一、

1、$F = A \oplus (A \oplus B)$

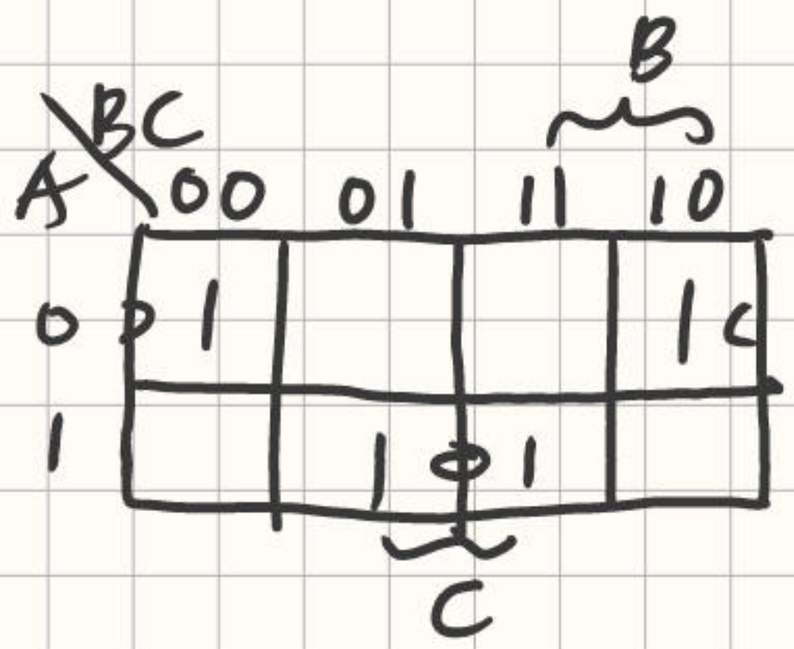
A	B	$A \oplus B$	F
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	1

$\bar{A}B + A\bar{B}$

异或

或

2、



$F = \bar{A}\bar{C} + AC = A \odot C$

同或

或

3、P：并点串加

$\overline{\bar{A} + \bar{B}}$

4、$F = 0$

$ABC + CD = 1$

A：x　B：x

C：$C = 1$

P：$BC = 1$　$CD = 1$

$B = 1$

$C = 1$

$D = 1$

5. 时序逻辑电路:

A. 计数器　B. 寄存器

C. 译码器　D. 触发器.

6. C:

7. a~g　1011011

七段显示器. 共阴极接法 ☆ 不知道是啥

0101|1011

01010100

64 32 16 8 4 2 1

8. $Q^{n+1} = T\bar{Q}^n + \bar{T}Q^n$

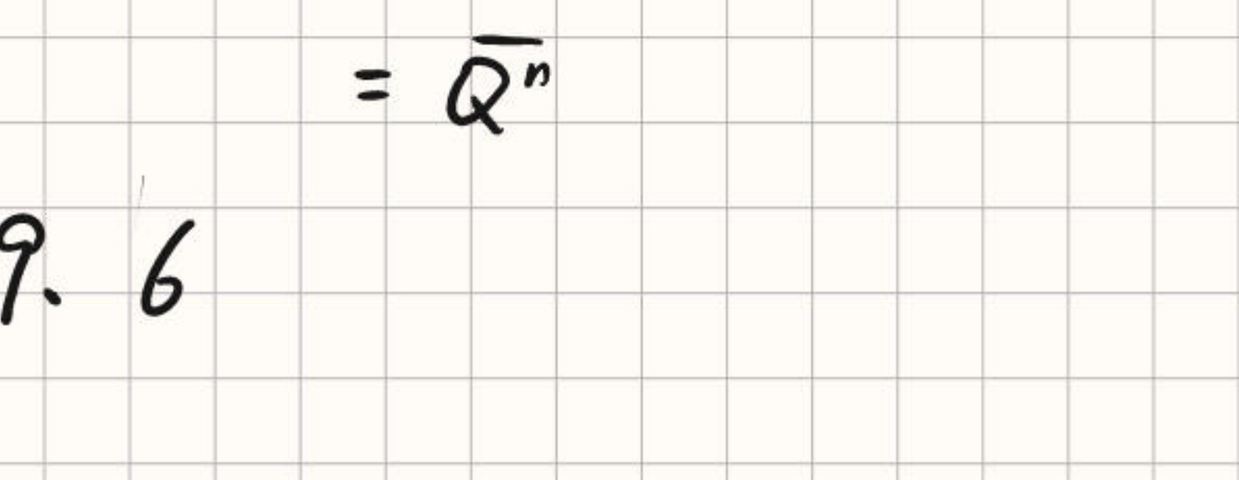
$= \bar{Q}^n$

9. 6

10. $J_2 = 1$　$K_2 = 1$

$f = \frac{1}{T}$

$Q_2^{n+1} = \overline{Q_2^n}$ // 翻转



二、

1、

$(65.4)_8$

$6\times8^1+5\times8^0+4\times8^{-1}$

$48+5+0.5$

53.5_{10}

421
111

6 5 . 4 8

32 16 8 4 2 1 | $\frac{1}{2}$

1 1 0 1 0 1 . 1 0 0 (2)

32
16
5.5
53.5

2. $(+00110)_2$ 补码 (+00110)

$(-1101)_2$ 补码

反码 -1011 $\xrightarrow{+1}$ -1100

补码

前面加了正负号是吗？

纤有！

3. $F(ABCD)=(\bar{A}+\bar{B})\overline{CD}$

$\bar{F}=AB+\overline{\bar{C}+\bar{D}}$

$=AB+CD$

421

4. $\bar{F}=\bar{A}\bar{B}C+A\bar{B}\bar{C}+A\bar{B}C$

001 100 101

5. 半加器

11 考虑进位 全加器

并.串+

6: $F=\overline{A+B+C}$

7. ○ TTL (2分)

TTL：电阻

8. f_o: 0.1×10^6 100 000 Hz

T_o= 10 μs

位移时间（π-π）

10×16 = 160

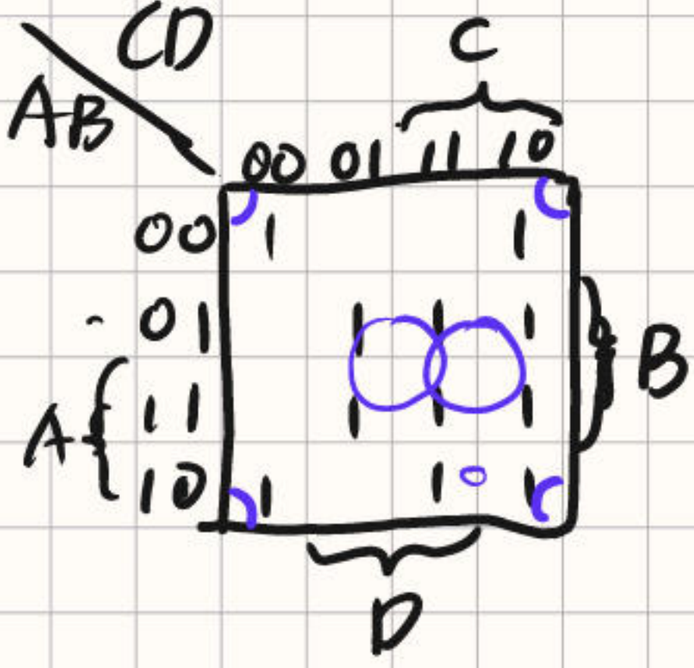
9.

