1. Suppose that a 1.024-Mbyte file is stored on a disk drive with the following characteristics.

Rotational speed 10,000 RPM

Average seek time 5ms
No. of sectors/track 1000
Sector size 512 bytes

- a) Compute the average rotational latency;
- b) If we store this file sequentially on this disk (the file occupies adjacent tracks), estimate the total time to read the file:
- c) Suppose that this file is distributed randomly over the disk. Estimate the total time to read the file.
- 2. In many references, we could find an average seek time as roughly one-third of the full seek time (move the disk arm from the innermost track to the outermost track). Assuming that the seek time is a linear function of the number of tracks traversed, show the analysis on the average seek time.
- 3. Assume that a hard disk has 200 tracks (track 0-199).
- a) Fill out the following table by providing the track numbers the disk arm will travel with the following 4 scheduling policies, FIFO, SSTF, SCAN and C-SCAN. The sequence of track requests is 82, 170, 43, 140, 24, 16, 190. The disk head is currently at track 50 and is moving towards track 199.

FIFO				
SSTF				
SCAN				
C-SCAN				

b) Compute the average seek length of the 4 scheduling policies.