

Assignment 7

1. (Multiple choice) Which of the following statements is/are true? [2 points]

- A. The von Neumann architecture is invented by von Neumann.
- B. The von Neumann architecture built upon the stored-program concept.
- C. Program-control, Data storage, Changeable program are necessary for computers
- D. EDVAC is the first electronic general-purpose computer
- E. ENSAC is the first computer with an internally stored program

2. List the components of the von Neumann architecture. [1 points]

3. In a 64-bit computer, the address of memory unit is encoded by a 64-bit binary number. If each cell of main memory contains 1 byte, how much addressable space of main memory a 64-bit can computer support? [2 points]

4. Show the inclusion relationship between the following components with Venn diagram. [2 points]

ALU CPU Control unit Instruction register Program counter

5. List the kinds of data that bus can carry. [1 points]

6. (Multiple choice) Which of the following statements is/are true? [2 points]

- A. Every machine cycle includes the following steps:
fetch instruction, decode instruction, get data, execute instruction
- B. The program counter contains the address of the instruction and
the instruction register contain the content of the instruction.

- C. Both program counter and instruction register are special-purpose register.
- D. For the same complex operations, the machine language program based on CISC architecture normally tends to be shorter than RISC architecture.
- E. Machine instructions can be categorized into following groups:
load and store group, arithmetic/logic group, control group.