10. 1111

三、化简

$F=\bar{A}\bar{B}\bar{D}+C\bar{D}+BD$

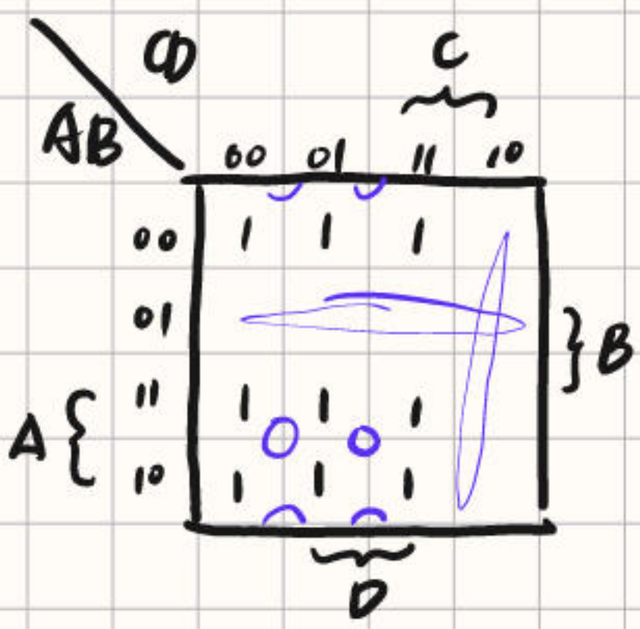
$+ACD+A\bar{B}C\bar{D}$



$F=\bar{B}\bar{D}+BD+BC+A\bar{B}C$

$(+C\bar{D})\times$

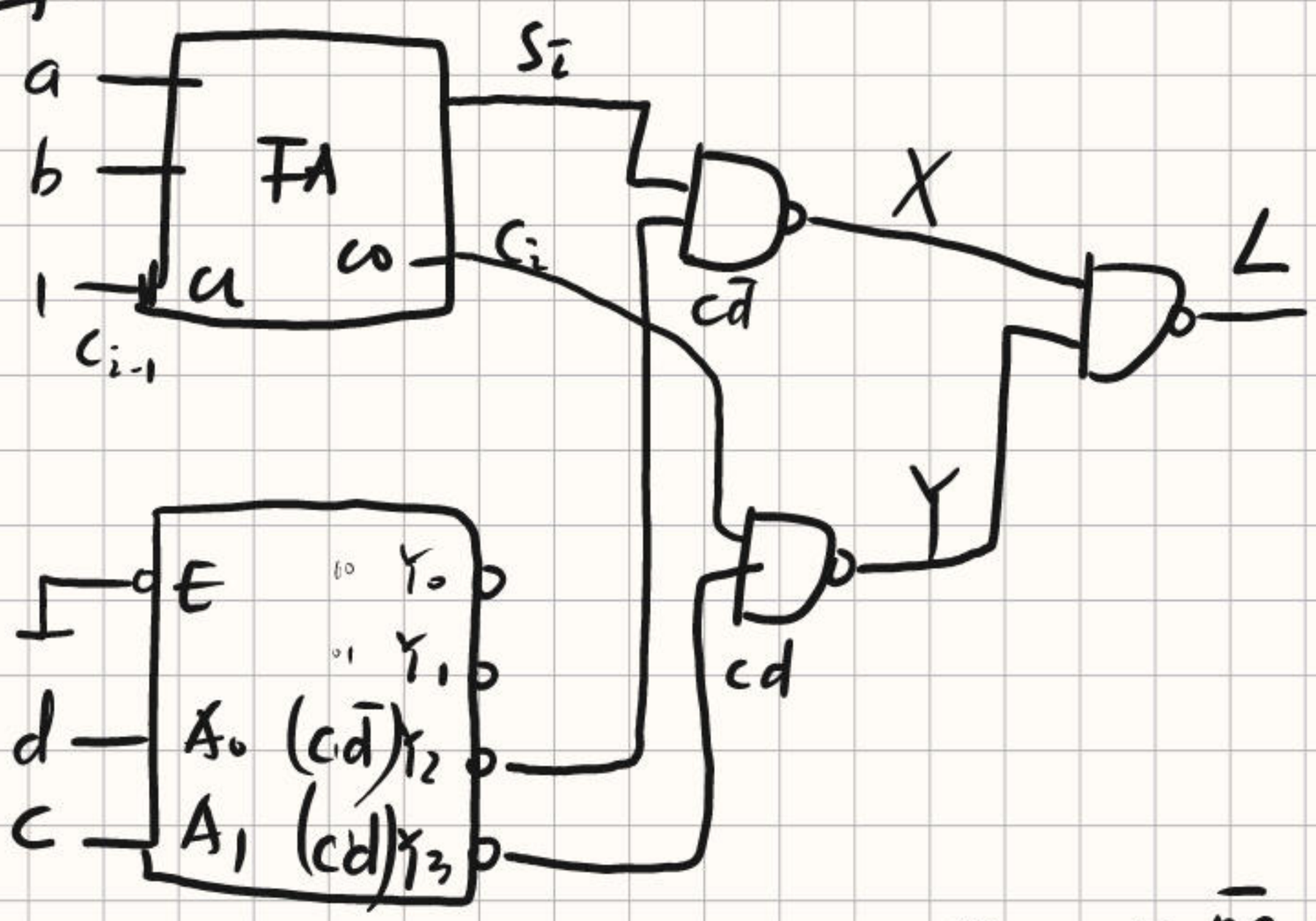
2. $Y = A\bar{C} + AD + \bar{B}\bar{C} + \bar{B}D$



