

Computer Operating Systems

Problem#1

Define process. Explain what "process state" is. A process may be in one of the 5 states. Name and describe them. Describe transitions between these states. Explain what context switch is. Describe what state transition involves context switch and why.

Problem #2

Define page and frame in virtual memory. Explain the need for virtual memory. Explain how demand paging makes virtual memory transparent for application programmer. Explain how second chance (clock) page replacement algorithm operates, what page replacement policy it approximates and what its advantages are over other page replacement policies.

Problem#3

Define processor interrupts. Explain why they are needed. Describe and differentiate between polling-based and interrupt based input-output processing. Explain what device driver is. Explain why they are needed. Describe how the rest of the operating system interfaces with device drivers and how device drivers operate with device controllers.