SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution
Coimbatore-35

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

MICROPROCESSORS AND MICROCONTROLLERS

II YEAR/ IV SEMESTER

UNIT 1 – 8085 AND 8086 ARCHITECTURE

TOPIC – Instruction set of 8085

Instruction set of 8085

Arithmetic Instructions

Opcode	Operand	Description
ADD	R M	Add register or memory to accumulator

- The contents of register or memory are added to the contents of accumulator.

- The result is stored in accumulator.

- If the operand is memory location, its address is specified by H-L pa

- All flags are modified to reflect the result of the addition.

- **Example:** ADD B or ADD M

Arithmetic Instructions

Opcode	Operand	Description
ADC	R M	Add register or memory to accumulator with carry

- The contents of register or memory and Carry Flag (CY) are added to the contents of accumulator.

- The result is stored in accumulator.

- If the operand is memory location, its address is specified by H-L pair.

- All flags are modified to reflect the result of the addition.

- **Example:** ADC B or ADC M

Arithmetic Instructions

Opcode	Operand	Description
ADI	8-bit data	Add immediate to accumulator

- The 8-bit data is added to the contents of accumulator.

- The result is stored in accumulator.

- All flags are modified to reflect the result of the addition.

- **Example:** ADI 45 H

Arithmetic Instructions

Opcode	Operand	Description
DAD	Reg. pair	Add register pair to H-L pair

- The 16-bit contents of the register pair are added to the contents of H-L pair.

- The result is stored in H-L pair.

- If the result is larger than 16 bits, then CY is set.

- No other flags are changed.

- **Example:** DAD B

Arithmetic Instructions

Opcode	Operand	Description
INR	R M	Increment register or memory by 1

- The contents of register or memory location are incremented by 1.

- The result is stored in the same place.

- If the operand is a memory location, its address is specified by the contents of H-L pair.

- **Example:** INR B or INR M

Arithmetic Instructions

Opcode	Operand	Description
DCX	R	Decrement register pair by 1

- The contents of register pair are decremented by 1.

- The result is stored in the same place.

- **Example:** DCX H

Logical Instructions

- These instructions perform logical operations on data stored in registers, memory and status flags.

- The logical operations are:
  - AND
  - OR
  - XOR
  - Rotate
  - Compare
  - Complement

AND, OR, XOR

- Any 8-bit data, or the contents of register, or memory location can logically have

  - AND operation

  - OR operation

  - XOR operation

  with the contents of accumulator.

- The result is stored in accumulator.

Opcode	Operand	Description
RAL	None	Rotate accumulator left through carry

- Each binary bit of the accumulator is rotated left by one position through the Carry flag.

- Bit D_7 is placed in the Carry flag, and the Carry flag is placed in the least significant position Do.

- CY is modified according to bit D_7.

- S, Z, P, AC are not affected.

- **Example:** RAL.

Logical Instructions

Opcode	Operand	Description
CMA	None	Complement accumulator

- The contents of the accumulator are complemented.

- No flags are affected.

- **Example:** CMA.

THANK YOU