SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Coimbatore-35

DEPARTMENT OF BIOMEDICAL ENGINEERING

19BMB303 & Fundamentals of Microprocessors and Microcontrollers

UNIT I - INTRODUCTION TO MICROPROCESSORS

III Year/ VI Sem

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ASP / BME / SNSCT

INTRODUCTION TO MICROPROCESSORS

- ✓ 8085 Architecture
- ✓ Instruction set
- ✓ Addressing modes
- ✓ Interrupts, Timing diagrams
- ✓ Memory and I/O interfacing
- ✓ 8086 Architecture
- ✓ Instruction set
- ✓ Programming
- ✓ Minimum and Maximum mode configurations

8085 - Addressing Mode

- **Immediate Addressing Mode**

- In immediate addressing mode the source operand is always data. If the data is 8-bit, then the instruction will be of 2 bytes, if the data is of 16-bit then the instruction will be of 3 bytes.

- **Examples**
  MVI B 45 (move the data 45H immediately to register B)
  LXI H 3050 (load the H-L pair with the operand 3050H immediately)
  JMP address (jump to the operand address immediately)

8085 - Addressing Mode

- **Register Addressing Mode**

- In Register Addressing Mode, the data to be operated is available inside the register(s) and register(s) is(are) operands. Therefore the operation is performed within various registers of the microprocessor.

- **Examples:**
  MOV A, B (move the contents of register B to register A)
  ADD B (add contents of registers A and B and store the result in register A)
  INR A (increment the contents of register A by one)

8085 - Addressing Mode

- **Direct Addressing Mode**

- In direct addressing mode, the data to be operated is available inside a memory location and that memory location is directly specified as an operand. The operand is directly available in the instruction itself.

- **Examples:**
  LDA 2050 (load the contents of memory location into accumulator A)
  LHLD address (load contents of 16-bit memory location into H-L register pair)
  IN 35 (read the data from port whose address is 35)

8085 - Addressing Mode

- **Register Indirect Addressing Mode**
- In register indirect addressing mode, the data to be operated is available inside a memory location and that memory location is indirectly specified by a register pair.
- **Examples:**
  MOV A, M (move the contents of the memory location pointed by the H-L pair to the accumulator)
  LDAX B (move contents of B-C register to the accumulator)
  STAX B (store accumulator contents in memory pointed by register pair B-C)

8085 - Addressing Mode

- **Implied/Implicit Addressing Mode**
- In implied/implicit addressing mode the operand is hidden and the data to be operated is available in the instruction itself.
- **Examples:**
  CMA (finds and stores the 1's complement of the contents of accumulator A in A)
  RRC (rotate accumulator A right by one bit)
  RLC (rotate accumulator A left by one bit)