (at switching between threads) than a kernel-level thread implementation
  - (b) requires applications to have special privileges
  - (c) is good at maximizing performance on an SMP system
  - (d) **can be easily extended with application-specific schedulers**
3. When a web browser requests a web page, it is performing a type of inter-process communication. This communication is best described as:
  - (a) shared memory IPC
  - (b) message-passing, direct communication
  - (c) **message-passing, indirect communication**
  - (d) All of the above
4. Remote procedure calls (RPCs):
  - (a) appear to be regular function calls from the perspective of the application programmer (in normal circumstances)
  - (b) typically convert arguments into a machine-independent format
  - (c) are a type of message-based inter-process communication
  - (d) **All of the above**
5. Scheduler activations are used in some:
  - (a) pure one-to-one kernel thread implementations
  - (b) pure user thread (many-to-one) implementations
  - (c) **many-to-many thread implementations**
  - (d) all of the above