UNIT 4
Analog and Digital Electronics

Sequential Circuit

SHIFT REGISTER

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ECE Department
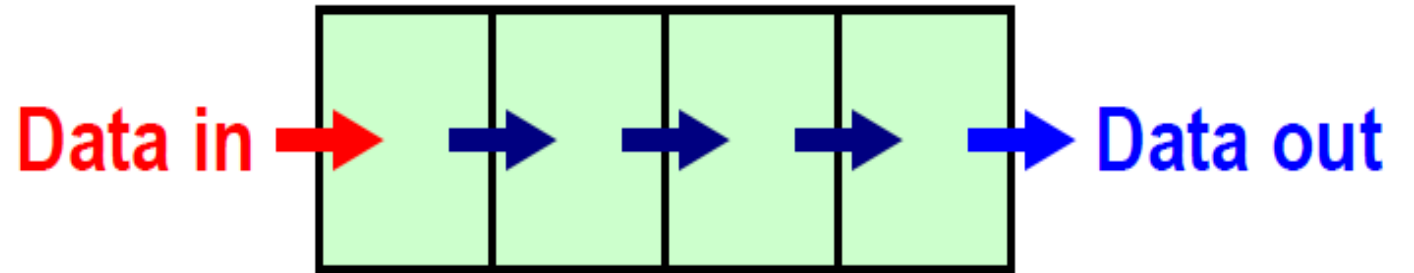
Type of the Shift Registers

- Serial In Serial Output
a. Left to Right
b. Right to left
c. Rotate Left
d. Rotate Right
- Parallel in Parallel out
- Parallel in Serial Output
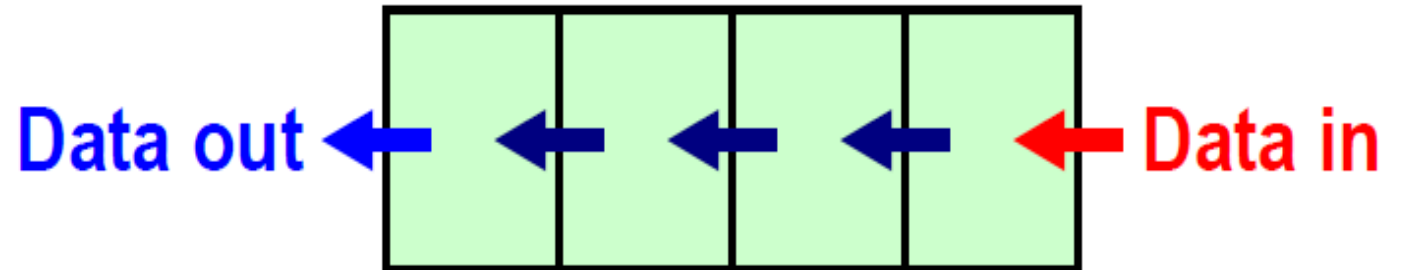- Serial in Parallel out
- Universal Shift register

