List of the Possible Questions

#1: What are the two modes of processors?

#2: How do operating systems make sure that user programs can never use the hardware resources by bypassing the operating systems?

#3: What is “process”?

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

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

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

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

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

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

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

#11: Sketch how VM is implemented in memory.

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

#13: 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”?

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

#15: What are the advantages in using “micro-kernel architecture”? What is the primary disadvantage in “micro-kernel architecture”?
#16: What is “process scheduling”?

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

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

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

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

#21: 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.

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

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

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

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

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

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

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

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

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