**A.**

**1. What is an interrupt?**

An interrupt is a signal from a device or program within the computer that causes the main process to stop and figure out what to do next.

**2. What is the interrupt vector?**

It is the memory location that contains the interrupt handler, it contains all the the interrupt handlers and what to do when the interrupt happen.

**B.**

2. Not a good idea. The memory bus is surely faster than the I/O bus.

3. Each bus transaction has a request and a response, each taking 100 nsec, or 200 nsec per bus transaction. This gives 5 million bus transactions/sec. If each one is good for 4 bytes, the bus has to handle 20 MB/sec.

7. No. Because the interrupt overhead costs a little percent of the CPU which will hardly affect the running program.

8. Device independence means that files and devices are accessed the same way, independent of their physical nature.

10.

(a) Device driver.

(b) Device driver.

(c) Device-independent software.

(d) User-level software.

11. Packet must be copied 4 times during this process, which takes 4.1 msec. There are two interrupts, which account for 2 msec, The transmission time is 0.83 msec, for a total of 6.93 msec per 1024 bytes. The maximum data rate is thus 147,763 bytes/sec, or about 12 percent of the nominal 10 megabit/sec network capacity.

13. During the 1-msec seek, 24 sectors pass under the head. The disk rotates at 120 rpm, so 1 rotation takes 1000/120 msec. With 200 sectors per rotation, the sector time is 1/200 of this number or 5/120 = 1/24 msec.

23. a read/write request is not serviced for almost two full disk scans in the elevator algorithm, while it is at most one full disk scan in the modified algorithm.