Shift Register
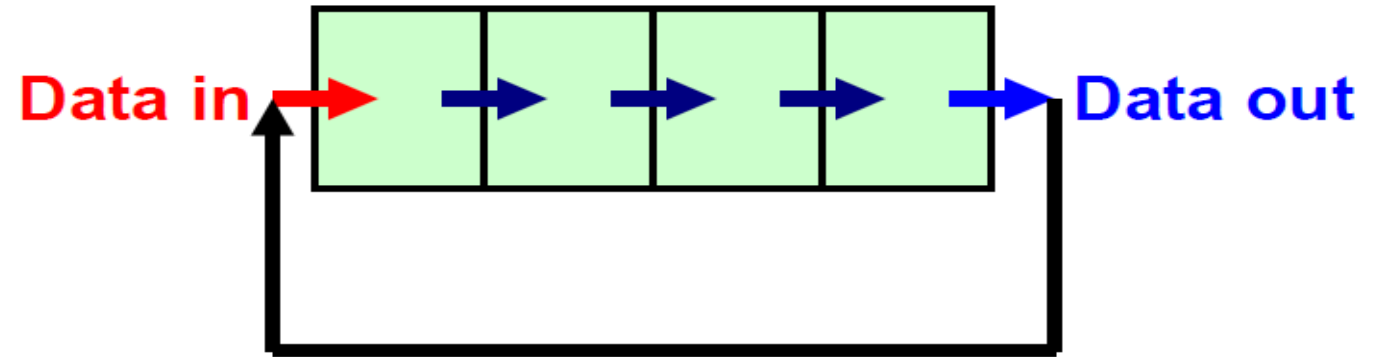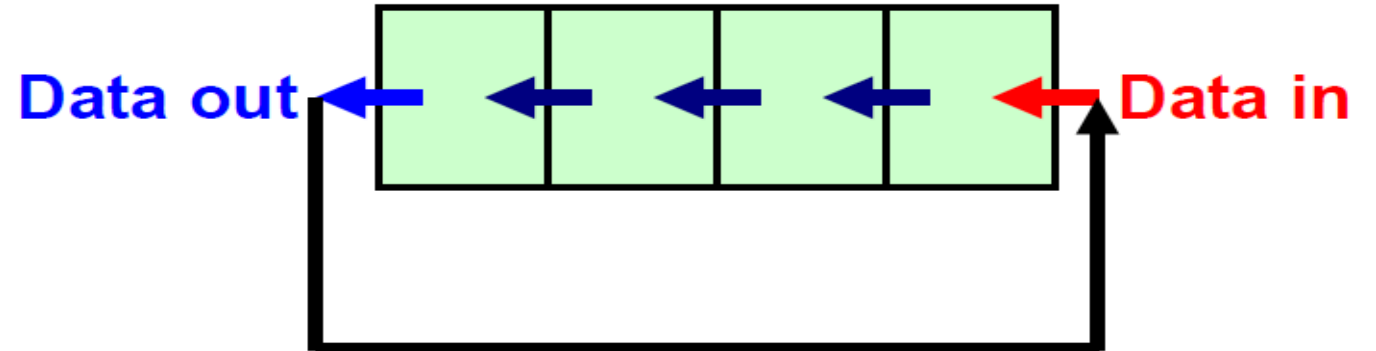
1. Serial-in Serial-out

1(a) Left to Right

Data in → → → → → Data out

1(b) Right to Left

Data out ← ← ← ← ← Data in

Contd.

1(c) Rotate Left

Data in → → → → → → Data out

1(d) Rotate Right

Data out ← ← ← ← ← Data in

Contd.

2. Parallel-in Parallel-out
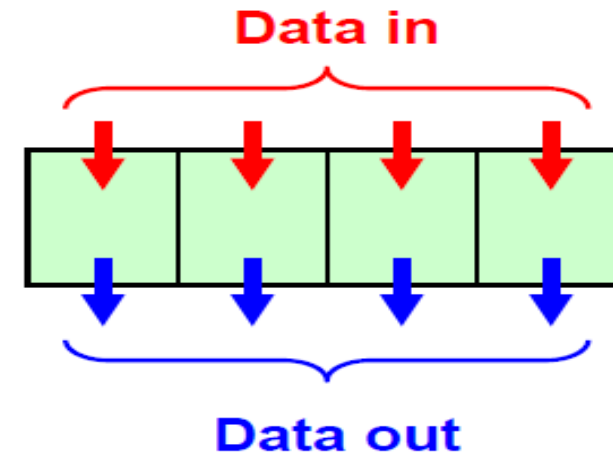
Data in

Data out

3. Parallel-in Serial-out
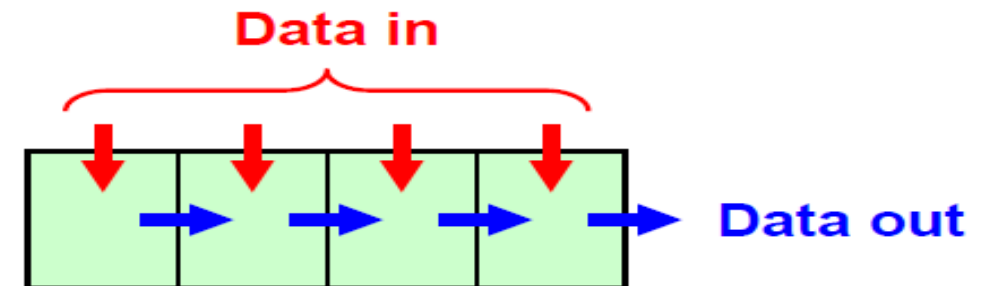
Data in

Data out

Contd.

