#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 are the two primary roles of operating systems?

#6: What are the typical three structural layers in a computer system?

#7: What is “extended machine”? This question does not ask how we can use extended machine. A definition of “extended machine” is needed.

#8: What does “high level commands” mean (in computer science in general)? What does “low level commands” mean?

#9: What are “multi-tasking systems”?

#10: What is “context switching”?

#11: What was the primary disadvantage and advantage in “Pre Operating System (no OS)”?
    Mention at least (primary) one for each of the primary disadvantage and advantage.

#12: What is “batch system”? Show how a computer host with a typical batch is organized.

#13: Briefly describe what problem in “pre operating system” a batch system fixes and how.

#14: What are the two primary problems in batch system?

#15: What problem in “batch system” do “multi-programming (multitasking) OSes” fix and how?

#16: What problem in “multi-programming (multitasking) OSes” do “multitasking timesharing OSes” fix and how?

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

#18: What is “process”?

#19: Describe how processes differ from programs by mentioning at least three differences between them.
#20: What does “PCB” stand for? Why do operating systems need PCB?

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

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

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

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

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

#26: Sketch how VM is implemented in memory.

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

#28: 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”?

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

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