

CS 286-001 Computer Architecture & Organization
Fall 2026

Quiz #3 on September 9, 2026 (**SUGGESTED SOLUTIONS**)

Your Last Three Digits: _____

(please do NOT write all of your student ID or your name)

Grade: _____

(1) What is “Moore’s Law” (a specific definition of “Moore’s Law” is needed)?

Moore’s Law states that the capacity/number of components in a hardware component (e.g. the capacity of memory, the capacity of a hard drive unit, the number of the transistors in a processor) doubles in 18 months.

(2) What is “Von-Neumann Architecture”? (Your HW – our textbook or some search engines in the Internet)

Von-Neumann Architecture is the base model of (virtually) all computer systems today in the following way:

- Program codes and data are stored in the same hardware component, called “memory”.
- The processing unit grabs one program code from the memory and executes it one at a time using data stored in the memory.

(3) What is the primary advantage in using “labels”?

The primary advantage in using labels is that human assembly programmers do not have to calculate and remember/memorize the memory address for each data and instructions to be executed.

(4) How are registers in processors used when a binary executable program is executed?

Registers are the temporary/short-time space to hold data in a processor. ALU grabs the necessary data for the instruction it executes and puts the result of the instruction to a register.

(5) What does “()” for the second argument for “lw” instruction means?

The “()” means “memory address of” pointed by the (hard-coded memory address or a register inside of ()).