

SAD

WEB

Tutorial 09

(1) What is meant by an instruction?

A single command or operation that the computer's CPU can execute.

(2) Instruction Set Architecture (ISA), is the part of the computer architecture related to?

Instruction Set Architecture (ISA) is indeed a crucial part of computer architecture. It refers to the set of instructions that a computer's central processing unit (CPU) can execute.

(3) Instruction format contains of two main parts. What are they?

Opcode

Memory address

(4) Where are instructions stored?

An instruction, stored in the memory, is fetched into the control unit by supplying the memory with the address of the instruction.

(5) How are instructions stored?

Instructions are stored as binary digits. Instructions stored together in the RAM. Instructions are fetched from memory one at a time and in order - serially.

(6) An instruction differs from another instruction by 3 main factors?

What are they?

Opcode length

Number of operands

Operand length

(7) A computer that is used for simple numerical problems, uses 6 bits for an opcode, and 12 bits for a memory address. What is the size of its instruction?

$$6 + 12 \text{ bits} = 18 \text{ bits}$$

(8) A computer that is used for simple numerical problems, uses 6 bits for an opcode, and 12 bits for a memory address. How many different instructions can it have?

$$2^6 = 64$$

(9) Memory address of the instruction format contains of two parts. What are they?

Source operand

Result operand