**教材书后作业：**

1. **What are the two main functions of an operating system?**

课本摘抄：

1.providing application programmers (and application programs, naturally) a clean

abstract set of resources instead of the messy hardware ones

1. managing these hardware resources

我的理解：

1. 给用户提供简洁的接口，避免直接使用较为复杂的硬件
2. 管理好各种计算机资源(内存，CPU，磁盘等等)

**2.What is the difference between timesharing and multiprogramming systems?**

课本摘抄：

Timesharing is a variant of multiprogramming

Multiprogramming: Maximize processor use

Timesharing: for quick response time for users

我的理解：

多道是指一个用户可以在内存里存放多个作业，一个个批处理，当某个作业在使用CPU时，另一个作业可以使用IO, 而分时最早是在Multics系统上运用，它想让多个用户共同参与计算，由于完全处理完一个任务等待时间过长，每个用户可以使用这个系统一段时间，也就是分时。分时也是一种多道。

1. **What is the difference between kernel and user mode? Explain how having two distinctmodes aids in designing an operating system.**

课本摘抄：

Kernel mode: has complete access to all the hardware and can execute any instruction the machine is capable of executing

User mode: where the rest of the software runs, only a subset of machine instructions are available

1. **Which of the following instructions should be allowed only in kernel mode?(a) Disable all interrupts.(b) Read the time-of-day clock.(c) Set the time-of-day clock.(d) Change the memory map.**

(a) (c) (d)

**17. What is a trap instruction? Explain its use in operating systems.**

原文摘抄：

The TRAP instruction switches from user mode to kernel mode and starts the operating system.

我的理解：

Trap指令可以让用户调用操作系统的服务，从用户模式转成内核模式，是一种特殊的命令。

**25. What is the essential difference between a block special file and a character special file?**