

Digital Electronics and Computer Organization

Digital Design

Lecture 21: Registers



Birla Institute of Technology & Science, Pilani
Hyderabad Campus

0/2020

Innovate

achieve

1

lead



Serial Transfer

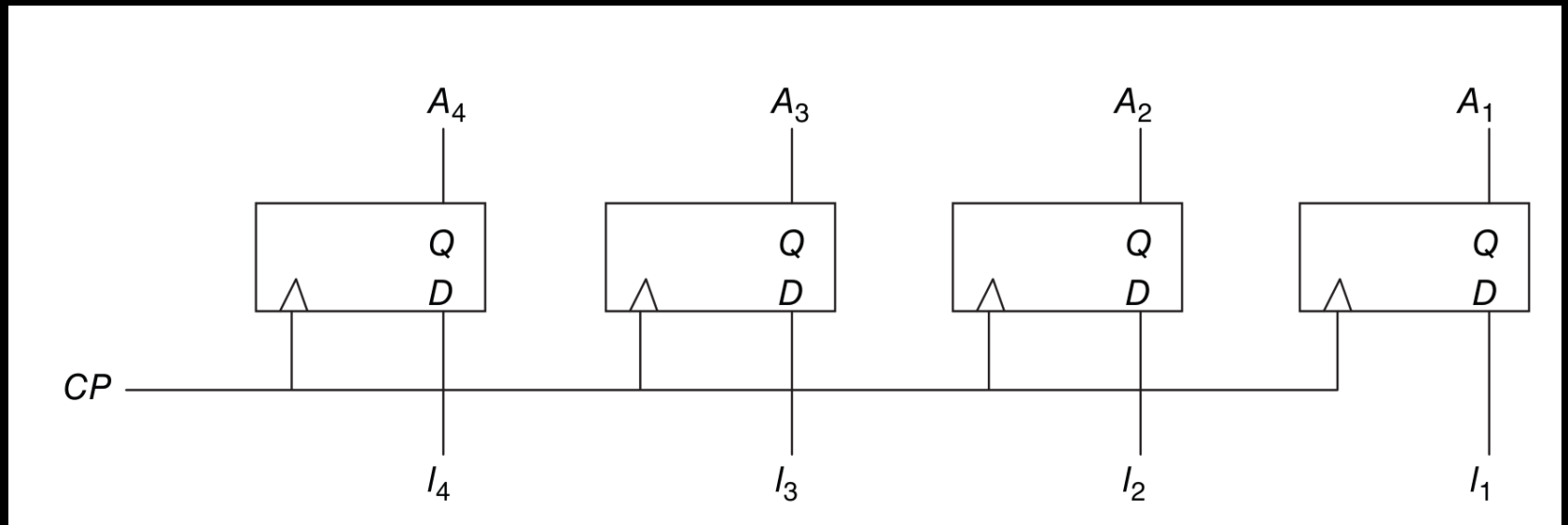
A register is a group of binary storage cells suitable for holding binary information.

A group of flip-flops constitutes a register, since each flip-flop is a binary cell capable of storing one bit of information. An n -bit register has a group of n flip-flops and is capable of storing any binary information containing n bits.

In addition to the flip-flops, a register may have combinational gates that perform certain data-processing tasks.

