

ASSIGNMENT 1

Q1. Draw the timing diagram of LDA 2050 H.

Solⁿ- LDA 2050 H

NEX CODE: 3A

This is a 3 byte instruction.

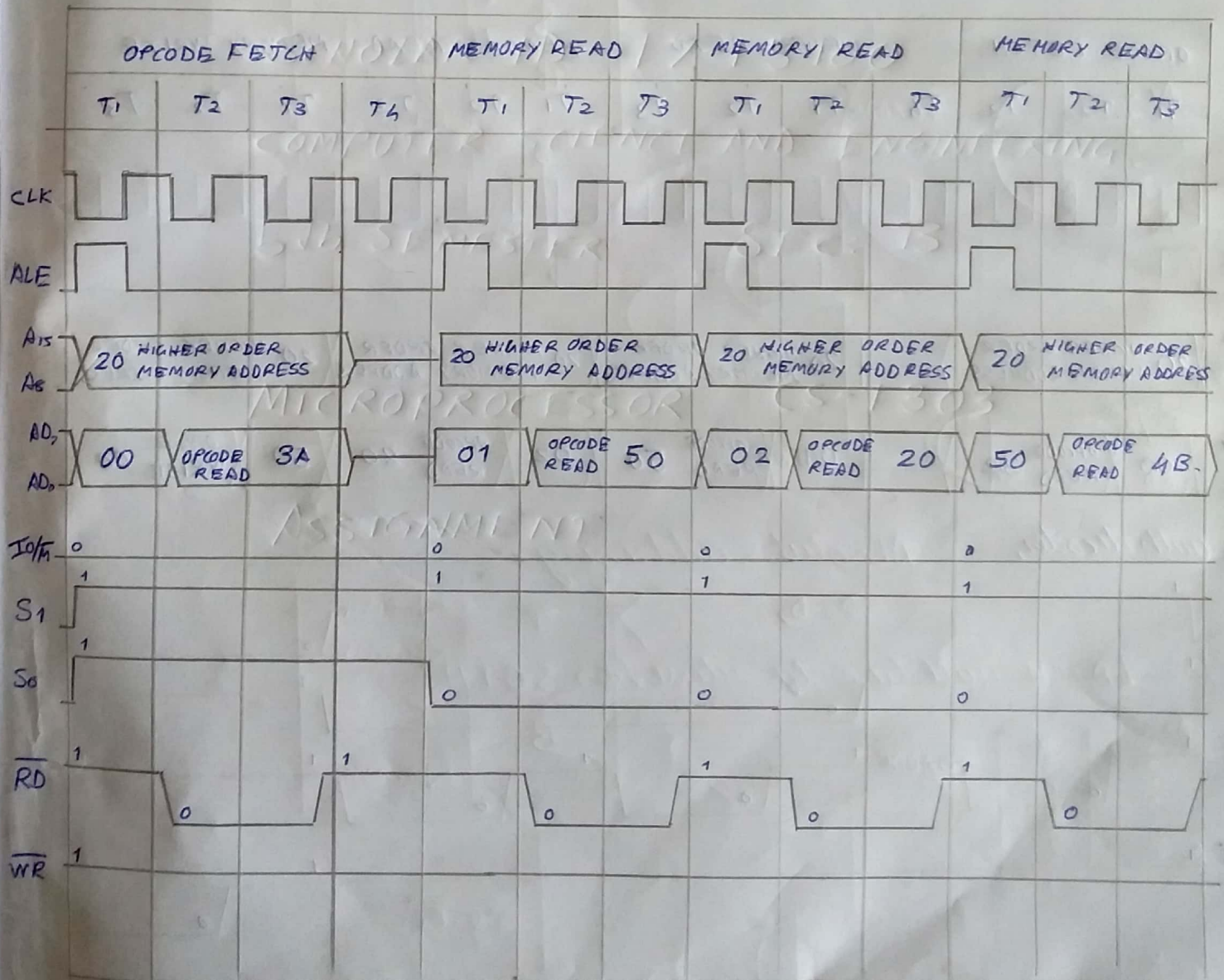
Let data stored in 2050 H

it requires 4 machine cycles

be "4B"

- Opcode fetch
- Memory read
- Memory read
- Memory read.

