CS 314-001 Operating Systems, Spring 2024
Quiz #4 on February 1, 2024

List of the Possible Questions

#1: What is “thrashing”? Technically explain how does “thrashing” occur?

#2: How does “FCFS” process scheduling algorithm work?

#3: How does “RR” process scheduling algorithm work?

#4: How does “SJF” process scheduling algorithm work?

#5: How does “SRTF” process scheduling algorithm work?

#6: What is “preemptive process scheduling”? 

#7: What is “non-preemptive process scheduling”? 

#8: What is “throughput” (in the context of process scheduling)?

#9: What is “response time” (in the context of process scheduling)?

#10: What is “turnaround time” (in the context of process scheduling)?

#11: What is “process starvation”? 

#12: Which process scheduling algorithms can cause “process starvation” (select all that apply)?

(1) FCFS 
(2) RR 
(3) SJF 
(4) SRTF 

#13: What is “race condition”?

#14: How can “race condition” happen? Show “how” using an example.

#15: What is “critical section”?

#16: What is “mutual exclusion”?
#17: What does “atomic” in “atomic operations” mean?

#18: What is “a binary (or mutex) semaphore”?

#19: What are the two primary system calls for manipulating a semaphore?

#20: Explain how a semaphore can prevent race condition.

#21: What are the two operations of a semaphore (just name them)?

#22: What “wait” system call to a semaphore exactly performs?

#23: What “signal” system call to a semaphore exactly performs?

#24: Why must the two system calls for semaphores (“wait” and “signal”) be atomic operations (explain the reason)?

#25: What are “counting semaphores” (how are “counting semaphores” different from “binary (mutex) semaphores”)?

#26: Who manages semaphores?

#27: Operating systems use “queue (FIFO data structure)” for managing processes blocked on a semaphore. Why is FIFO-queue used (the best reason for using FIFO structure)?