**Assignment 1#**

1. Let the page fault service time be 10 ms in a computer with average memory access time being 20 ns. If one page fault is generated for every 106 memory accesses, what is the effective access time for the memory?
2. Consider the reference string is- 0, 1, 2, 3, 0, 1, 4, 0, 1, 2, 3, 4 . Let’s assume that frame size is 4. Then calculate the hit ratios using FIFO, LRU, and Optimal page replacement policies.
3. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 142, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is

86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130.

Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk scheduling algorithms?

1. FCFS
2. SSTF
3. SCAN
4. LOOK
5. C-SCAN
6. How files are managed in operating system? What are the uses of files management in operating system? What are the different operations performed by operating system in computer system?
7. Consider a machine with 64 MB physical memory and a 32 bit virtual address space. If the page size is 4 KB, what is the approximate size of the page table?
8. In a virtual memory system, size of virtual address is 32-bit, size of physical address is 30-bit, page size is 4 Kbyte and size of each page table entry is 32-bit. The main memory is byte addressable. Which one of the following is the maximum number of bits that can be used for storing protection and other information in each page table entry?