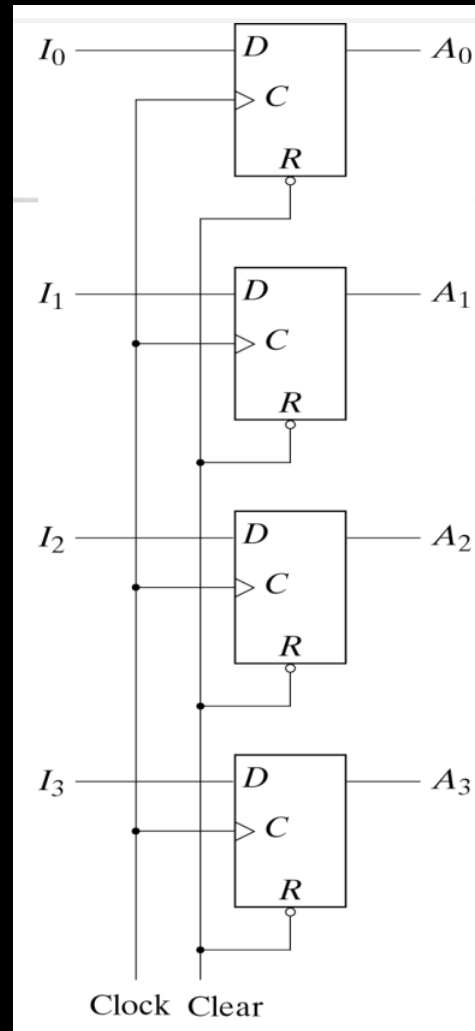


Parallel Transfer



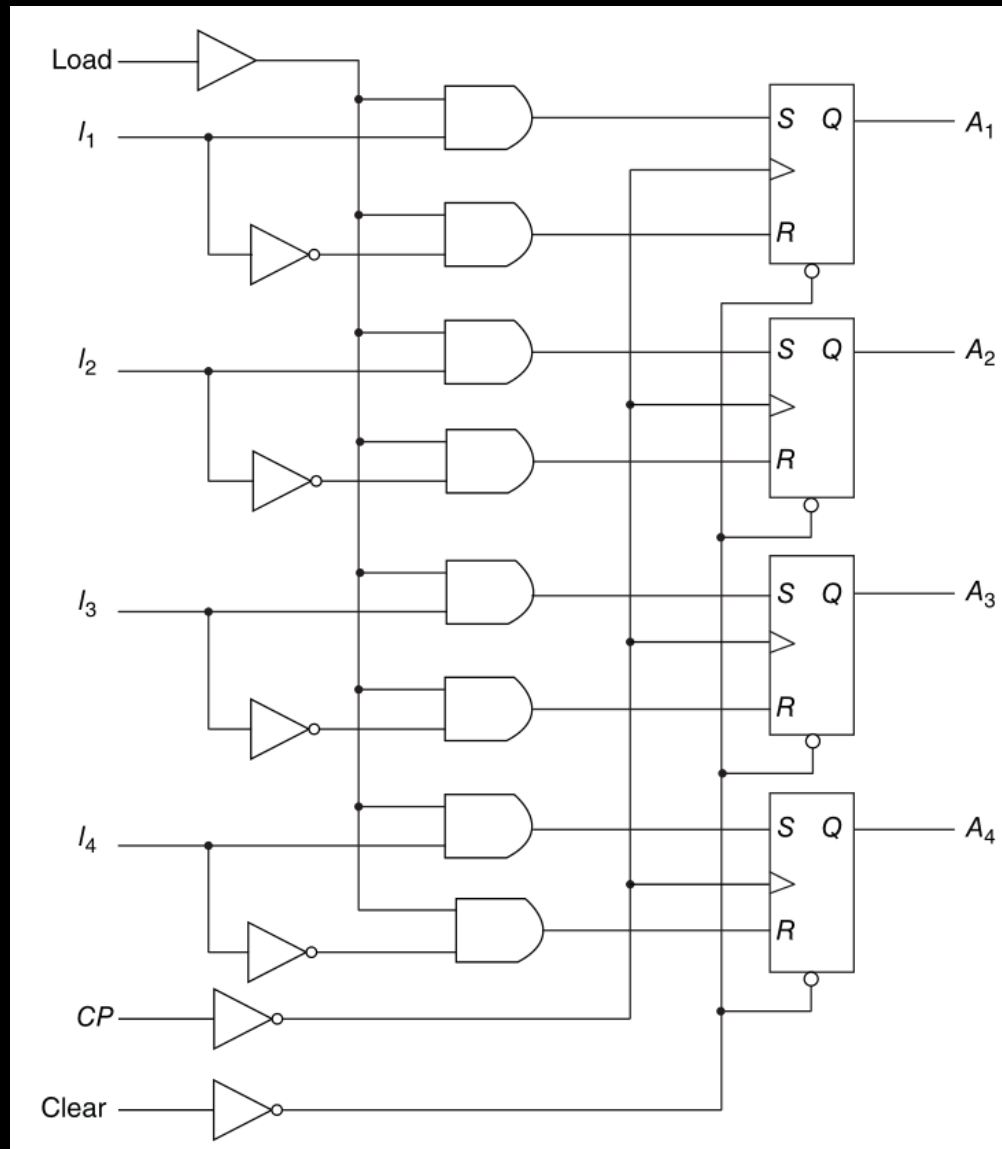


Parallel Load 4 Bit Register



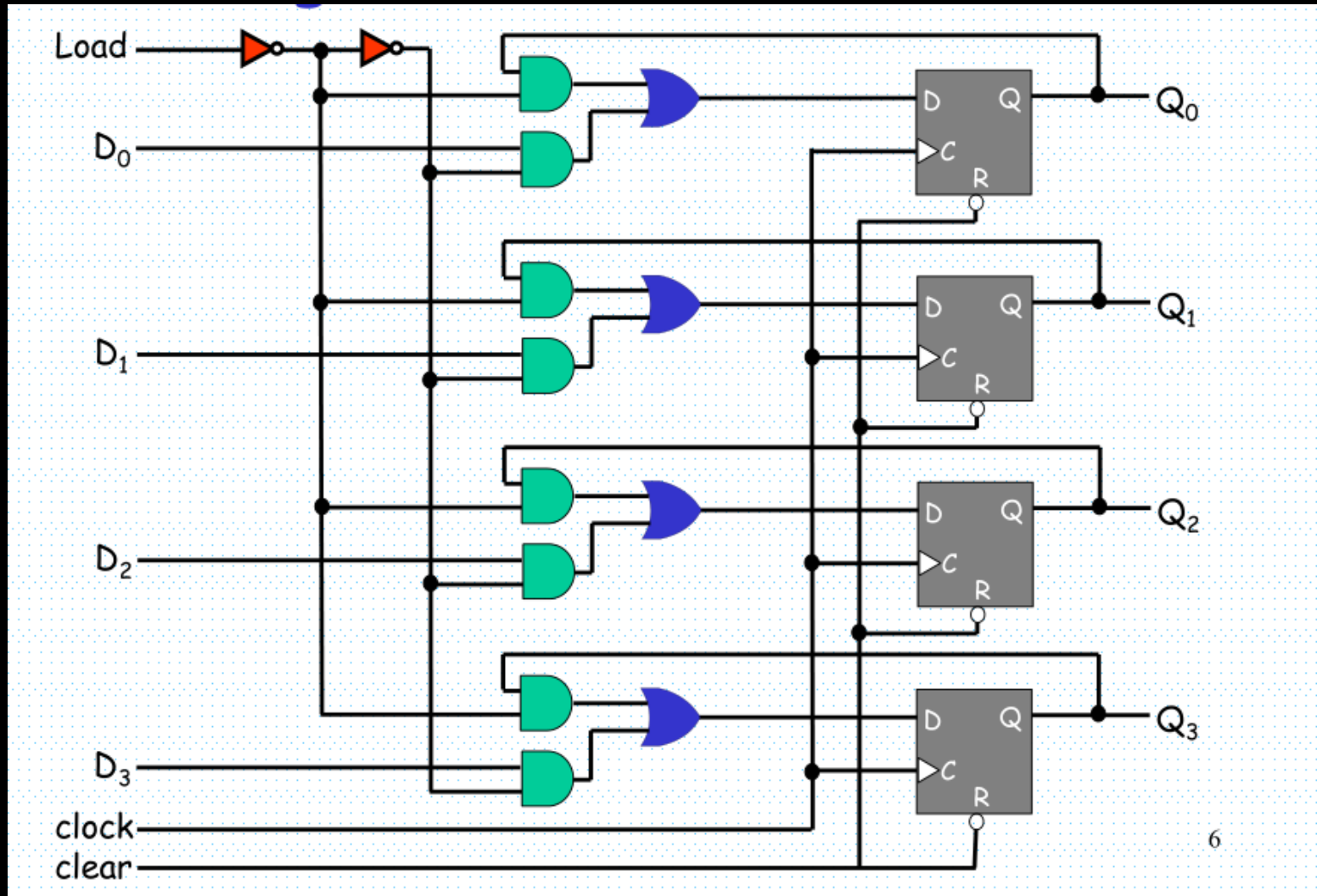


