Questions: Tannenbaum & Bos 1.{17,22,24,25}

17. What is a trap instruction? Explain its use in operating systems.  
  
22. Can the  
count = write(fd, buffer, nbytes);  
call return any value in count other than nbytes? If so, why?

24. Suppose that a 10-MB file is stored on a disk on the same track (track 50) in consecutive  
sectors. The disk arm is currently situated over track number 100. How long will  
it take to retrieve this file from the disk? Assume that it takes about 1 ms to move the  
arm from one cylinder to the next and about 5 ms for the sector where the beginning of  
the file is stored to rotate under the head. Also, assume that reading occurs at a rate of  
200 MB/s.

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