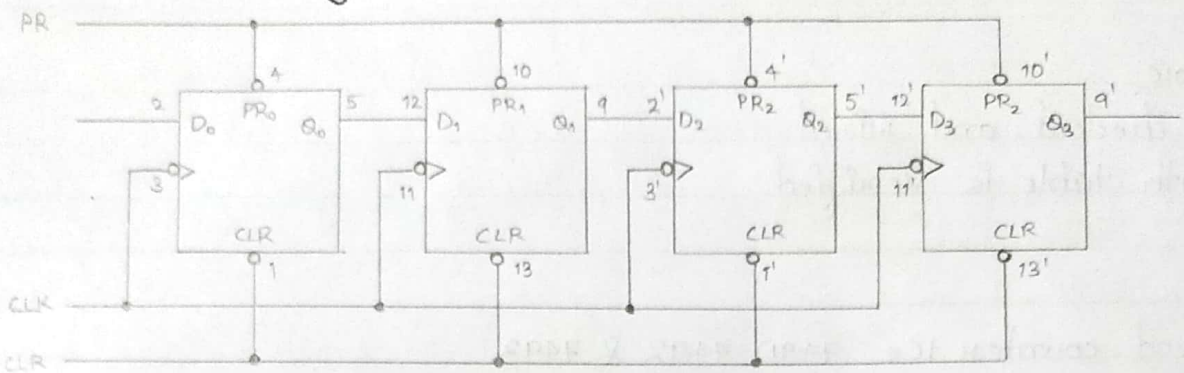
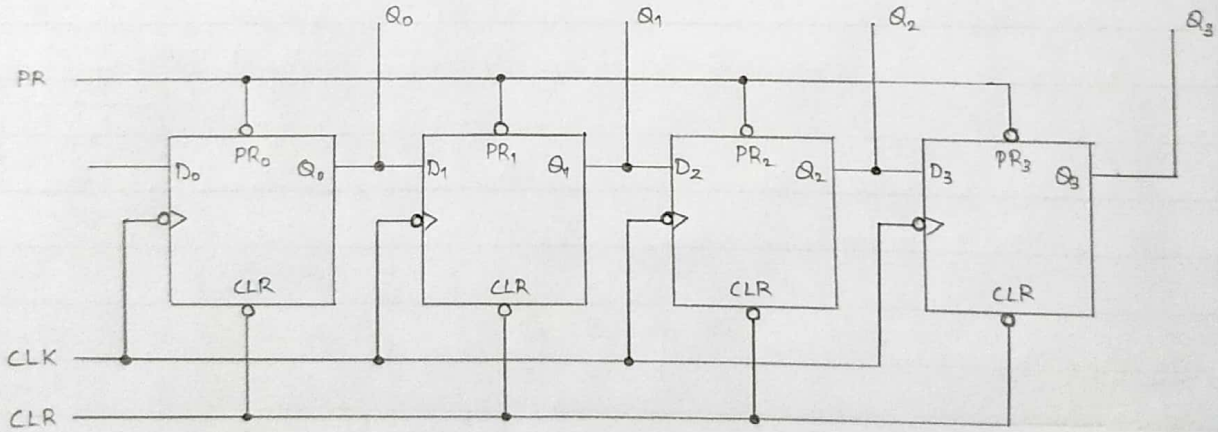
SISO Shift Register



CLK	Serial Input	Serial Output
1	1	0
2	0	0
3	0	0
4	1	1
5	X	0
6	X	0
7	X	1

SIPO Shift Register



CLK	Serial Input	Output			
		Q_0	Q_1	Q_2	Q_3
1	1	1	0	0	0
2	0	0	1	0	0
3	0	0	0	1	0
4	1	1	0	0	1

Date .....

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Aim

To design and set up SIPO, PIPO, SISO and PISO shift registers using flip-flops.

Components Required

IC 7474 and connecting wires.

Theory

A register is nothing but a set of flip flops used to store a binary number. A shift register accepts a binary number and shifts it to the left or to the right.

The data can be entered either in serial form or in parallel form. Since there are two ways to shift data into a register and two ways to shift data out of the register, four basic registers can be constructed namely:

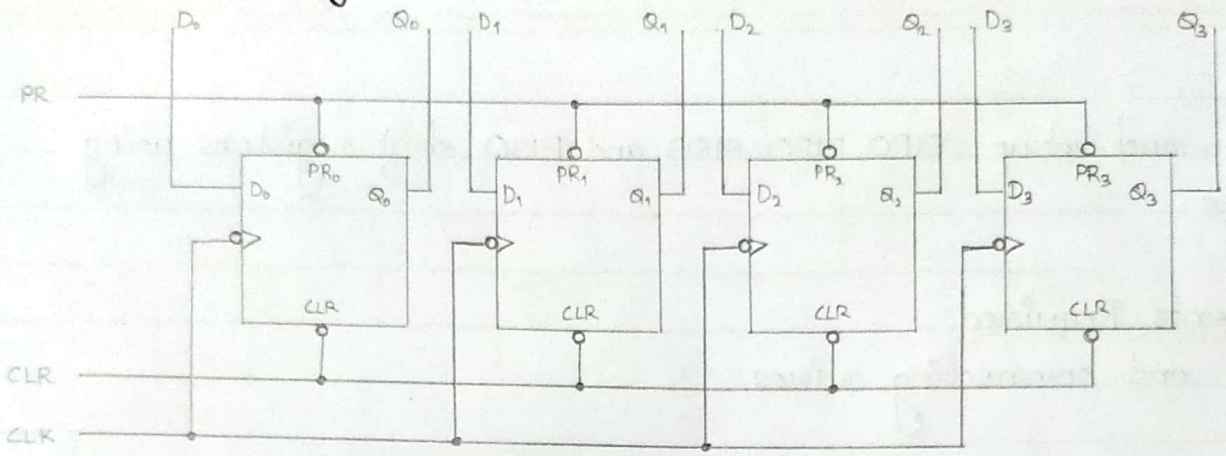
1. Serial input Serial output (SISO)
2. Serial input Parallel output (SIPO)
3. Parallel input Serial output (PISO)
4. Parallel input Parallel output (PIPO)

Procedure

1. Connections are given as per the circuit diagram.
2. Logical inputs are given as per the circuit.
3. Observe the output and verify the truth table.

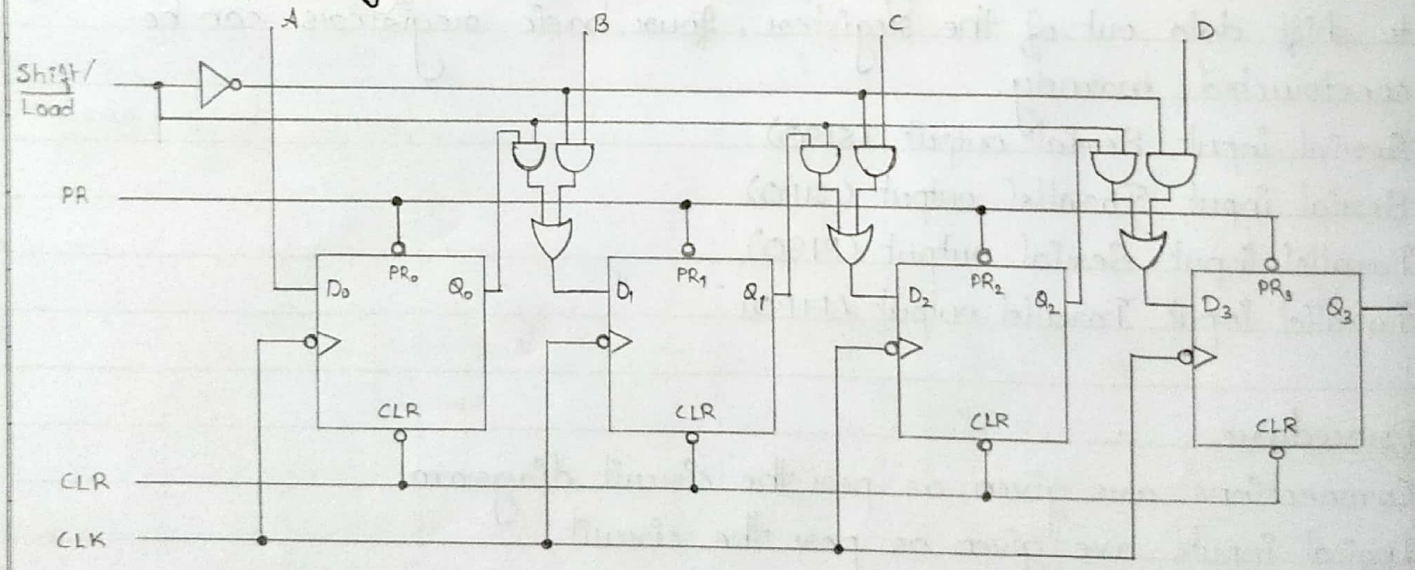
Teacher's Signature : _____

PIPO shift Register



CLK	Input				Output			
	D_0	D_1	D_2	D_3	Q_0	Q_1	Q_2	Q_3
1	1	0	0	1	1	0	0	1
2	1	0	1	0	1	0	1	0

PISO shift Register



Shift/Load	CLK	Input				Serial Output
		D_0	D_1	D_2	D_3	
1	1	0	1	0	1	1
0	2	0	0	1	0	0
0	3	0	0	0	1	1
0	4	0	0	0	0	0
1	5	1	1	0	1	1

Date _____

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Result

Designed and set up SIPO, PIPO, SISO and PISO shift registers using flip-flops.

Teacher's Signature : _____