4. Serial-in Parallel-out
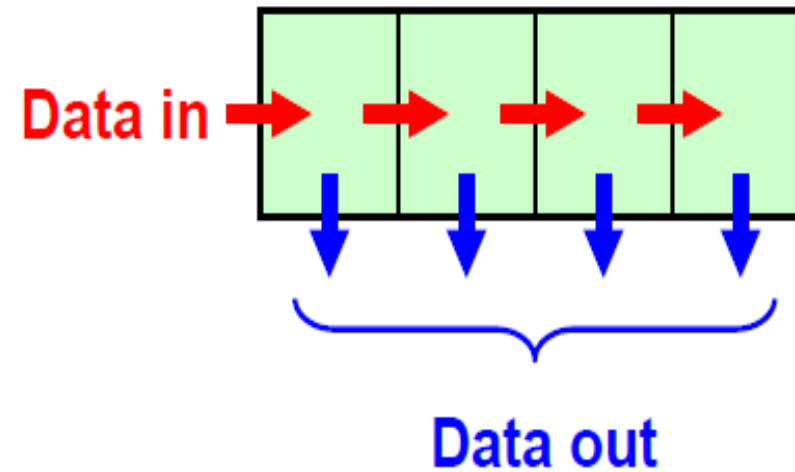
Data in

Data out

Serial in Serial out Register
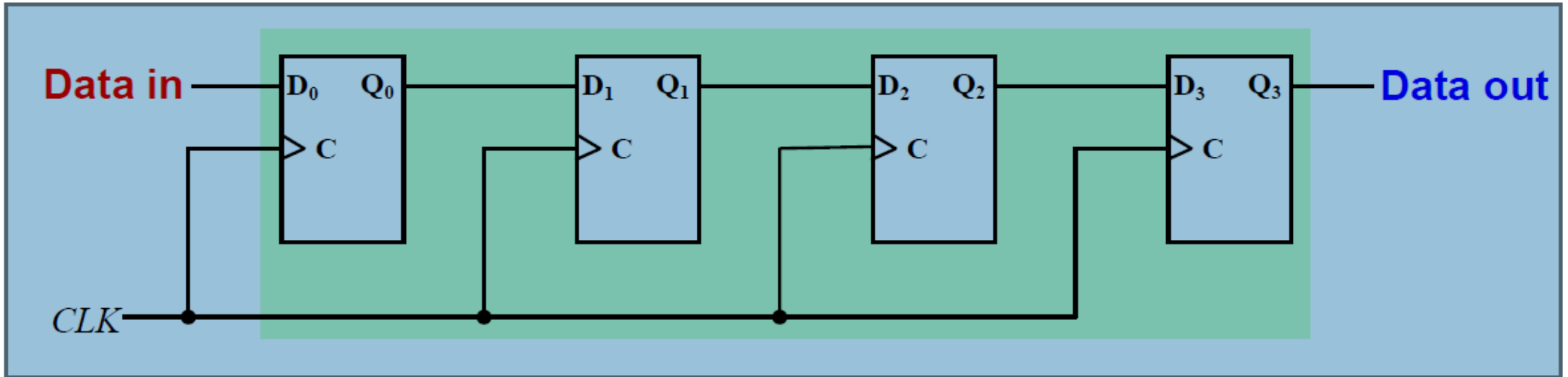
Operation
Let data in is 00001010