Parallel Load 4 Bit Register



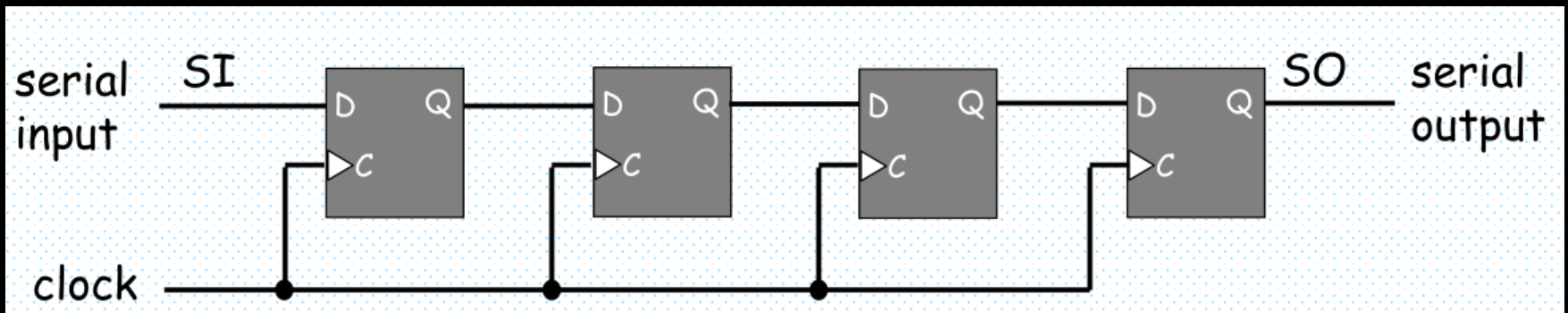


Parallel Load 4 Bit Register

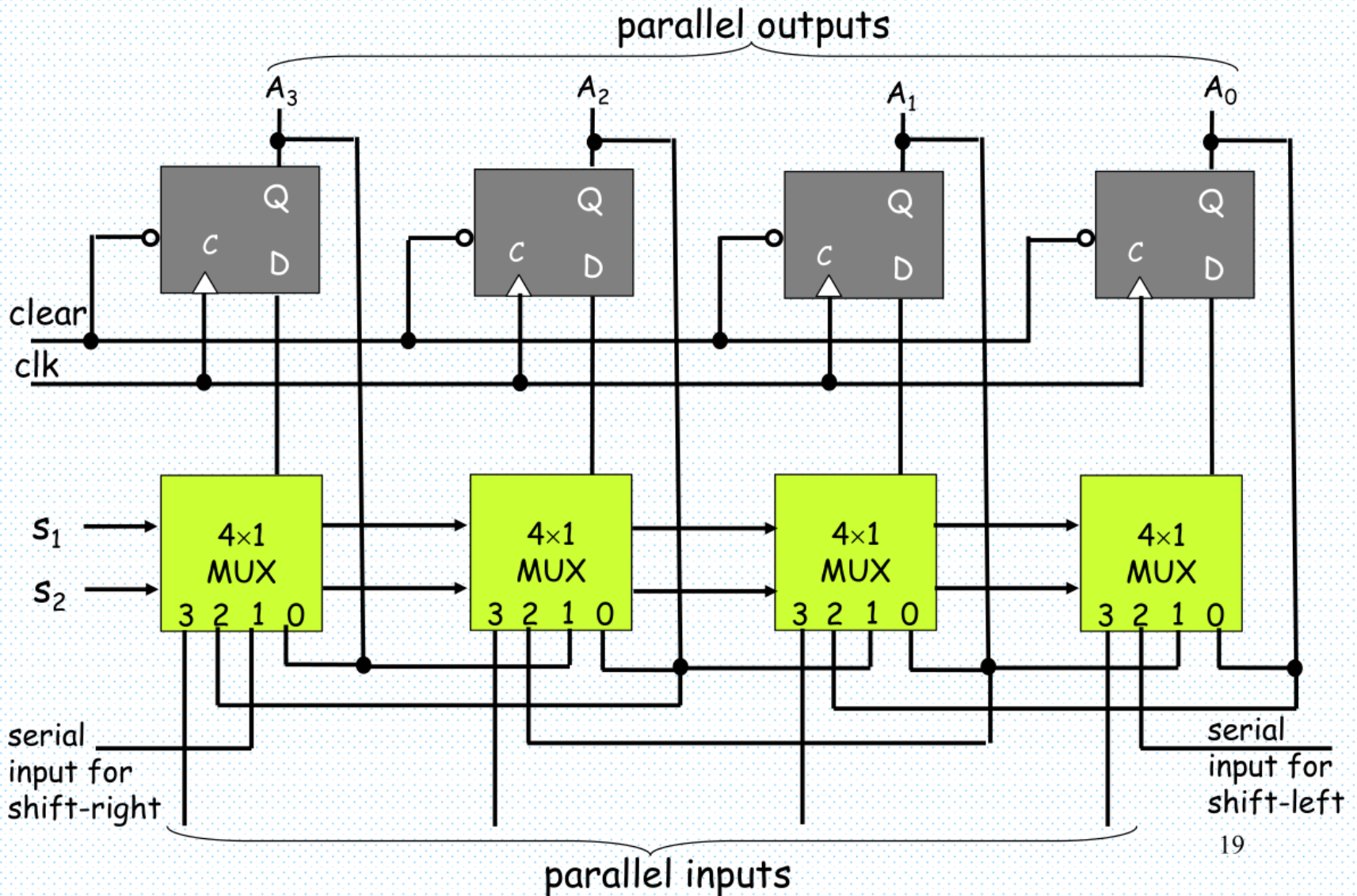




Shift Register

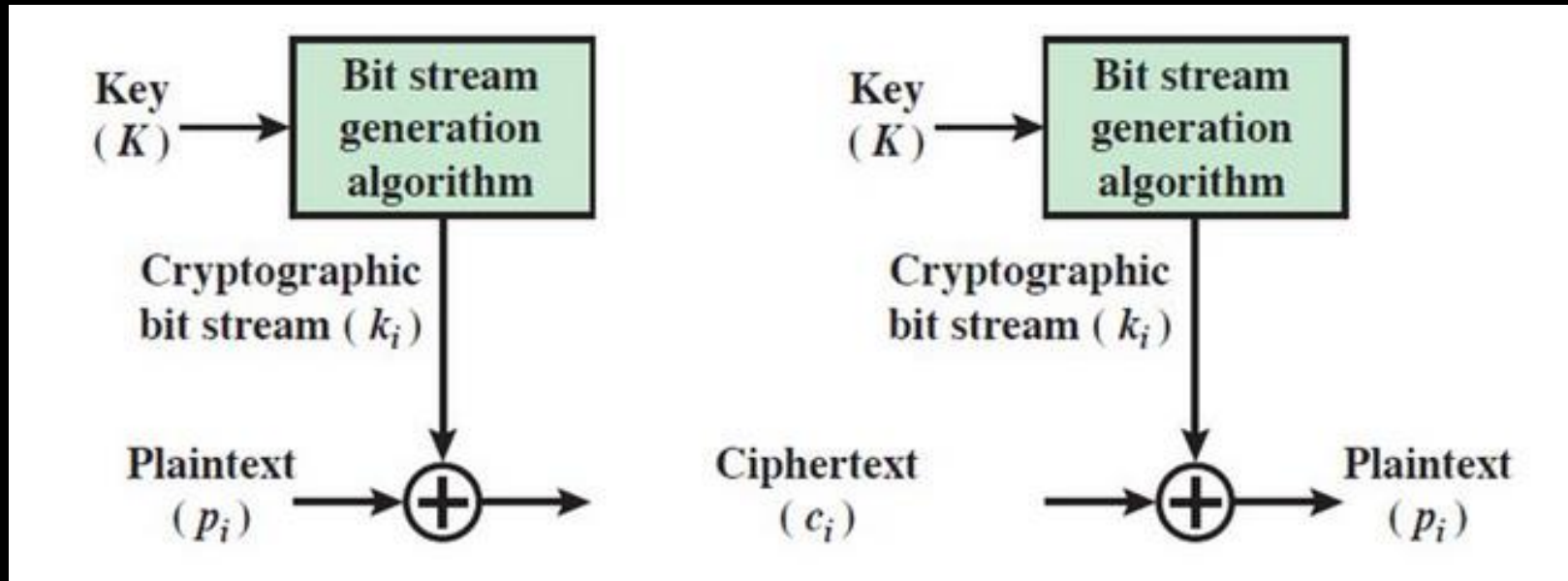


