1. What is the role of the scheduler in an operating system, and how does it allocate resources to processes?
2. What is a semaphore, and how does it help in process synchronization?
3. Explain the difference between a preemptive and a non-preemptive scheduling algorithm.
4. What is a page fault, and how is it handled in an operating system?
5. Describe the concept of process synchronization and how it is achieved in an operating system.
6. What is a file descriptor, and how is it used in an operating system?
7. What is the role of the file allocation table in a file system, and how does it work?
8. Explain the difference between a user-level thread and a kernel-level thread.
9. What is virtualization, and how does it work in an operating system?
10. What is the purpose of a system call, and how is it used in an operating system?
11. What is an operating system, and what are its primary functions?
12. What is the difference between a process and a thread?
13. Explain the concept of virtual memory and how it works in an operating system.
14. What is a file system, and how does an operating system manage files?
15. Describe the difference between a monolithic kernel and a microkernel.
16. Explain the process of context switching in an operating system.
17. What is a deadlock, and how can it occur in an operating system?
18. Describe the role of a device driver in an operating system.
19. What is the purpose of an interrupt in an operating system?
20. Explain how an operating system manages memory and what techniques it uses to do so.
21. What is the purpose of a process control block, and what information does it contain?
22. Describe the concept of demand paging and how it is implemented in an operating system.
23. Explain the difference between a mutex and a semaphore, and when each one is used.
24. What is a file system journal, and how does it help in recovering from a system crash?
25. What is a kernel, and how does it interact with the operating system?
26. Describe the difference between a binary semaphore and a counting semaphore.
27. What is a race condition, and how can it occur in an operating system?
28. Explain the difference between a round-robin scheduling algorithm and a priority scheduling algorithm.
29. What is a pipe, and how is it used in inter-process communication?
30. Describe the concept of thrashing and how it can be avoided in an operating system.