

Computer Operating Systems

Problem#1

Define multitasking. Define and differentiate cooperative and preemptive multitasking. Explain why preemptive multitasking requires hardware support. Describe the kind of hardware support that is required. Outline the sequence of events that happen when one task (processes) is preempted and another process is executed.

Problem #2

Define process CPU-burst. Explain why a CPU burst size is important for process scheduling. It seems that the OS needs to know this size before executing the process to decide when to schedule the process. How would the OS determine the CPU-burst size in advance?

In the below listed scheduling disciplines, name the ones that use the CPU-burst and explain how it is used in each discipline.

- first come first served (FCFS),
- shortest job first (SJF),
- round-robin (SRT),
- shortest remaining time (SRT).

Problem#3

Define the problem of disk read/write head scheduling. Describe first-come first served (FCFS) and shortest seek time first (SSTF) scheduling techniques. Explain the problems with these techniques. Name and explain at least one technique that eliminates these problems.