

LAB \Rightarrow 11

Required tools:

logic gates

wires

electricity

Bread Board

& Digital Equipment Board.

20P-0147
8/10/17
A

LATCHES

20P-0147

A Latch is a special type of logic circuit. The latches have Low and High two stable states. Due to these states latches also refer to as Bistable.

Types of latches

208-0142

SR - Latch

Gated S-R latch

D - Latch

Gated D - latch

① SR LATCH 208-014x

SR latch is a circuit

i) 2 cross-coupled NOR gate
or 2 cross couple NAND gate

ii) 2 input S for SET
and R for RESET.

iii) 2 input Q, Q'

SR Latch is also call
as Set reset latch.

200-0142

⑧ GATED SR LATCH

A gated SR LATCH is a special type of SR-latch having three inputs Set, Reset and Enable.

The enable input must be active for the Set and Reset inputs to be effective.

The Enable input of GATED SR latch enables the operation of the Set and Reset inputs.

This enable input connects with a switch.

208-014

Truth Table

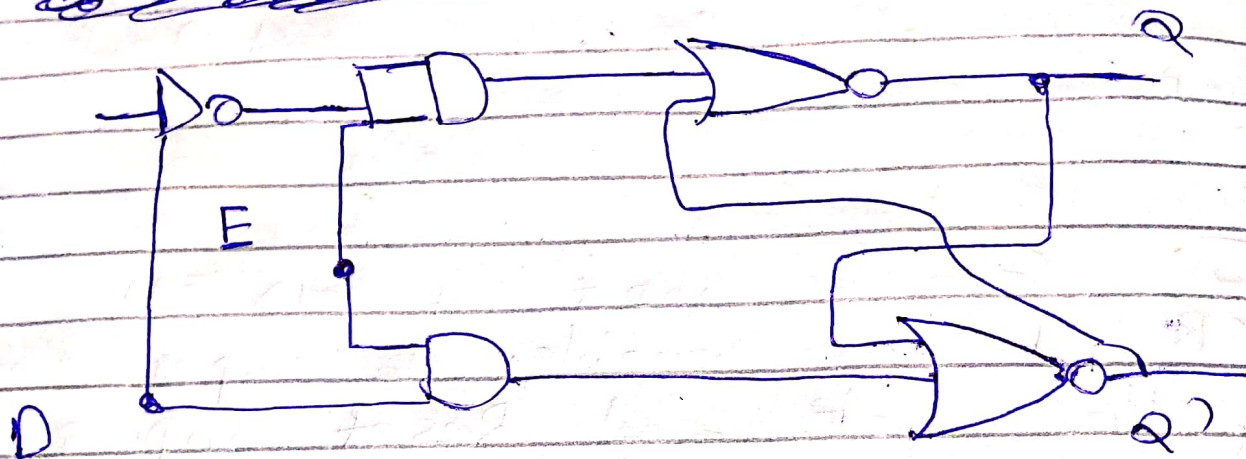
Enab	Sat	Ret	Q	Q1
0	0	0		
0	0	1	latch	Latch
0	1	0	latch	Latch
0	1	1	latch	latch
1	0	0	latch	Latch
1	0	1	latch	latch.
1	1	0	0	1
1	1	1	1	0
			0	0

D-Latch

208-047

There is one drawback of SR-LATCH. That is the next state value can't be predicted when both the inputs S & R are one.

~~SR-LATCH~~



E	D	Q	Q'
0	0	latch	latch
0	1	latch	latch
1	0	0	1
1	1	1	0

20P0147

SR - Latch using NAND

