

1. What are the three main purposes of an operating system?
2. What is the main difficulty that a programmer must overcome in writing an operating system for a real-time environment?
3. How does the distinction between kernel mode and user mode function as a rudimentary form of protection (security) system?
4. Give two reasons why caches are useful. What problems do they solve? What problems do they cause? If a cache can be made as large as the device for which it is caching (for instance, a cache as large as a disk), why not make it that large and eliminate the device?
5. What is the purpose of interrupts? How does an interrupt differ from a trap? Can traps be generated intentionally by a user program? If so, for what purpose?