Operating Systems Design
Tutorial 07 - Device Management

Q1)   Explain the differences between: access time and seek time.

Q2)   A system has a disk with 200 tracks. The following I/O disk requests were
      received and are to be serviced:
           98, 183, 37, 122, 14, 124, 65, 67.

      The read and write head is located at track 53.

      Which of the following schedule algorithms gives best performance?

      FCFS, Shortest Seek Time First (SSTF), Scan, C-Scan, C-Look.

      Draw a diagram showing the head movement across the tracks for each
      algorithm.

Q3) What are the advantages and disadvantages of a large block size for disk
      storage systems?

Q4) What is the difference between a dedicated device, a shared device and a
      virtual device? Give an example of each device.

Q5) The following characteristics apply to a given disk pack with 10 platters
      (that is 18 recordable surfaces. Calculate the following:

Rotational Speed	10 ms
Transfer Rate	0.1 ms/track
Density per track	19,000 bytes
Number of records in file to be stored	200,000 records
Record size	160 bytes
Block size	10 logical records
Number of tracks per surface	500

   (i)   Number of blocks per track;
   (ii)   Waste per track;
   (iii)   Number of tracks to store the whole file;
   (iv)   Total waste to store the whole file.