Thus there are 13-T states that are required.



Q2. Draw the timing diagram of STA 2050H.

Solⁿ- STA 2050H.

This is a 3 byte instruction.

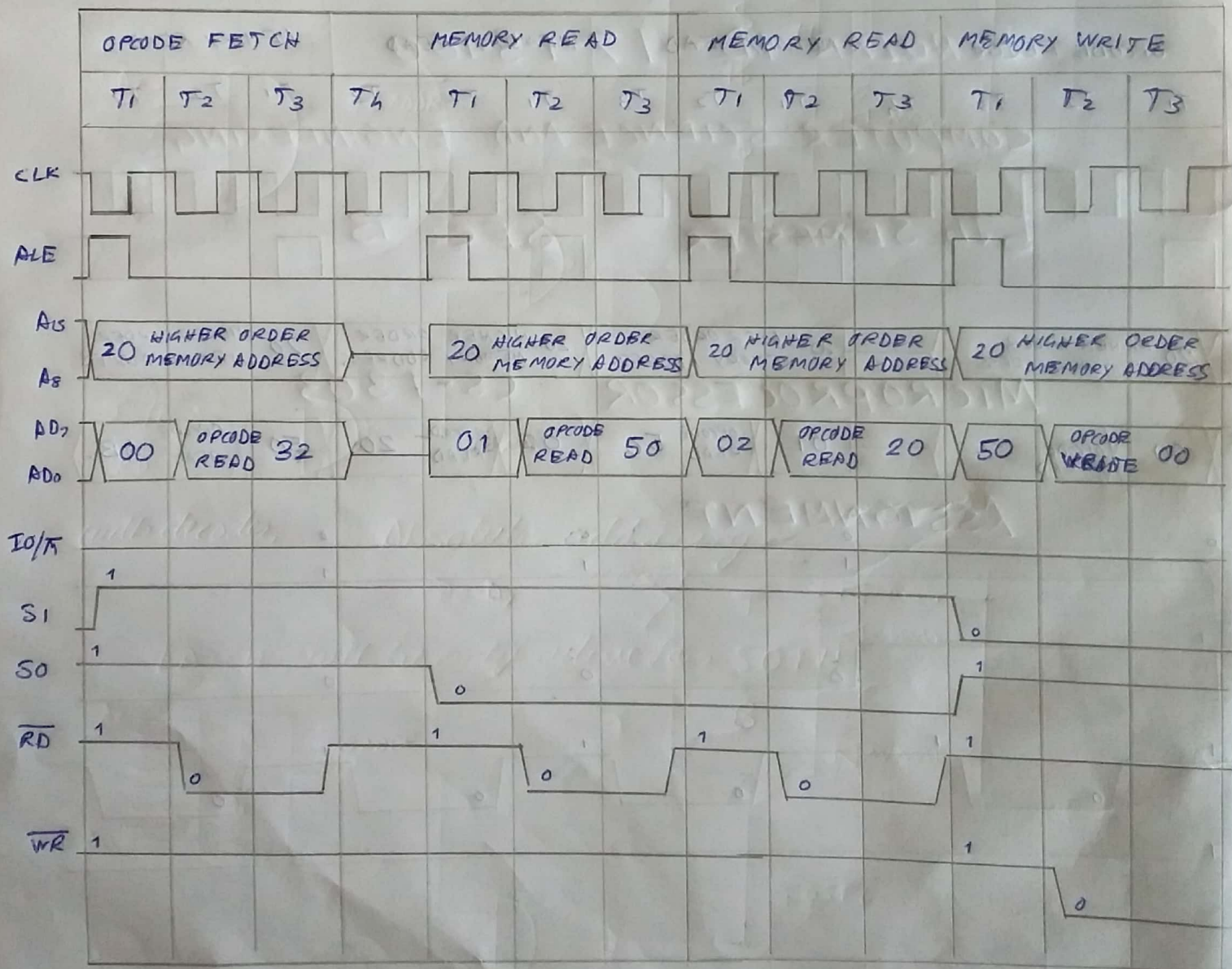
It requires 4 machine cycles.

- Opcode fetch
- Memory read
- Memory read
- Memory write.

Thus we require 13-T states.

Hex code for STA \rightarrow 82 H.

