

(6) Data Transfer Instructions

- **STAX Register Pair**
- Store the contents of accumulator (A) into the memory location whose address is specified by BC Or DE register pair.
- Example: STAX B

BEFORE EXECUTION

D	20	E	40
H	70	L	80

XCHG

AFTER EXECUTION

D	70	E	80
H	20	L	40

$L=SP$

$H=(SP+1)$

BEFORE EXECUTION

SP	2700		
H	30	L	40

2700H

50

2701H

60

2702H

XTHL

AFTER EXECUTION

SP	2700		
H	60	L	50

2700H

40

2701H

30

2702H

(11) Data Transfer Instructions

- **PCHL**

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- Load program counter with H-L contents
- The contents of registers H and L are copied into the program counter (PC).
- The contents of H are placed as the high-order byte and the contents of L as the low-order byte.
- **Example: PCHL**

(3) Arithmetic Instructions

• ADI 8-bit data

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- The 8-bit data is added to the contents of accumulator.
- The result is stored in accumulator.
- Example: ADI 10 H

BEFORE EXECUTION

A	50		
B	30	C	
D		E	
H		L	

SUB B
A=A-R

AFTER EXECUTION

A	20		
B	30	C	
D		E	
H		L	

BEFORE EXECUTION

A	50		
H	10	L	20

1020H

	10
--	----

SUB M
A=A-M

AFTER EXECUTION

A	40		
H	10	L	20

1020H

	10
--	----

(2) Logical Instructions

- ANI 8-bit data

- AND 8-bit data with accumulator (A).
- Store the result in accumulator (A)
- Example: ANI 3FH

BEFORE EXECUTION

AFTER EXECUTION

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1011 0011=B3H

0011 1111=3FH

0011 0011=33H

CY		AC	
----	--	----	--

ANI 3FH

CY	0	AC	1
----	---	----	---

A	B3
---	----

A=A and DATA(8)

A	33
---	----

BEFORE EXECUTION

0101 0101=55H

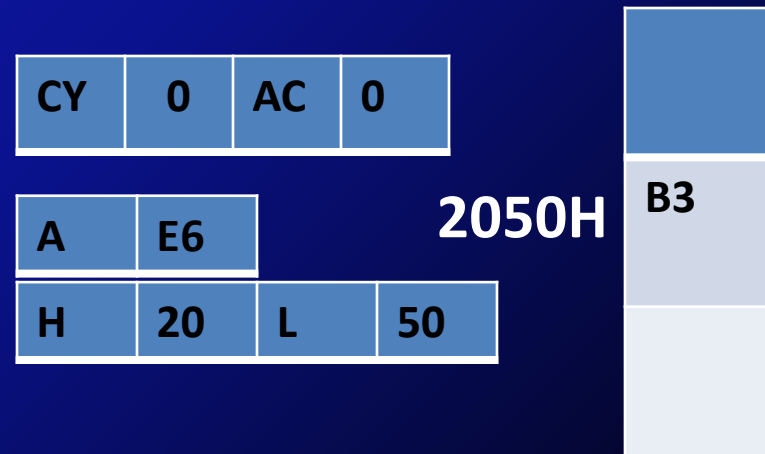
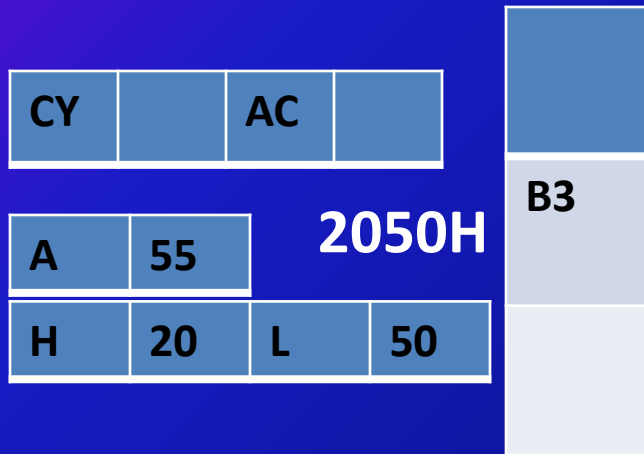
1011 0011=B3H

