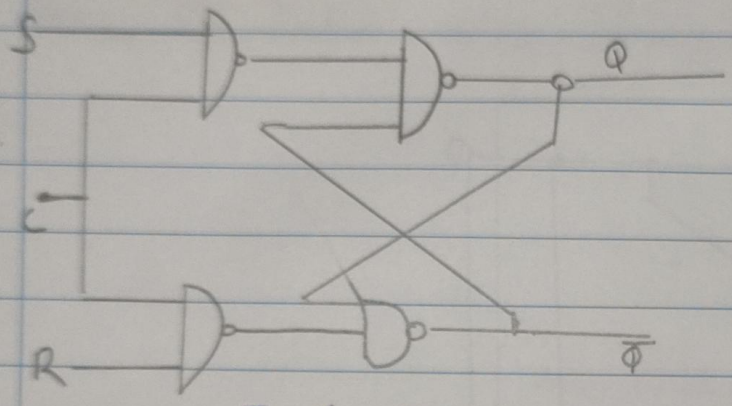
Experiment - 4

Verify truth table of SR, JK, D & T flip flop

2 Logic diagram & truth table of all flip flops

a. SR flip flop :

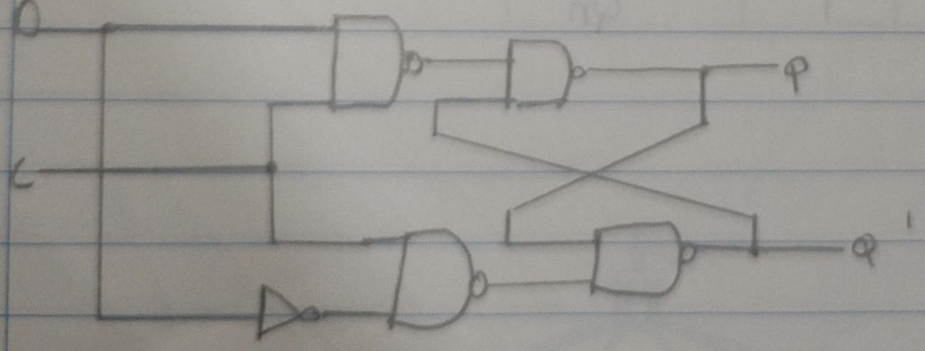
Logic Diagram



Truth Table :

C	S	R	Next state of Q
0	x	x	No change
1	0	0	No change
1	0	1	Q = 0 Reset state
1	1	0	Q = 1 Set state
1	1	1	Indeterminate

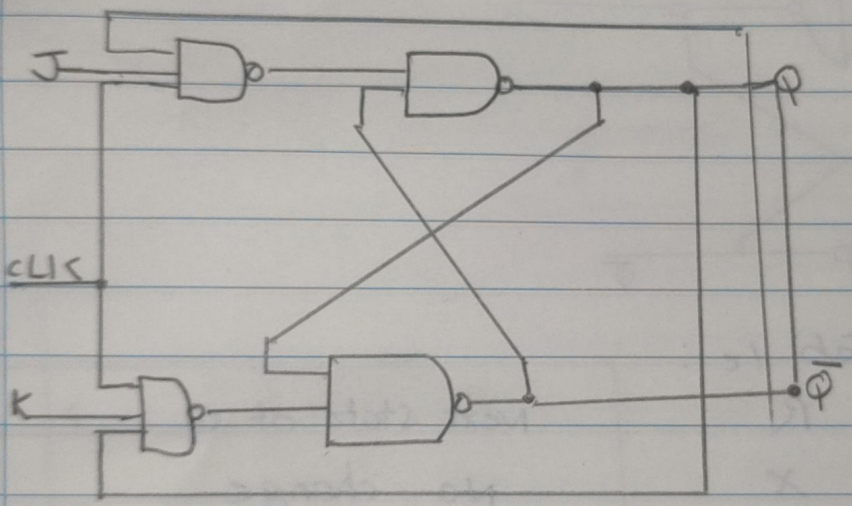
b) D flip flop :



Truth Table :-

C	D	Next state of Q	Action
0	x	Q	No change
1	0	0	Reset
1	1	1	Set

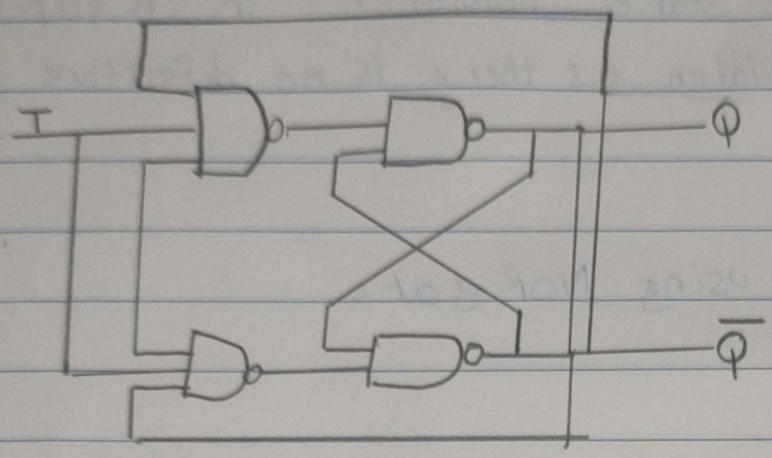
2) JK flipflop



Truth Table :-

CLK	J	K	Q n+1
X	0	0	Qn
1	1	0	1
1	0	1	0
1	1	1	$\overline{Qn}$

d) T flip flop



Truth Table :-

T	Qn	Qn+1	Comment
0	0	0	No change
	1	1	
1	0	1	Toggles
	1	0	

3 Answer the following practical related questions:

a) Define flip flop

A flipflop is an electronic circuit with two states that can be used to store binary data.

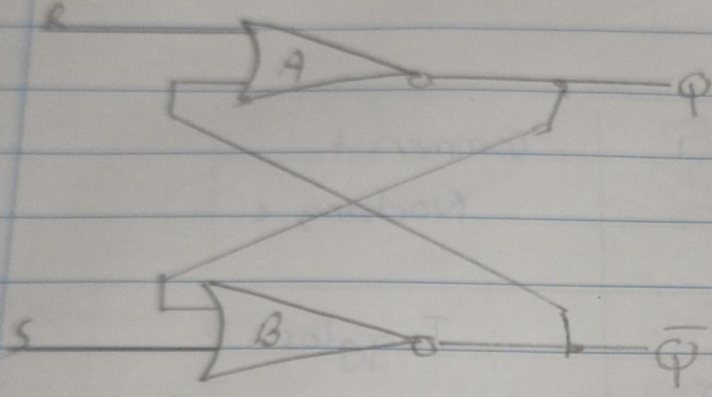
b) State the application of flipflop

Application of flipflop:

- counters
- frequency divides
- shift registers
- storage registers.

c) What is forbidden state in SR flipflop
S=1, R=1 is the state forbidden in SR flip flop.
It is called forbidden as there is no definitive gurantee of a fixed output.

d) Draw SR latch using NOR gate



6 Condusion
From the above experiment we were able to verify truth table of SR, JK, D & T flipflop.