

Operating Systems

List of important questions

Unit – I

1. What is system call in OS? Explain in detail with its types.
2. Explain the overview of an Operating system with neat sketch. What the operating System do from user view and system view.
3. What is a System call? Explain in detail the system call sequence to copy the contents of one file to another file with neat sketch.
4. List the functionalities of an operating system and explain functionalities.
5. Illustrate the structure of an operating system designs with advantages and disadvantages.
6. List and explain the categories of special purpose systems.

Unit - II

1. a. Define Process. Explain various steps involved in change of a process state with process state neat transition diagram.
b. What are the components of process control block? Explain.
2. What is process scheduling? Explain Process scheduling mechanisms? (Scheduling Queues and Schedulers)
3. Explain the steps involved in process creation and process termination.
4. What is inter-process communication? What are the advantages of it? How communication takes place in IPC? Explain.
5. Compare and contrast thread and process. Discuss Multithreading Models with neat diagrams.
6. Demonstrate the following CPU scheduling algorithms with suitable example.
 - a. FCFS
 - b. SJF
 - c. Round Robin
 - d. Priority

Unit - III

1. State the Critical Section problem.
 - a. Illustrate the software based solution to the Critical Section problem.
 - b. Illustrate the hardware based solution to the Critical Section problem.
2. What is semaphore? Explain its implementation as wait and signal for providing process synchronization?
3. Explain in detail Readers and Writers Problem of Synchronization.
4. Explain the following memory Allocation techniques with advantages and disadvantages with example
 - i) Contiguous Memory Allocation
 - ii) Non-contiguous Memory Allocation

Unit - IV

1. Explain the concept of demand paging in detail with neat diagrams.

2. What is the need of page replacement? Explain the following page replacement algorithms with an example.
i) FIFO ii) LRU iii) LFU iv) OPTIMAL
3. What is Thrashing? What is the cause of Thrashing? How does the system detect Thrashing? How to eliminate this problem?
4. Explain necessary conditions for deadlock or the techniques used to prevent the deadlocks.
5. Explain Banker's deadlock-avoidance algorithm with an illustration.
6. Explain Deadlock Detection scheme for single and Several Instances of a resource Type.
7. Explain different techniques to recover the system from deadlock.

Unit - V

1. What is a file? Explain the file attributes, file operations and different file access methods in detail.
2. Explain different directory structures with an example.
3. Explain the three allocation methods in file system implementation. Illustrate with proper diagram and example.
4. Explain the following disk scheduling algorithms with suitable examples.
i) FCFS ii) SSTF iii) SCAN iv) LOOK v) C-SCAN vi) C-LOOK.