Let the data stored in accumulator be \rightarrow 00 H.



Q3. Explain the meaning of Peripheral Mapped I/O and Memory mapped I/O.

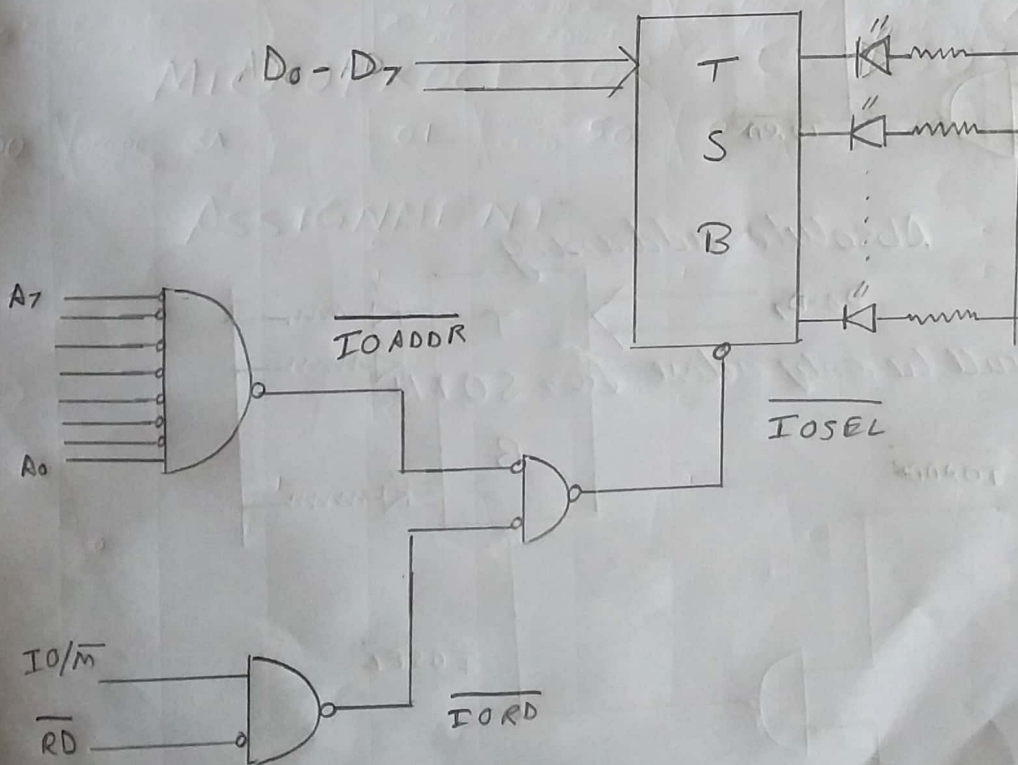
Solⁿ Peripheral Mapped I/O - I/Os with 8-bit addresses.

- In this type of I/O, the MPU uses 8 address lines to identify an input or an output device.
- This is an 8 bit numbering system for peripherals used in conjunction with input and output instructions.

Memory mapped I/O - I/Os with 16-bit addresses.

- In this type of I/O, the MPU uses 16 address lines to identify an I/O device.
- An I/O is connected as if it is a memory register.
- The MPU uses the same control signals and instructions as those of memory.

Q4. Draw interface diagram of input device for IN 01H.



Q5. Draw interface diagram for input and output devices for given instructions.

