**I/O Management and Disk Scheduling**

**Tannenbaum: # 13, 14,7,(? Questions on interrupts: 4, 9)**

**Other**

1. For the following disk accesses, compute the total number of tracks traversed for the following list of seeks to disk cylinder: 26 37 100 14 88 33 99 12 .

Assume head is initially positioned over 26.

* + - FCFS
    - SSTF : Shortest service Time
    - SCAN (assume the head is going up, i.e., moving in the direction of decreasing track number)
    - C-SCAN (assume the head is going up, i.e., , moving in the direction of decreasing track number)

1. Define device memory mapped I/O and direct memory access (DMA) and how they are related how are they different?
2. Explain the effect on double buffering on the runtime of a process if the process is I/O-bound ad requests characters at a much higher rate than the device can provide them. What is the effect if the process is compute-bound and rarely requests characters from the device?
3. Briefly define the 3 fundamentally differen5t was that I/O can be performed:

Programmed I/O

Interrupt-Driven I/O

I/O using DMA

1. You can think of a device driver as having 2 different goals:
   1. Device independence
   2. Device dependent processing

Explain what is meant by these.

1. Explain some of the things necessary for a ‘reconfigurable device driver’. Why is the beneficial to operating systems?
2. What is RAID? Describe the first 3 levels.