

SECTION B

2. What is the role of scheduler? Differentiate among short, medium and long term scheduler.
3. Find the number of page faults using First In First Out (FIFO) and Least Recently Used(LRU) page replacement algorithm for given series of page references if the size of frame is 4.
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
4. Discuss ways by which deadlock can be detected and explain an algorithm for detected deadlocks?
5. Explain the FCFS disk-scheduling algorithm. Find out number of head movements for FCFS for a queue from 0-199 and current head pointer is at 53.
98, 183, 37, 122, 14, 124, 65, 67
6. Explain the implementation of semaphores in attaining process synchronization.

SECTION C

7. What is File System and what are the various File access methods?
8. Consider the following set of processes, with the length of the CPU-burst time given in milliseconds :

Process	Burst Time	Arrival time
P ₁	5	0
P ₂	3	1
P ₃	1	2
P ₄	3	3
P ₅	5	4

The processes are assumed to have arrived in the order *P1, P2, P3, P4, and P5*.

- a. Draw two Gantt charts illustrating the execution of these processes using FCFS and a preemptive SJF (Shortest Job First).
- b. What is the turnaround time of each process for each of the scheduling algorithms in part a?
- c. What is the waiting time of each process for each of the scheduling algorithms in part a?
9. a) Describe the differences between symmetric and asymmetric multiprocessing. What are three advantages and one disadvantage of multiprocessor systems?
- b) Why is memory protection important in a multiprogramming system?