2019 1583   김태근

1.

truth table   excitation table

SR

S	R	q'
0	0	q
0	1	0
1	0	1
1	1	-

Q	Q(next)	S	R
0	0	0	X
0	1	1	0
1	0	0	1
1	1	X	0

JK

J	K	q^*
0	0	q
0	1	0
1	0	1
1	1	q^*

Q	Q(next)	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0

D

D	q^*
0	0
1	1

Q	Q(next)	D
0	0	0
0	1	1
1	0	0
1	1	1

T

T	q^*
0	q
1	q^*

Q	Q(next)	T
0	0	0
0	1	1
1	0	1
1	1	0

2. 1010 mealy T, SR

state diagram
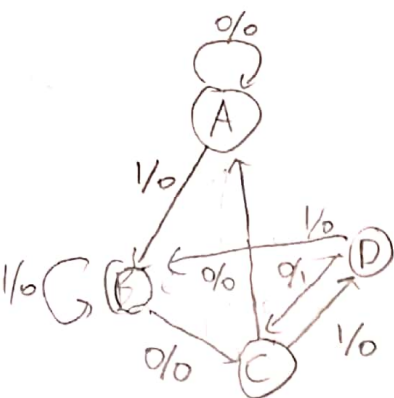
state table

q	q'		z	
	$x=0$	$x=1$	$x=0$	$x=1$
A	A	B	0	0
B	C	B	0	0
C	A	D	0	0
D	C	B	1	0

A를 00   B를 01   C를 10   D를 11 이라 하자

↓ (위 A.B와 아래 A.B는 의미가 다르다)

A	B	x	A^*	B^*	z	T_A	S_B	R_B
0	0	0	0	0	0	0	0	X
0	0	1	0	1	0	0	1	0
0	1	0	0	1	0	0	X	0
0	1	1	1	0	0	1	0	1
1	0	0	1	0	0	0	0	X
1	0	1	1	1	0	0	1	0
1	1	0	1	1	1	0	X	0
1	1	1	0	0	0	1	0	1

T_A

AB\x	0	1
00	0	0
01	0	1
11	0	1
10	0	0

$T_A = Bx$

S_B

AB\x	0	1
00	0	1
01	X	0
11	X	0
10	0	1

$S_B = B'x$

R_B

AB\x	0	1
00	X	0
01	0	1
11	0	1
10	X	0

$R_B = Bx$

z

AB\x	0	1
00	0	0
01	0	0
11	0	1
10	0	0

$z = ABx$

3

1010 유니   T, SR
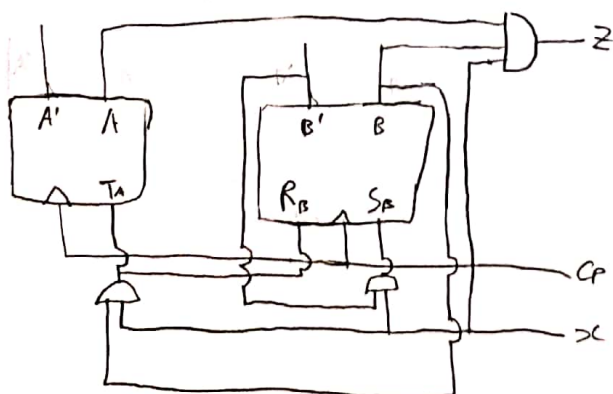
stote diagram
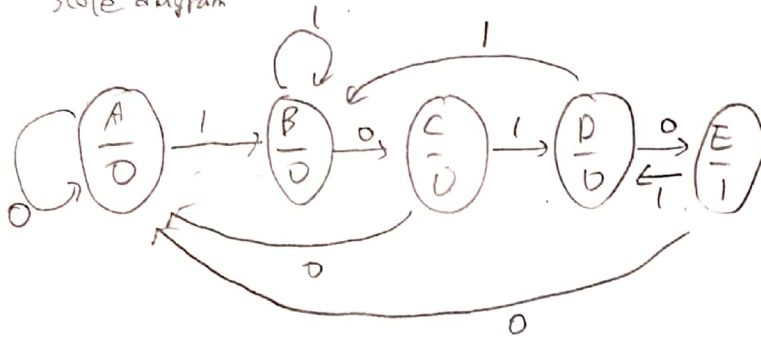
state table

A	q^x		Z
	$x=0$	$x=1$	
A	A	B	0
B	C	B	0
C	A	D	0
D	E	B	0
E	D	A	1

20191583 기계IE12

4.

