

Name: SR latch using NOR

Aim: Construct, test and investigate the operation of SR Latch using NOR

Objectives: TO study the construction and the working of SR latch using NOR.

Components: Bread board / kit, 7402

Theory:-

SR latch: - The SR latch is a circuit with two cross coupled NOR gates and two inputs labeled S for Set and R for reset. The latch has 2 useful states. When output $Q = 1$ and $Q' = 0$ latch is in set. When output $Q = 0$ and $Q' = 1$ latch is in reset. Output Q and Q' are normally the complement of each other. However, when the both inputs are equal to 1 at the same time, a condition in which both outputs are equal to 0 rather than be mutually complementary occurs. If both inputs are then switched to 0 simultaneously the device will enter an unpredictable or undefined state or a metastable state.

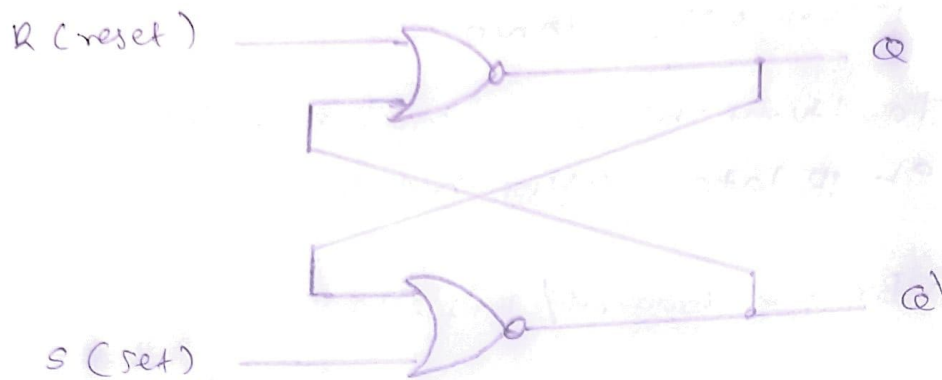
procedure

1. Connectors are made as per the circuit diagram
2. Switch on the power supply
3. Apply different combinations of inputs and observe the output compare the output, with the truth table

Result

Different logic circuit are constructed and their truth tables are verified

Circuit



truth table

S	R	Q	Q'	
1	0	1	0	
0	0	1	0	(after $S=1, R=0$)
0	1	0	1	
0	0	0	1	(after $S=0, R=1$)
1	1	0	0	(forbidden)