ASSIGNMENT -11

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Course : CSE231

Section : 10

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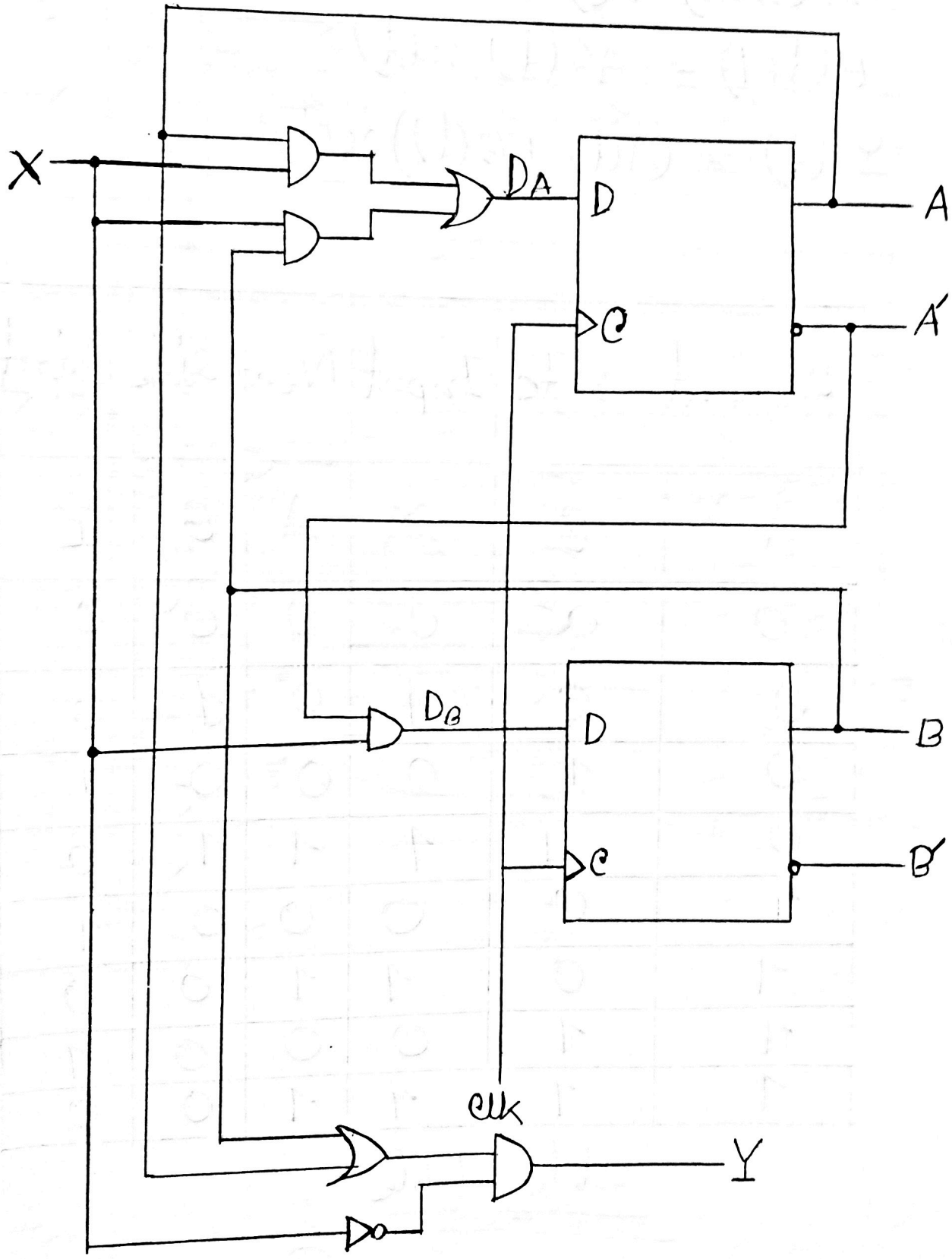
Example of sequential circuit:



State Equations :