1110 0110=E6H

AFTER EXECUTION

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XRA M
A=A xor M



(5) Logical Instructions

• XRI 8-bit data

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- XOR 8-bit immediate data with accumulator (A).
- Store the result in accumulator.
- Example: XRI 39H

(15) Logical Instructions

- **RRC**

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- Rotate accumulator right
- Each binary bit of the accumulator is rotated right by one position.
- Bit D0 is placed in the position of D7 as well as in the Carry flag.
- CY is modified according to bit D0.
- Example: RRC.

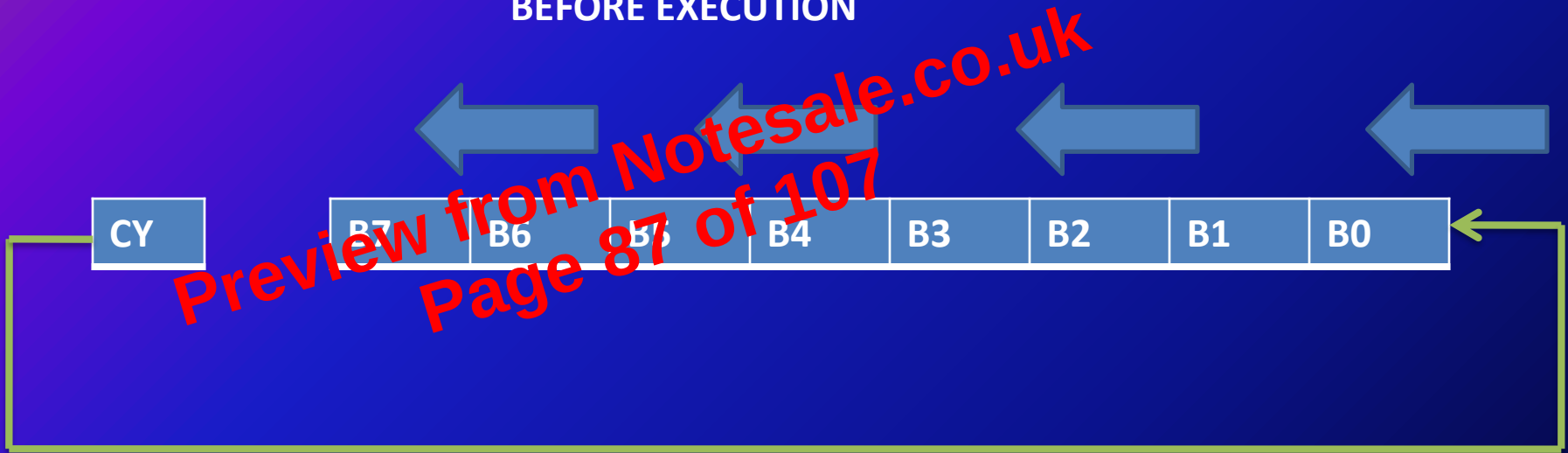
BEFORE EXECUTION



AFTER EXECUTION



BEFORE EXECUTION



AFTER EXECUTION



Branching Instructions

- The branch group instructions allows the microprocessor to change the sequence of program either conditionally or under certain test conditions. The group includes,
 - (1) Jump instructions,
 - (2) Call and Return instructions,
 - (3) Restart instructions,

(3) Branching Instructions

- **RET**

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- Return from the subroutine unconditionally.
- This instruction takes return address from the stack and loads the program counter with this address.
- Example: RET

Vector Address For Return

Instructions

Instruction Code	Vector Address
RST 0	0*8=0000H
RST 1	0*8=0008H
RST 2	0*8=0010H
RST 3	0*8=0018H
RST 4	0*8=0020H
RST 5	0*8=0028H
RST 6	0*8=0030H
Rst 7	0*8=0038H

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**”Tech_Guru Swapnil
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(Thanks For Watching)