CS 314-001 Operating Systems, Spring 2019
Quiz #2 on January 31, 2019

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: Look up the meaning of the following word using your textbook: “degree of multitasking”.

#6: What is “process”?

#7: Describe how processes differ from programs by mentioning at least three differences between them.

#8: What does “PCB” stand for? Why do operating systems need PCB?

#9: Mention at least five different information contained in a PCB (you do not have to describe them).

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

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

#12: What is “Virtual Machine” (define the concept)?

#13: What is the primary motivation(s) to use VM’s?

#14: Sketch how VM is implemented in memory.

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

#16: 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”?

#17: Describe how “micro-kernel architecture” and “non micro-kernel architecture” are different in how system calls issued by user applications will be executed.
#18: What are the advantages in using “micro-kernel architecture”? What is the primary disadvantage in “micro-kernel architecture”?

#19: What is “process scheduling”?

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

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

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

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

#24: 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.

#25: What are the two states in “the long-term process scheduling”?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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