$\bar{Y} = \bar{A}B + C\bar{D}$

$Y = (A+\bar{B})(\bar{C}+D)$

四:



$= \bar{a}\bar{b} + ab$

$= (\bar{a}+b)(a+\bar{b})$

$= \overline{\bar{a}\bar{b}} \cdot \overline{\bar{a}b}$

$= \bar{m} = \overline{a\bar{b}+\bar{a}b} = S_i$ (m)

$S_i = a \oplus b \oplus 1 = (a\bar{b}+\bar{a}b) \oplus 1 = m \oplus 1 = \bar{m}1 + m \cdot 0$

$C_i = ab + (a \oplus b) \cdot 1 = ab$

$L = \overline{XY} = \bar{X} + \bar{Y}$

$X = \overline{\bar{m} \cdot c\bar{d}}$

$= \bar{m} \cdot c\bar{d} + abcd$

$= (\bar{a}\bar{b}+ab)c\bar{d} + abcd$

$= \bar{a}\bar{b}c\bar{d} + abc\bar{d} + abcd$

$Y = \overline{ab \cdot cd}$

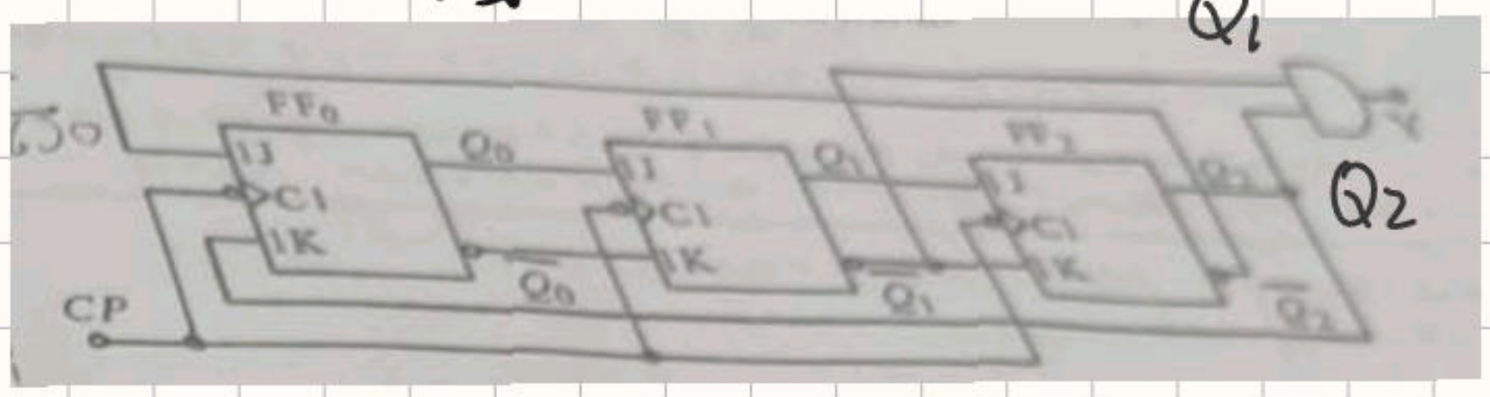
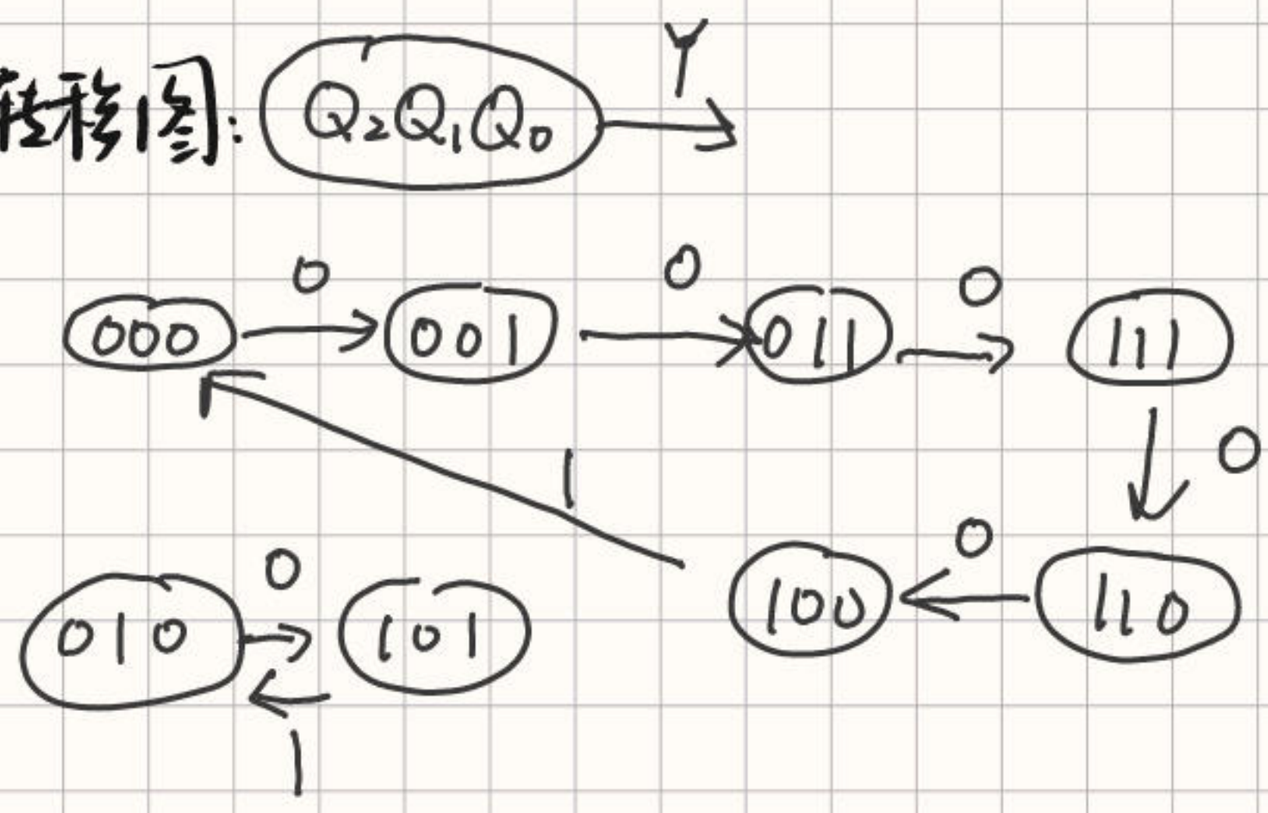
$$L = \bar{a}\bar{b}c\bar{d} + ab\bar{c}\bar{d} + abcd$$

