COMP SCI 3004/7064 Operating Systems

Tutorial I-b

1. Which of the following instructions should be privileged?

(1) set value of timer

(2) read the clock

(3) clear memory

(4) turn off interrupts

(5) switch from user to monitor mode

2. When are caches useful? What problems do they solve? If a cache can be made as large as the device it is caching for (for instance, a cache as large as a disk) why not do so and eliminate the device?

3. Writing an operating system than can operate without interference from user programs requires some hardware assistance. Name three hardware aids for writing an operating system, and describe how they may be used together to protect the operating system.

4. What are the major activities of an operating system in regard to the following components?

(1) Process management.

(2) Memory management.

(3) Secondary-storage management.

(4) File management.

5. What are the purposes of system calls and system programs?

6. What are the main advantages of using the following approaches to system design?

(1) Layered approach

(2) Separation of mechanism and policy

(3) Virtual-machine architecture