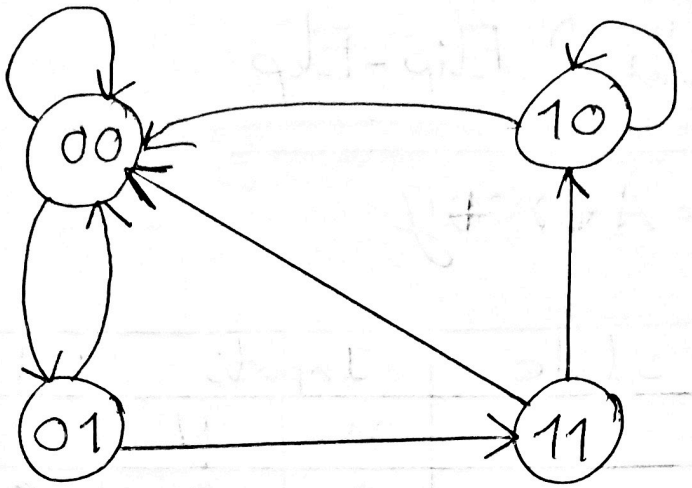
$$A(t+1) = A(t)\,x(t) + B(t)\,x(t)$$

$$B(t+1) = A'(t).\,x(t)$$

$$Y(t) = (A(t) + B(t))\,x(t)'$$

Present State		Input	Next State		Output
A	B	X	A	B	Y
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	0	1
0	1	1	1	1	0
1	0	0	0	0	1
1	0	1	1	0	0
1	1	0	0	0	1
1	1	1	1	0	0

