CS 314 Operating Systems
Spring 2022
Quiz #1 on January 25, 2022

Your Last Three Digits: ________________
(please do NOT write all of your student ID or your name)

Grade: ______

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(1) What are the two primary roles of operating systems?

- Operating systems as middlemen between high-level commands (human users or user applications) or operating systems as extended machines (+5 points)

- Operating systems as government for system resources in a computer systems or operating systems as resource managers (+5 points)

(2) What are “multi-tasking systems”?

Multitasking systems are computer systems where a processor will be switched to one of multiple programs at a time by executing them in a short time, so that they look like being executed at the same time while they are always executed one at a time.

Note: the underlined concepts should be emphasized, mentioned, or implied for full credit.

(3) What is “extended machine”? This question does not ask how we can use extended machine. A definition of “extended machine” is needed.

An imaginary computer (as a hardware computer) that can be manipulated directly by high-level user commands by abstraction offered by an operating system.

Note: the underlined concepts should be emphasized, mentioned, or implied for full credit.
(4) What problem in “batch system” do “multi-programming (multitasking) OSes” fix and how?

The problem multitasking OSes fix is “low processor utilization”.

*: Since batch systems execute one program at a time, its processor utilization is usually low (as we discussed in the classroom).

Note: “the capability to fix bugs after a program crashes by a software bus” is not the problem “multitasking OS” fixes. It is the problem “timesharing systems (timesharing multitasking OSes) fix.

(5) What does “degree of multitasking” mean?

The term, “degree of multitasking” means the number of programs (processes) a multitasking OS loads to the main memory at a time.