0 6 1 3 7 2 4   using D

A	B	C	A*	B*	C*	D_A	D_E	D_C
0	0	0	1	1	0	1	1	0
0	0	1	0	1	1	0	1	1
0	1	0	1	0	0	1	0	0
0	1	1	1	1	1	1	1	1
1	0	0	0	0	0	0	0	0
1	0	1	X	X	X	X	X	X
1	1	0	0	0	1	0	0	1
1	1	1	0	1	0	0	1	0
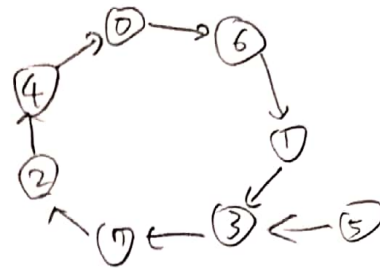
D_A

BC \ A	0	1
0 0	1	0
0 1	0	X
1 1	1	0
1 0	1	0

$D_A = A'B + A'C'$

D_B

BC \ A	0	1
0 0	1	0
0 1	1	X
1 1	1	1
1 0	0	0

$D_B = A'B' + C$

D_C

BC \ A	0	1
0 0	0	0
0 1	1	X
1 1	1	1
1 0	0	0

$D_C = C$
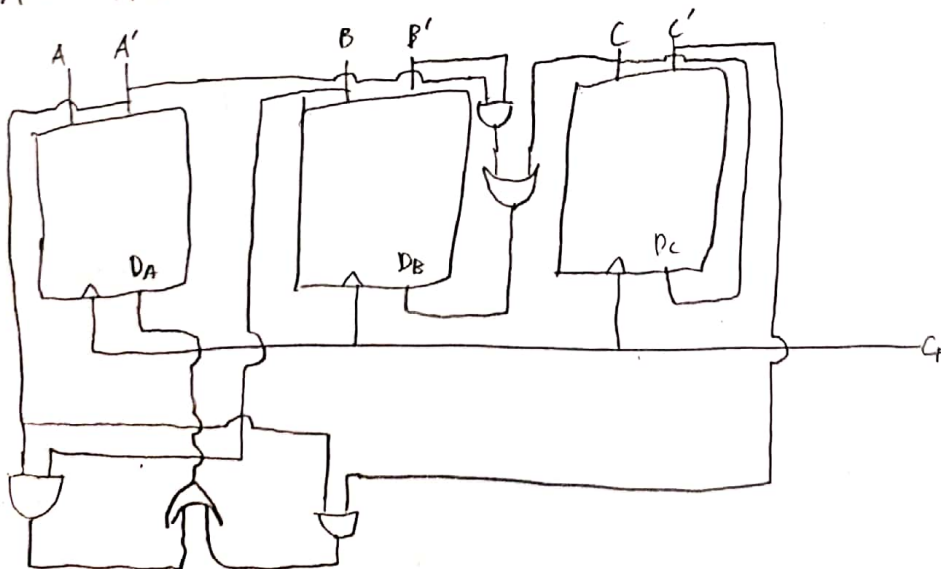
5.

① Dynamic power consumption - charging과 discharge의 5ㄴ비리해 발생하는 consumption

② Short circuit current - switching이 일어나는동안 발생하는 consumption

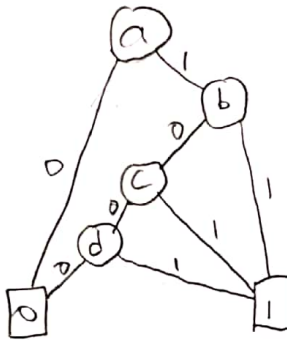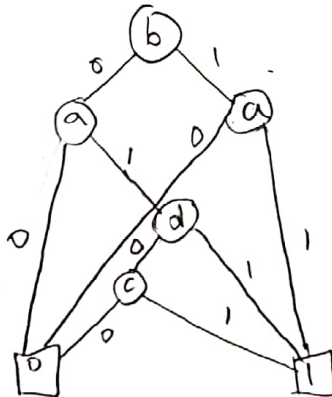③ Leakage - 다-익오드와 트랜지스터에 의해 발생하는 consumption
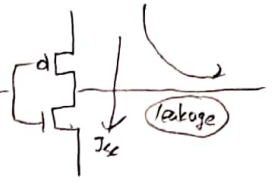

6.
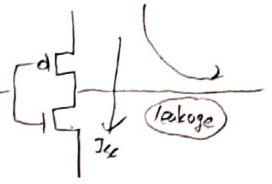
$$f = ab + ac + ad$$

a) $a \to b \to c \to d$

b) $b \to a \to d \to c$

5.

① Dynamic power consumption - charging 과 discharge 의 5ㅣ네ㅣ리 해 발생하는 consumption

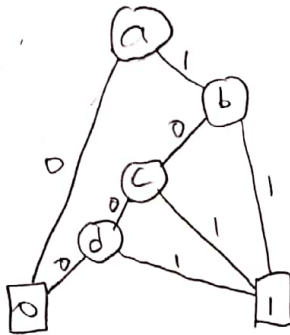② Short circuit current - switching 이 일어나는동안 발생하는 consumption

③ Leakage - 다.약오스의 트랜지스터에 의해 발생하는 consumption

6.

$$f = ab + ac + ad$$

a) $a \to b \to c \to d$

b) $b \to a \to d \to c$