State Table



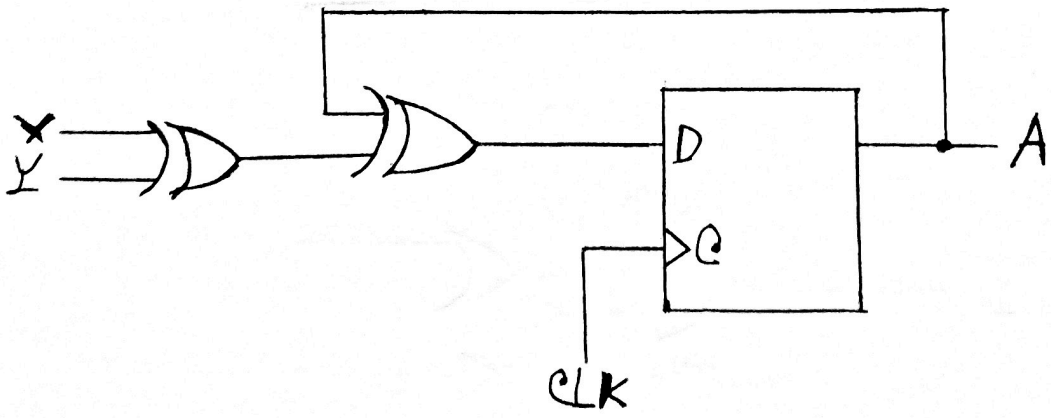
State Diagram

Flip-Flop Input Equations

$$D_A = AX + BX$$
$$D_B = A'X$$
$$Y = (A+B)X'$$

Analysis with D Flip-Flop

$$D_A = A \oplus x \oplus y$$

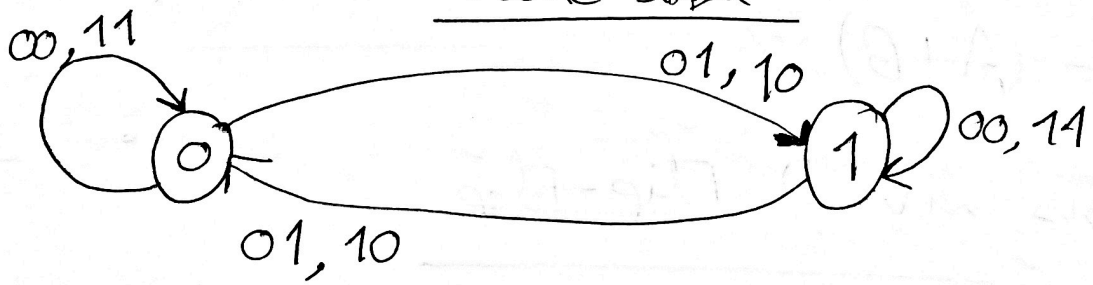


Analysis with D Flip-Flop

$A(t+1) = A \oplus x \oplus y$

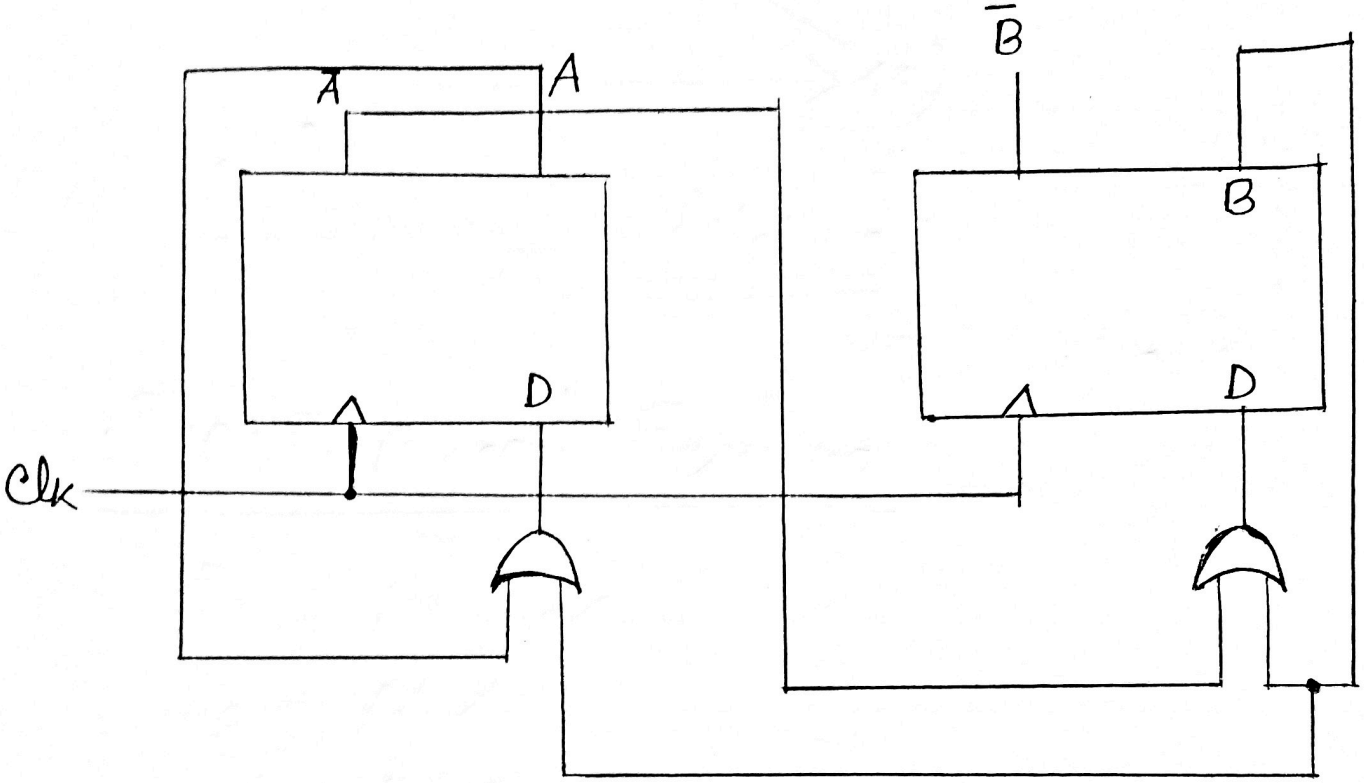
Present State	Inputs		Next State
A	x	y	A
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

state table



State digram

Example:



State Equation:

$$A(t+1) = B(t+1) + A(t+1)$$
$$B(t+1) = B(t+1) + \bar{A}(t+1)$$

Transition table:

Present		Next	
A	B	A	B
0	0	0	1
0	1	1	1
1	0	1	0
1	1	1	1