IN 04H

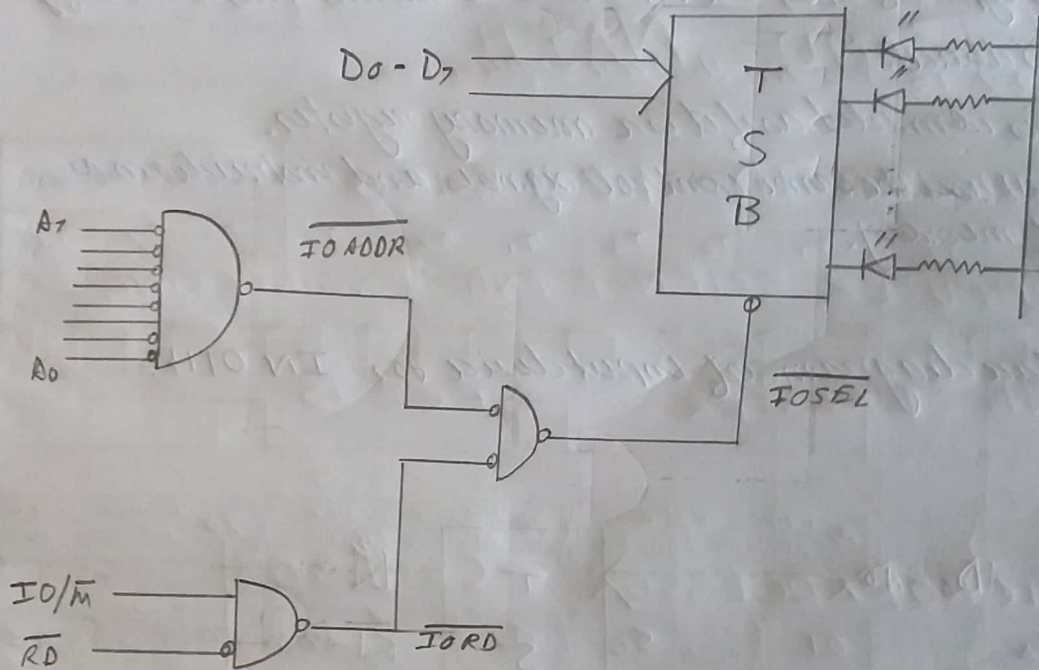
OUT 03H

Use 74LS143 (decoder) as well as without it.