Shift Register

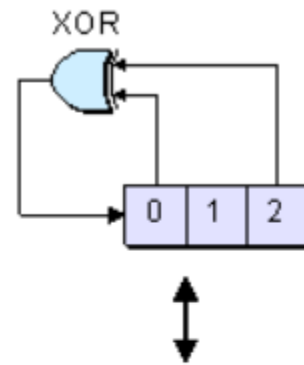




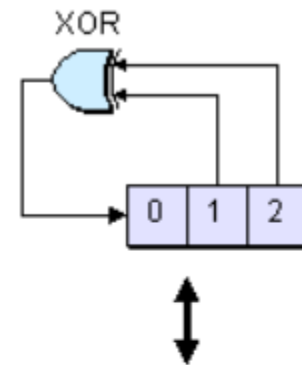
Data Encryption



Pseudo-Random Series



Clock	q0	q1	q2	
--	0	0	1	← Initial value
1	1	0	0	
2	1	1	0	
3	1	1	1	
4	0	1	1	
5	1	0	1	
6	0	1	0	
7	0	0	1	
8	1	0	0	
9	1	1	0	
:	:	:	:	

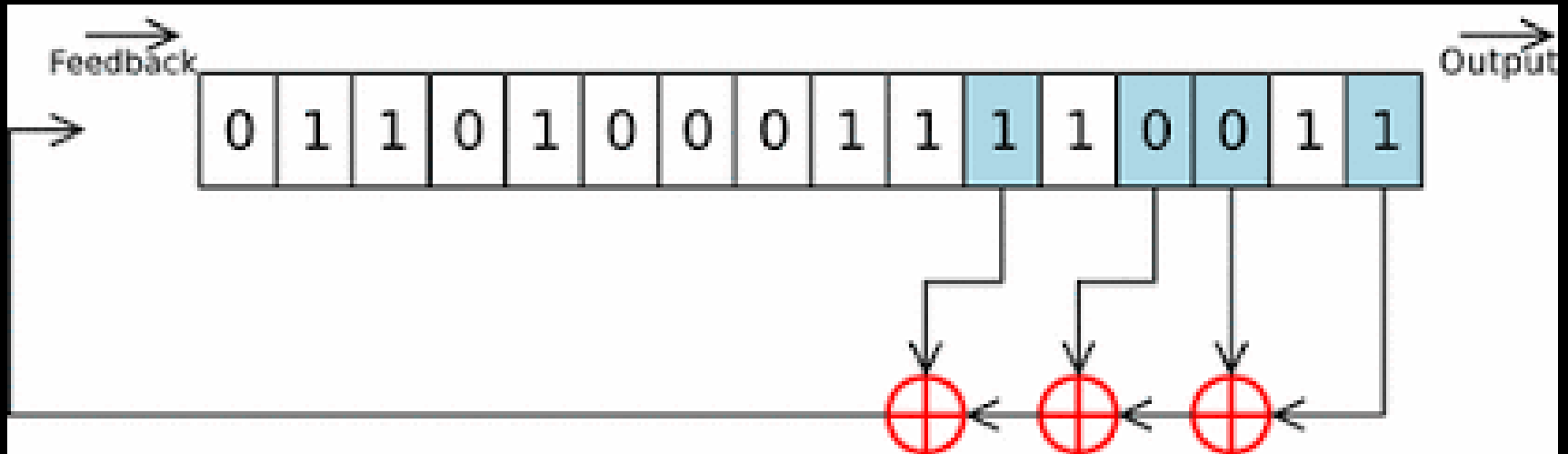


Clock	q0	q1	q2	
--	0	0	1	← Initial value
1	1	0	0	
2	0	1	0	
3	1	0	1	
4	1	1	0	
5	1	1	1	
6	0	1	1	
7	0	0	1	
8	1	0	0	
9	0	1	0	
:	:	:	:	

2. Comparison of alternative tap selections.



Pseudo-Random Series





Thank You