CS 314 Operating Systems, Spring 2022
Quiz #2 on February 1, 2022

List of the possible questions

#1: What do “sufficient conditions” guarantee?

#2: What do “necessary conditions” guarantee?

#3: If a sufficient condition is not satisfied, what conclusion can we draw?

#4: If a necessary condition is satisfied, what conclusion can we draw?

#5: What is “monolithic structure OS” (define the one)? Mention at least one primary advantage and disadvantage.

#6: What is “layered (or modularized) structure OS” (define the one)? Mention at least one primary advantage and disadvantage.

#7: Look up the meaning of the following word using your textbook: “OS kernel”.

#8: Many operating systems use “external commands”. What are they? What is the primary reason to adopt them? What is the primary difference between “external commands” and “micro-kernel architecture”?

#9: Describe how “micro-kernel architecture” and “non micro-kernel architecture” are different in how system calls issued by user applications will be executed.

#10: What are the advantages in using “micro-kernel architecture”? What is the primary disadvantage in “micro-kernel architecture”?

#11: What is “process scheduling”?

#12: What are the three different levels of “process scheduling” (just name the three)?

#13: What is “the long-term process scheduling”?

#14: What are the two major reasons the long-term scheduling rejects starting a new process?

#15: Technically explain how “multi-tasking” can improve the processor utilization.

#16: In the following sentence: “The long-term scheduler is the main component that controls ________ in multitasking operating systems”, fill out the blank by a word that best fits to the blank.
#17: What are the two states in “the long-term process scheduling”?

#18: What is “Blocked” state in “the long-term process scheduling”?

#19: What is “the short-term process scheduling”?

#20: What are the three states in “the short-term process scheduling”?

#21: What is “Ready” state in “the short-term process scheduling”?

#22: What is “Running” state in “the short-term process scheduling”?

#23: What is “Blocked” state in “the short-term process scheduling”?

#24: What is “the medium-term process scheduling”?

#25: Show a sketch of the integration of the short-term, medium-term, and long-term process scheduling as a directed state-transition diagram.

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

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

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

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

#30: What is “preemptive process scheduling”?

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

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

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

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