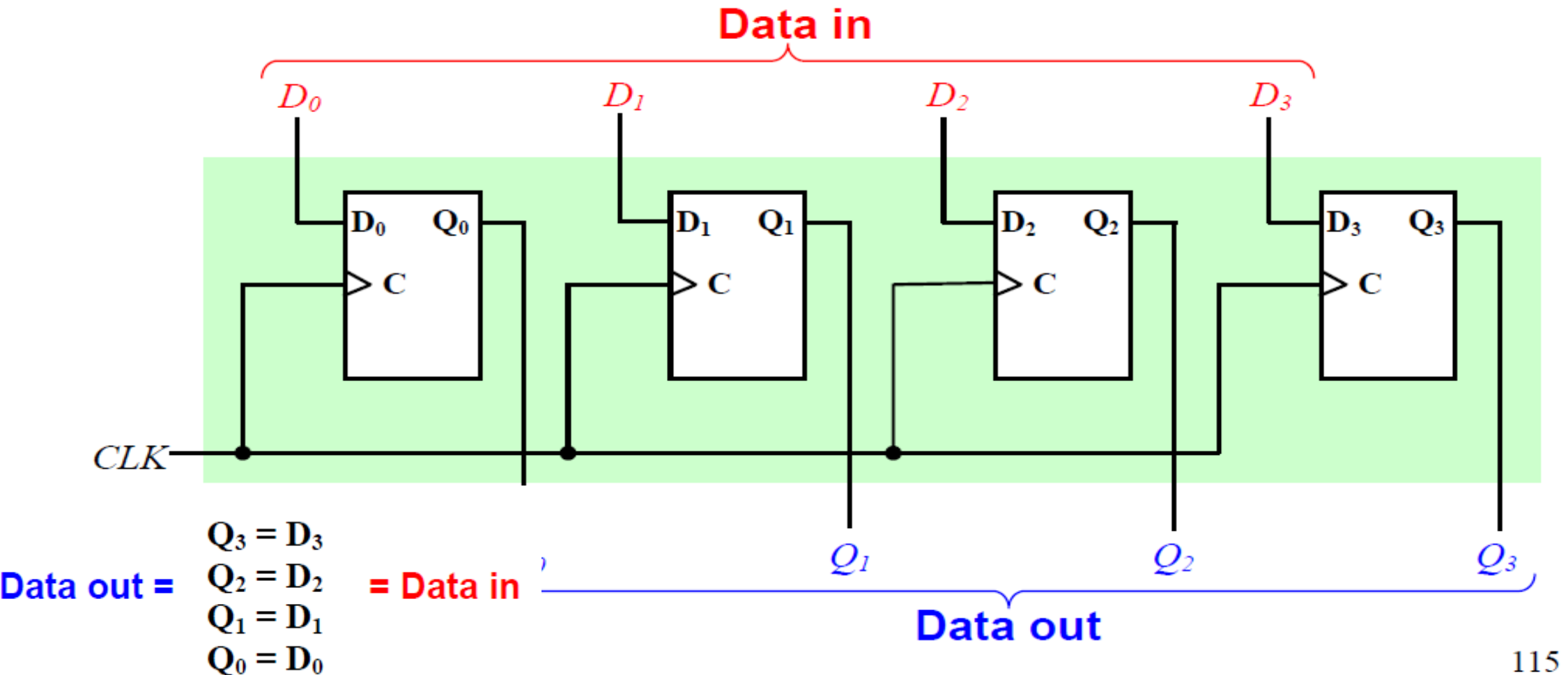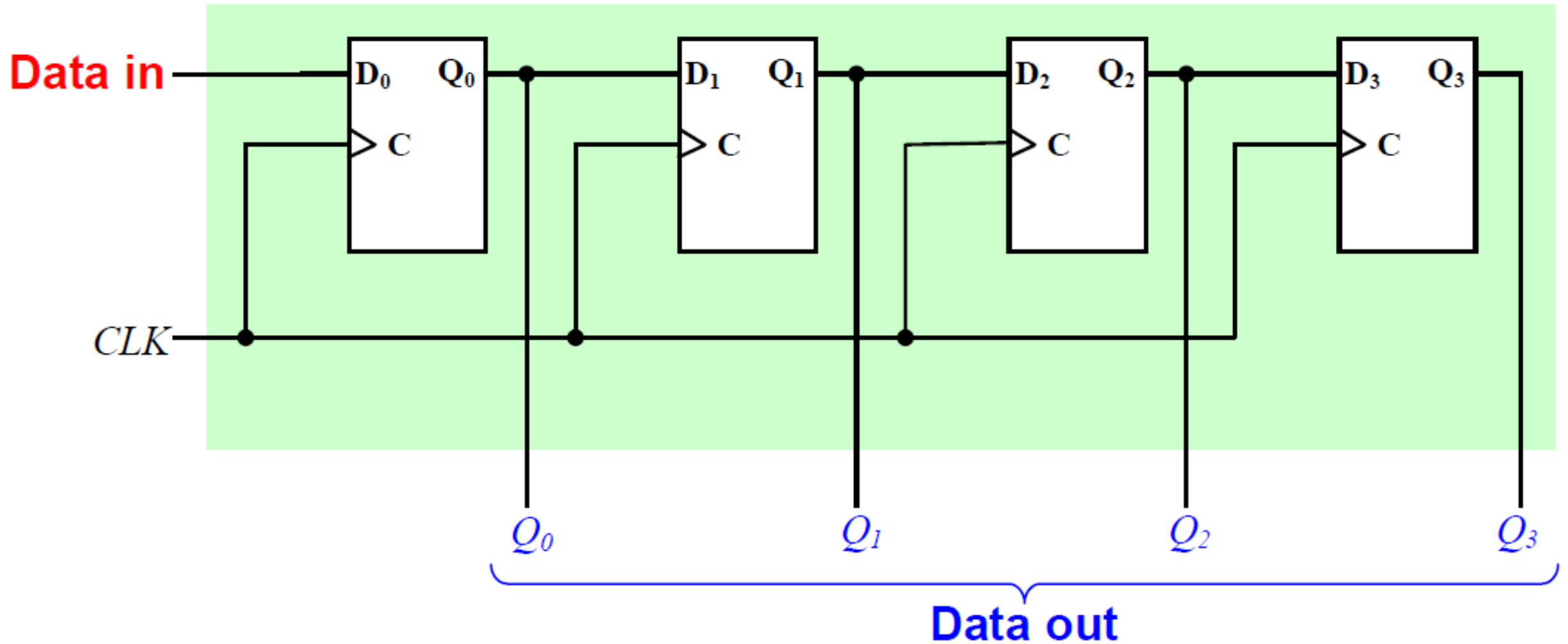| Clock	Q0	Q1	Q2	Q3	Data out
Initially	0	0	0	0	
1	**0**	0	0	0	0
2	**1**	**0**	0	0	0
3	**0**	**1**	**0**	0	0
4	**1**	**0**	**1**	**0**	0
5	0	**1**	**0**	**1**	**0**
6	0	0	**1**	**0**	**1**
7	0	0	0	**1**	**0**
8	0	0	0	0	**1**

