Assignment V

1A. Explain different ways of handling bad blocks
1B. Suppose that a disk drive has 1000 cylinders, numbered 0 to 999. The drive is currently serving a request at cylinder 100, and the previous request was at cylinder 50. The queue of pending requests, in FIFO order, is: 75, 400, 200, 800, 900, 500, 25
Starting from the current head position, what is the total distancae (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms?
i. FCFS ii. SSTF iii. SCAN

2A. What is a race condition? Illustrate
2B. Give the definition of TestAndSet() and Swap() instructions. How they are used in implementing mutual-exclusion?

3A. Write the structure of a process that incorporates mutual-exclusion among n-processes with semaphores. Also write the relevant code for WAIT and SIGNAL primitives. What is the disadvantage of semaphore on implementation? What modification is suggested to overcome this problem?
3B. Give the structure of Reader process and writer process in Readers-Writers problem of process synchronization using semaphores. Highlight on your explanation why *wrt* semaphore is used only by the first or last reader that enters or exits the critical section.

4A Explain the concept of monitor with its syntax. Contrast the wait() and signal() operations with that to a semaphore.
4B. Provide a monitor which controls the allocation of a single resource among competing processes.

5A. What are various categories of virus? Explain the boot sector virus with a diagram
5B. What is worm? Explain Morris worm with the help of an example