ADDRESSING MODES

HETA J DESAI
SDJ
INTERNATIONAL COLLEGE

Addressing Modes

- To perform any operation, we have to give the corresponding instructions to the microprocessor.
- In each instruction, programmer has to specify 3 things:
  - Operation to be performed.
  - Address of source of data.
  - Address of destination of result.

- OP CODE – The first part of instruction which specifies task to be performed is called op-code
- Operand – The second part of instruction is the data to be operated on is called operands.
- First byte is op code rest are operands.

Addressing Modes of 8085

- The method by which the address of source of data or the address of destination of result is given in the instruction is called **Addressing Modes.**
- Addressing modes are various technique to specify data for instructions.

Types of Addressing Modes

1. Direct Addressing Mode
2. Register Addressing Mode
3. Register Indirect Addressing Mode
4. Immediate Addressing Mode
5. Implicit Addressing Mode

Direct Addressing Mode

- In this mode, the address of the operand is given in the instruction itself.[Memory address is directly given]

STA 2500 H	Store content of accumulator in the memory location 2400H.

- STA is the operation.
- 2500 H is memory address where data is to be stored
- It is to be understood that source of data is accumulator
- Accumulator is a register for short-term, intermediate storage of arithmetic and logic data in a computer's CPU (central processing unit).

Register Addressing Mode

- In this mode, the operand is in general purpose register.

MOV A, B	Move the contents of register B to A.

- MOV is the operation.
- B is the source of data.
- A is the destination.

Register Indirect Addressing Mode

- **In this mode, the address of operand is specified by a register pair.**
  L11 H,2500 H – LOAD H-L PAIR WITH 2500 H.
  now next instruction after this is register indirect addressing technique.

MOV A, M	Move data from memory location whose address in H-L pair to accumulator accumulator.

- MOV is the operation.
- M is the memory location specified by H-L register pair.
- A is the destination.
- The address of memory is not directly given in to instruction. The address resides in H-L pair. And this has already been given in earlier instruction.

Immediate Addressing Mode

- In this mode, the operand is specified within the instruction itself.

MVI A, 05	Move 05 in register A.

- MVI is the operation.
- 05 is the immediate data (source).
- A is the destination.

Implicit Addressing Mode

- If address of source of data as well as address of destination of result is fixed, then there is no need to give any operand along with the instruction.

RAL Rotate the content of the accumulator left by one bit.

- RAL is the operation.
- A is the source.
- A is the destination.