ab \ cd	00	01	11	10
00				1
01				
11			1	1
10				

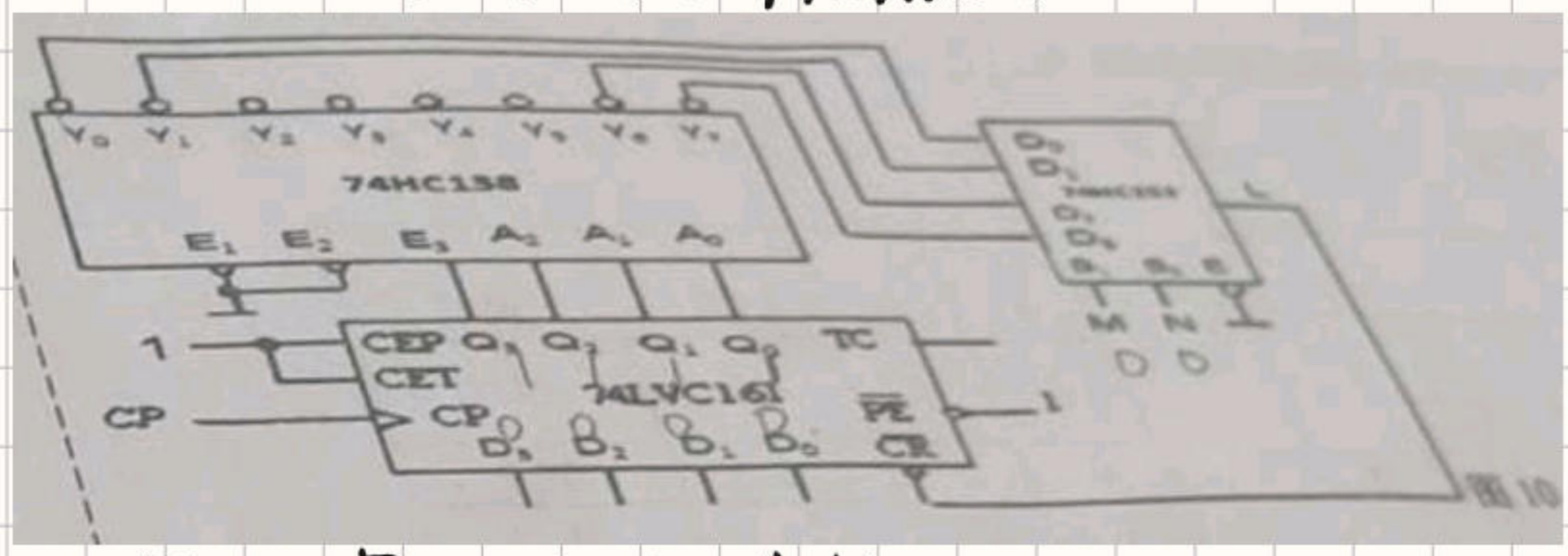
$$L = abc + \bar{a}\bar{b}c\bar{d}$$

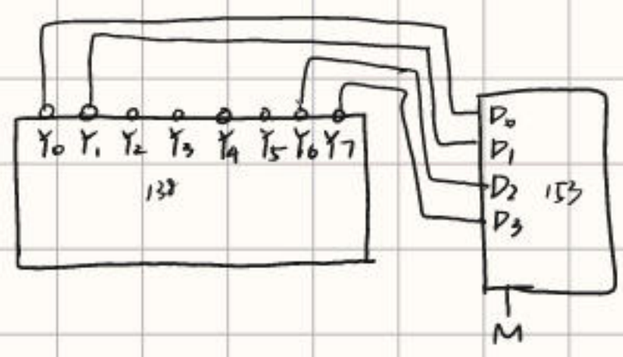
重！驱动fc 状态fc 输出fc

2. 状态转换表 3. 逻辑功能

~~~ 图



$$J_2 = Q_1 \quad J_1 = Q_0 \quad J_0 = \bar{Q}_2$$

$$K_2 = \bar{Q}_1 \quad K_1 = \bar{Q}_0 \quad K_0 = Q_2$$

$Q_2^{n+1} = J_2\bar{Q}_2^n + \bar{K}_2Q_2^n = Q_1\bar{Q}_2^n + Q_1Q_2^n$

$Q_2^{n+1} = Q_1$

$Q_1^{n+1} = J_1\bar{Q}_1^n + \bar{K}_1Q_1^n = Q_0\bar{Q}_1^n + Q_0Q_1^n$

$Q_1^{n+1} = Q_0$

$Q_0^{n+1} = J_0\bar{Q}_0^n + \bar{K}_0Q_0^n = \bar{Q}_2\bar{Q}_0^n + \bar{Q}_2Q_0^n$

$Q_0^{n+1} = \bar{Q}_2$

$$Y = \bar{Q}_1Q_2 = Q_2\bar{Q}_1$$

状态转移表

Q_2	Q_1	Q_0	Q_2^{n+1}	Q_1^{n+1}	Q_0^{n+1}	Y
0	0	0	0	0	1	0
0	0	1	0	1	1	0
0	1	0	1	0	1	0
0	1	1	1	1	1	0
1	0	0	0	0	0	1
1	0	1	0	1	0	1
1	1	0	1	0	0	0
1	1	1	1	\	0	0

转移图：



逻辑功能，从零开始的6进制进位计数器
~~~

六：当MN=00, 01, 10, 11 等不同输入时





电路分别是几进制计数器

8421

①MN=00时 $L=D_0=Y_0$ //低电平有效

$\hookrightarrow Y_0=0$, $\overline{CR}$ 清零.

$A_2A_1A_0=000$ 时

$Q_3=1$ $Q_2Q_1Q_0=0$

0000

MN=00 8进制

0 ~> 7

$D_3D_2D_1D_0$: 0000 ~> 0111

1000

②MN=01 $L=D_1=Y_1$

$A_2A_1A_0=001$ $Y_1=0$.

$D_3D_2D_1D_0$: 0000 ~> 1000

0 ~> 8

1001

9进制

8421

③MN=10 $L=D_2=Y_6$

$A_2A_1A_0=110$ $Y_6=0$

D_3-D_0: 0000 ~> 1101

13

14进制

1110

④ MN=11 $L=D_3=Y_7$

$A_2A_1A_0=111$ $Y_7=0$

§4.2.1

D_3-D_0.