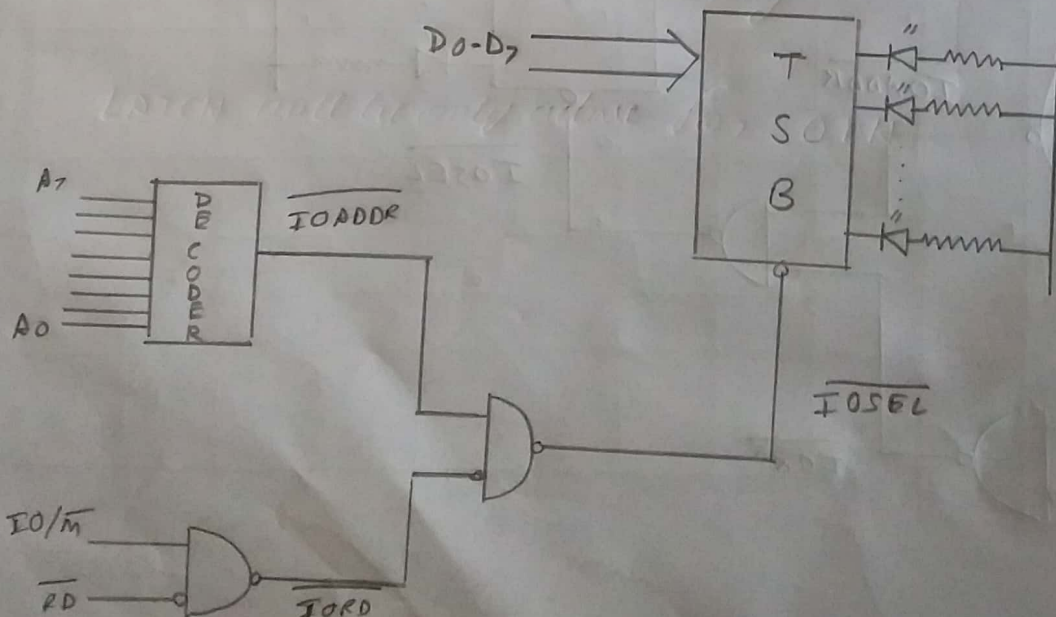
Solⁿ

IN 04H

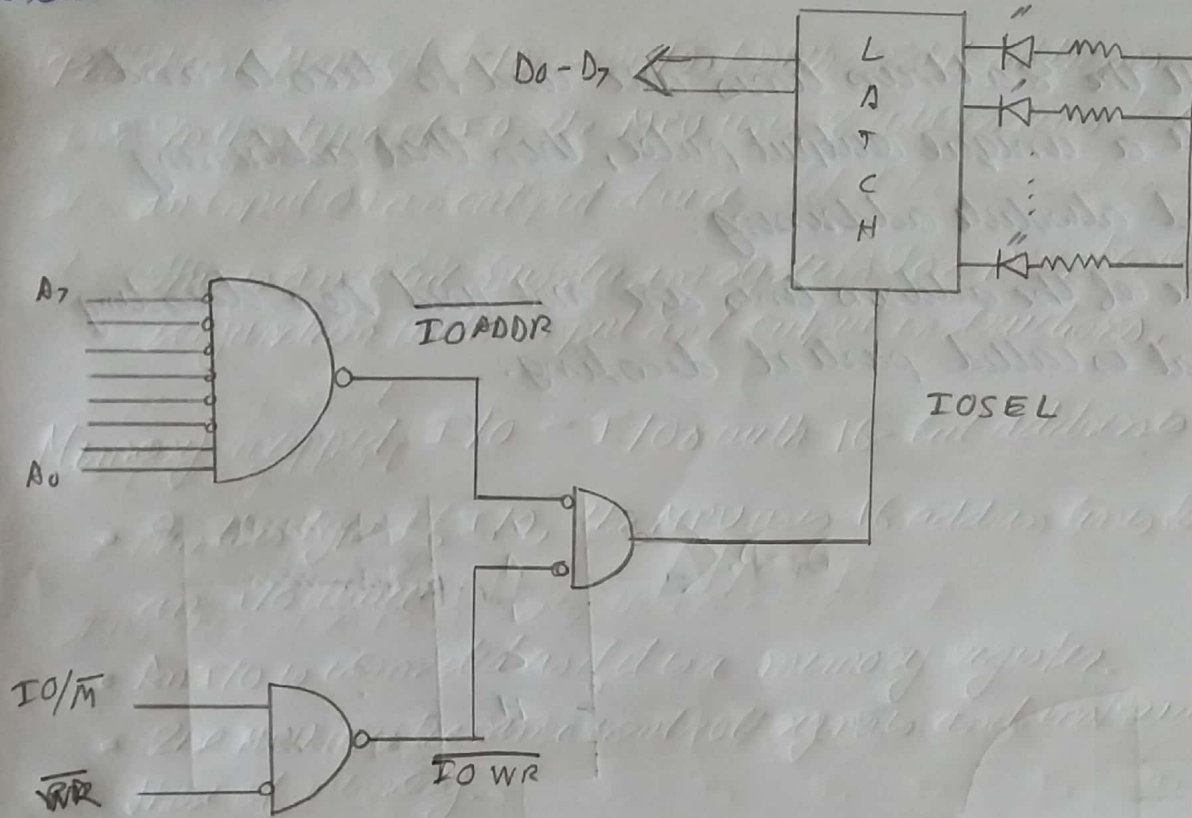
without decoder,



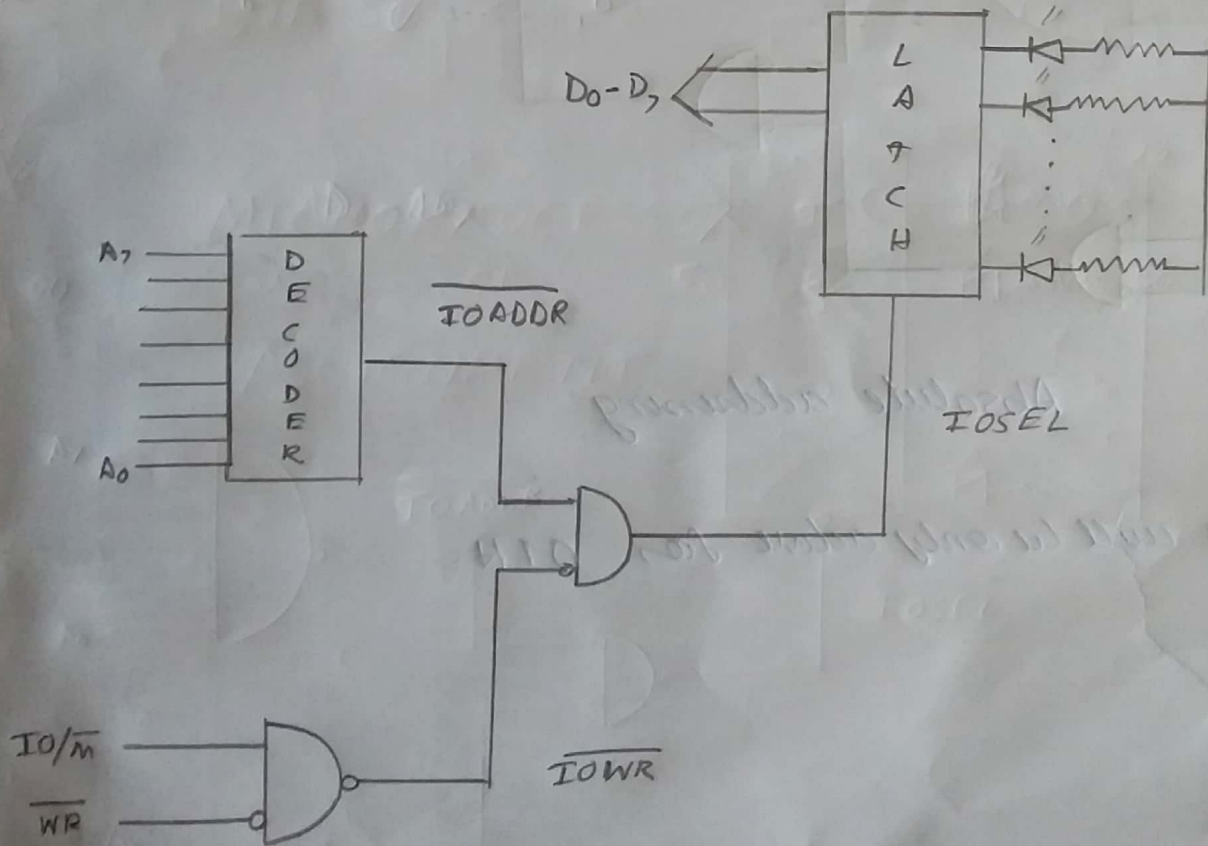
with decoder,



OUT 03H
without decoder,



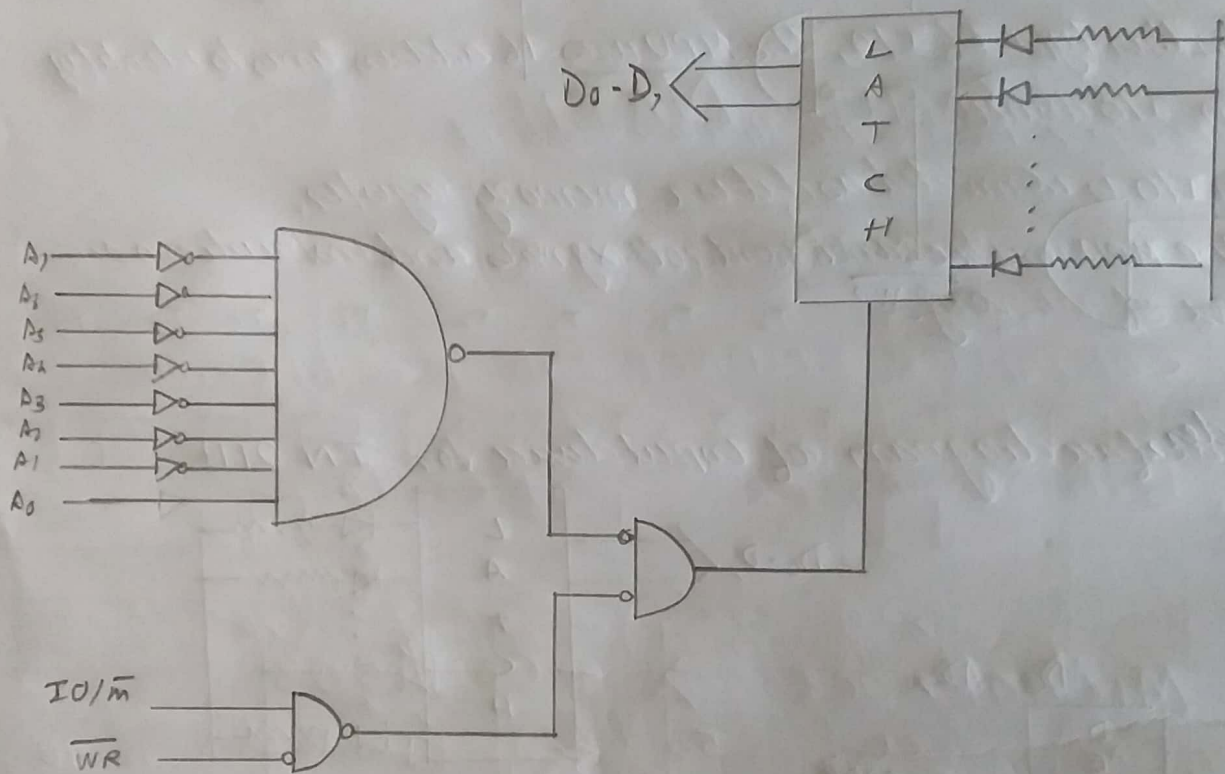
