Computer Architecture

Tutorial - 08

Answer all questions.

01. Consider a computer that is used for simple numerical problems. It uses 9 bits for an opcode, and 25 bits for a memory address.

    a. What is the size of its instruction? _____ bits

    b. How many different instructions can it have? _____

    c. What is the maximum memory size that it can address? _____ (Hint: Assume that 2^{20} is about 1M).

02. Given a CPU with a 8-bit word, 8 registers, and instructions that are exactly 1 word long and which has 2 operands:
    a. How long can the opcode field be in an instruction?
    b. How many instructions can the CPU support?