**第11章作业**

**（6月23日（周二）21:00提交！）**

1. Assume a disk with 200 tracks and that the disk request queue has random requests in it. The requested tracks, in the order received by the disk scheduler, are 27, 129, 110, 186, 147, 41, 10, 64, 120. Assume that the disk head is initially positioned over track 100 and is moving in the direction of decreasing track number. Using disk scheduling algorithms FIFO, SSFT, SCAN to calculate the number of tracks traversed.
2. Assume that the disk rotates at 360 rpm. A processor reads one sector from the disk using interrupt-driven I/O, with one interrupt per byte. If it takes 2.5 µs to process each interrupt, what percentage of the time will the processor spend handling I/O (disregard seek time)?
3. A 32-bit computer has two selector channels and one multiplexor channel. Each selector channel supports two magnetic disk and two magnetic tape units. The multiplexor channel has two line printers, two card readers, and ten VDT terminals connected to it. Assume the following transfer rates:

Disk drive 800 Kbytes/s

Magnetic tape drive 200 Kbytes/s

Line printer 6.6 Kbytes/s

Card reader 1.2 Kbytes/s

VDT 1 Kbytes/s

Estimate the maximum aggregate I/O transfer rate in this system.

1. 假设有8个记录A、B，C、D、E、F、G、H存放在磁盘里，每个磁道有8个扇区，正好可以存放8个记录。假设磁盘旋转速度为20ms/转，处理程序每读出一个记录后，用2ms的时间进行处理，请问：

a．当记录A、B、C、D、E、F、G、H按顺序放在磁道上时，顺序处理这8个记录花费的总时间是多少？假设启动时的位置正好在A扇区的起点。

b．如何采取优化方法，使处理这些记录所花费的总时间最短？并求出该最短时间。

1. Calculate how much disk space (in sectors, tracks, and surfaces) will be required to store 300,000 120-byte logical records if the disk is fixed-sector with 512 bytes/sector, with 96 sectors/track, 110 tracks per surface, and 8 usable surfaces. Ignore any file header record(s) and track indexes, and assume that records cannot span two sectors.