0 ⇝ 15

0000 ⇝ 1110

15进制.

七：

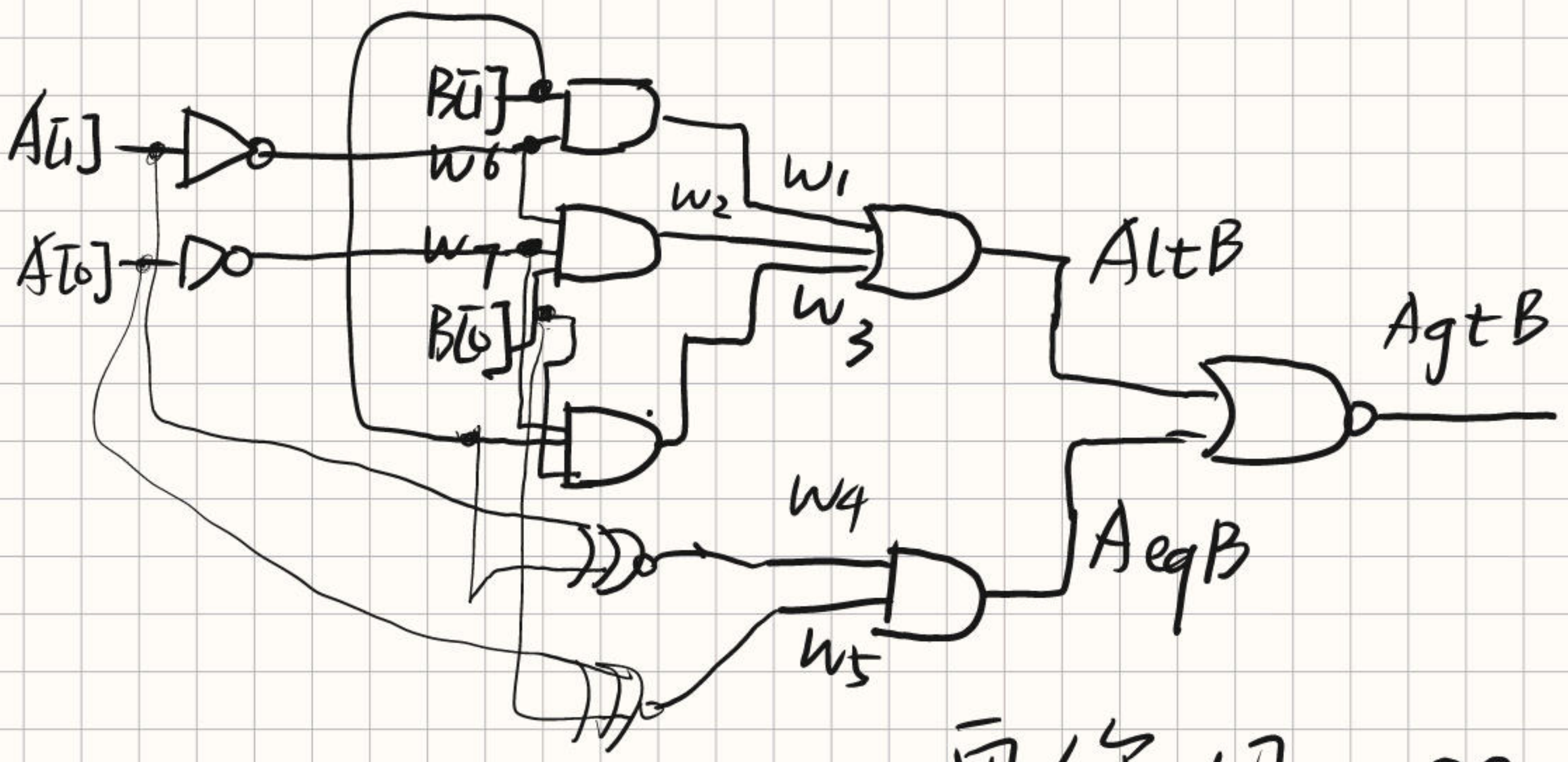
A[1]
A[0]

B[1]
B[0]

AgtB

AltB

AeqB



画你妈～♡

xnor 同或  A⊙B 鬼题目

异或  A⊕B

nor 或非