with decoder,



Q6. Explain partial addressing interface and full addressing interface.

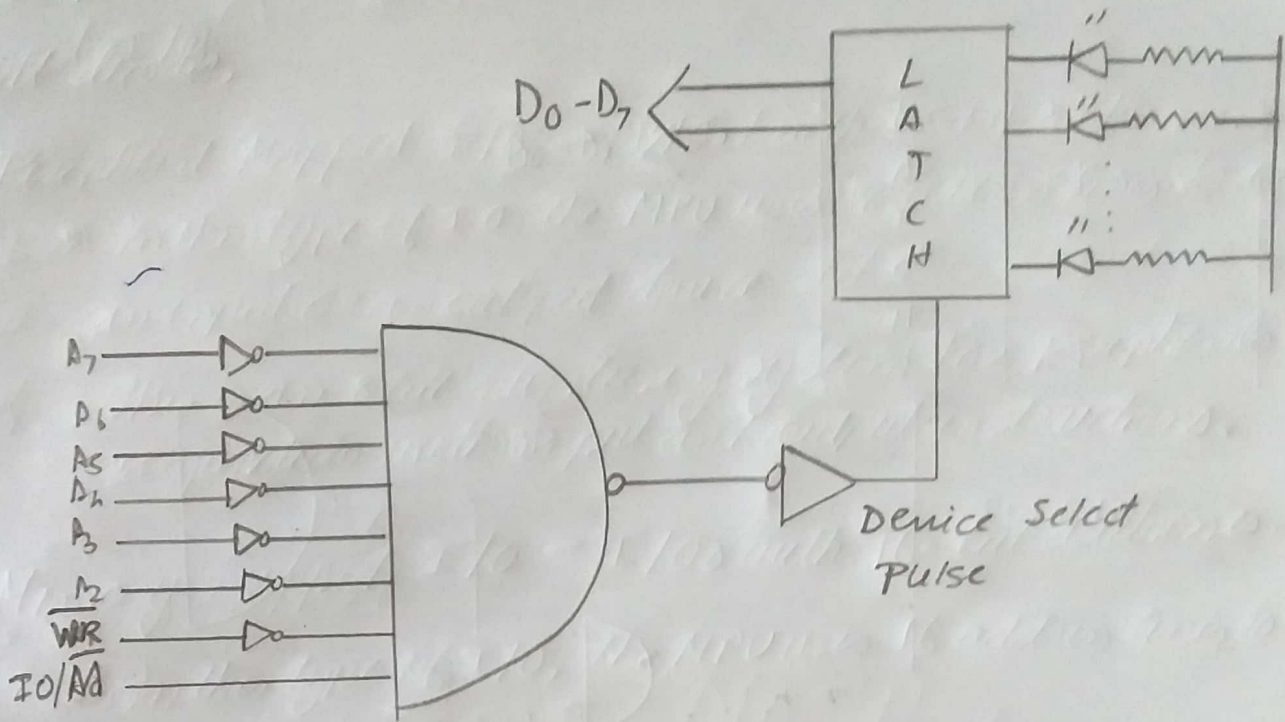
Solⁿ - When all the 8 address lines are used to decode and generate a unique output pulse, then that addressing is called absolute addressing.

If some of the address lines are not used for decoding then that is called partial decoding.



Absolute addressing

LATCH will be only active for 01H.



Partial decoding.