

Addressing Modes of Microprocessor – 8085

To perform any operation using microprocessor we have to give the corresponding instruction, for executing this instruction microprocessor will need 8/16 bit data. Therefore the method by which we have to give the address of source of data is known as the addressing mode of Source.

After the execution of instruction, microprocessor will obtain the result. For storing this result we have to give the address of destination of result. Therefore the method by which we have to give the address of destination of result is known as the addressing mode of Destination.

➤ TYPES OF ADDRESSING MODES

➤ There are 5 types of addressing modes -

➤ Immediate Addressing Mode (IAM)

➤ Direct Addressing Mode (DAM)

➤ Register Direct Addressing Mode (RDAM)

➤ Register Indirect Addressing Mode (RIAM)

➤ Implicit Addressing Mode (IPAM)

Immediate Addressing Mode

- ▶ If 8/16 bit data required for executing the instruction is directly given along with instruction then such type of instructions are called Immediate Addressing Mode instructions. In most of the Immediate Addressing Mode Instruction, the last alphabet is 'I'.

- ▶ For Example:

MVI A,75H (for 8- bit number)

LXI B,4565H (for 16- bit number)

Direct Addressing Mode

- ▶ If 8/16 bit data required for executing the instruction is present in memory location and the address of that memory location is given along with instruction then such type of instructions are called Direct Addressing Mode instruction.

- ▶ For Example:

LDA 1575H

Load accumulator from the given address data

STA 4565H

Store accumulator at given address

Register Direct Addressing Mode

- ▶ If 8/16 bit data required for executing the instruction present in register(for 8-bit)/ register pair(for 16-bit) and the name of the register / register pair is given along with instruction then such type of instructions are called Register Direct Addressing Mode instruction.

➤ For Example –

MOV C, D

Move data from register D to Register C

Register Indirect Addressing Mode

➤ If 8/16 bit data required for executing the instruction present in memory location and the address of that memory location is present in register pair and the name of that register pair is given along with instruction then such type of instructions are called Register Indirect Addressing mode instruction .

➤ For Example :

LDAX B

Load accumulator from the register pair address data.

STAX D

Store accumulator at given register address.

Implicit Addressing Mode

- If the address of source of data as well as the destination of result is fixed, then there is no need to give the operand in the instruction and such type of instructions are known as Implicit Addressing Mode instruction.

➤ For Example:

CMA complement accumulator

CMC complement Carry Flag

STC Set Carry Flag

RAL Rotate Accumulator Left with Carry

RLC Rotate Accumulator Left without Carry