Score:_____   Name:_____

ECE 3055 Quiz - November 7, 2003

2 pts.
each

1. The __shot term   scheduler__ in an Operating System is responsible for selecting the next process to run from the ready queue.

2. In a multiprocessing OS, what prevents a user application from staying in the run state forever (explain)?

process terminates & exits
process makes API call to OS
time slice interrupt stops process

3. Explain the problems that would likely occur with I/O devices and operations, if there was not a hardware mode bit with privileged I/O instructions in a multiprocessing system.

User applications could directly access hardware causing sharing problems with I/O devices (Ex. several processes could try to print at the same time.)

4. List the three most important hardware features needed solely for protection of the CPU, I/O devices, and memory in a modern multiprocessing OS (explain each briefly).

CPU protection - timer for time slice interrupt
I/O protection - mode bit with privileged I/O instructions only OS can talk directly to I/O devices

Memory Protection - virtual memory with access rights in page tables or base and limit registers for hardware memory protection

5. Would a long I/O bound job on a system with no other processes active in the system likely spend more time sitting in the ready queue, running, or in the wait queue (explain)?

I/O bound jobs would likely spend more time in the wait queue waiting for slow I/O operations to complete.