Data rotation
Rotate_b=1 data-in mode
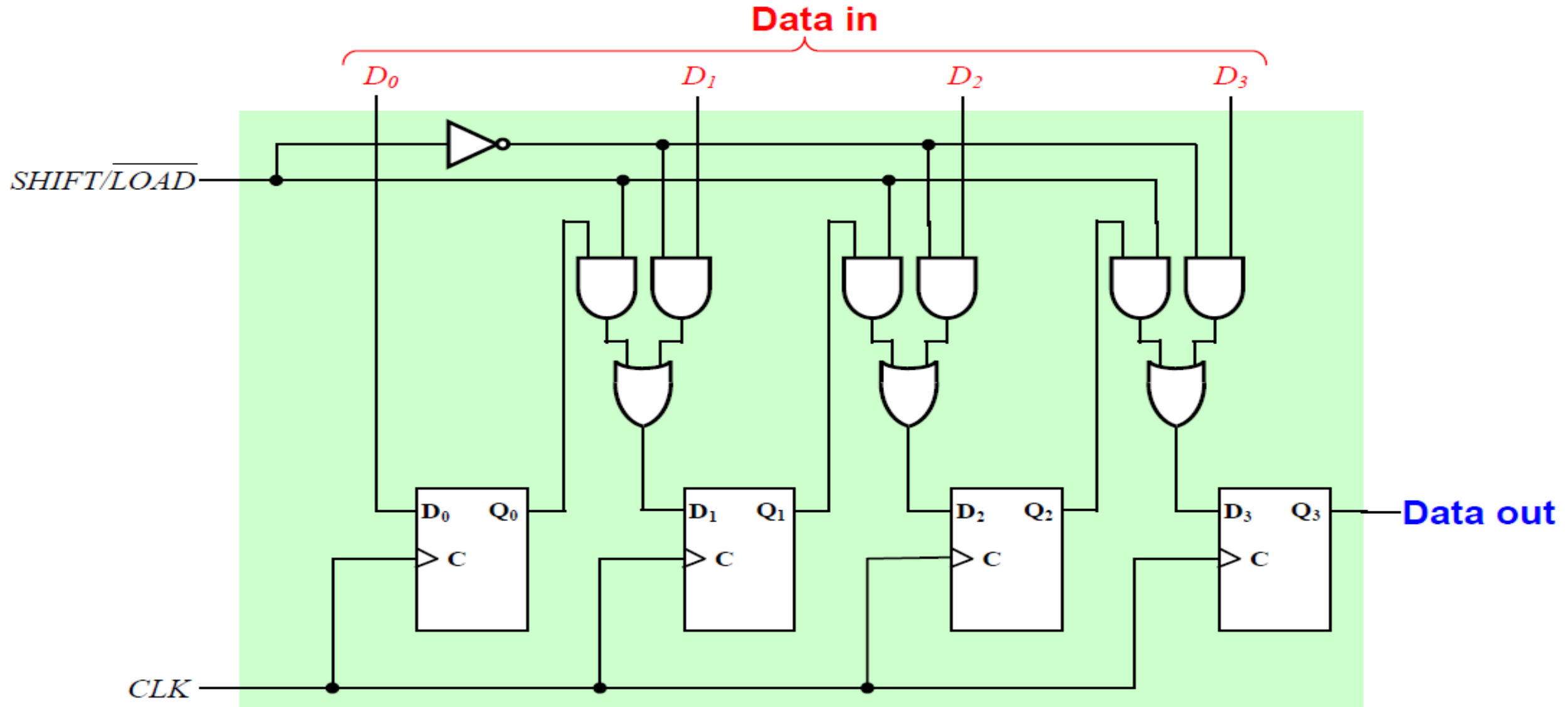Rotate_b=0 Store data rotation enable
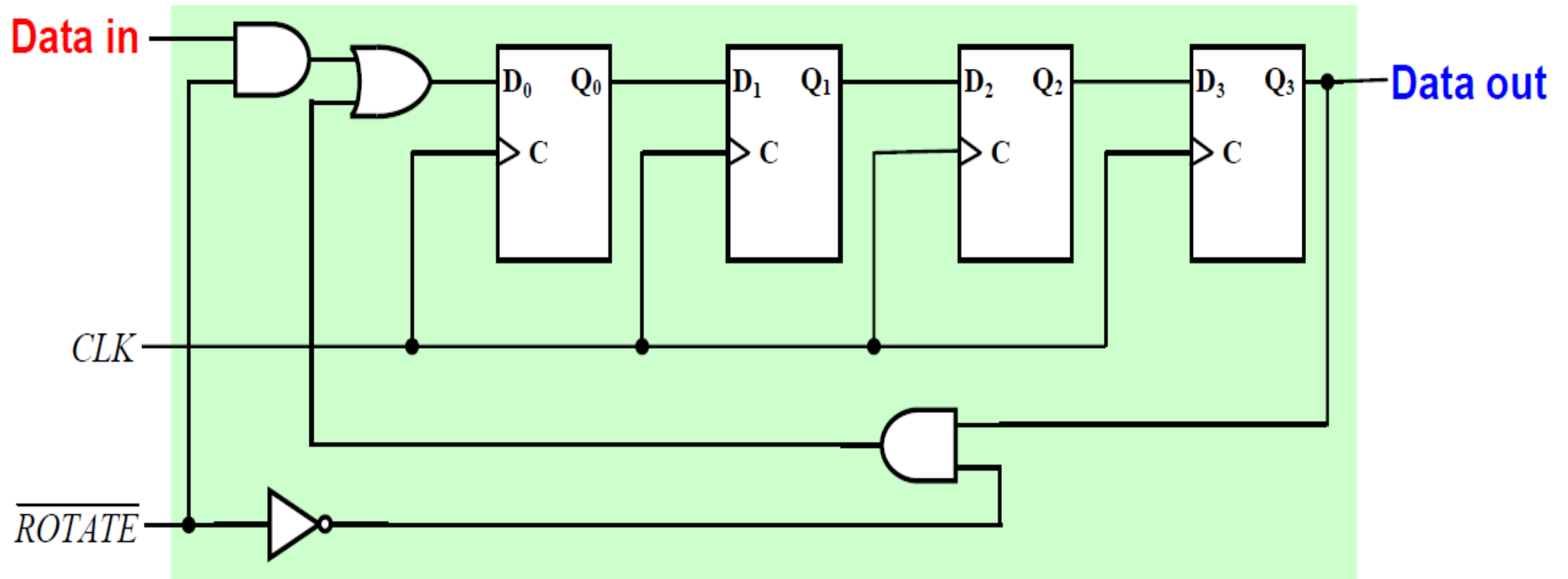
Parallel IN Parallel out shift register

Serial in Parallel Shift Register

Parallel in Serial out Shift Register

Home-Work

Universal Shift Register and its working

END
NEXT Counter