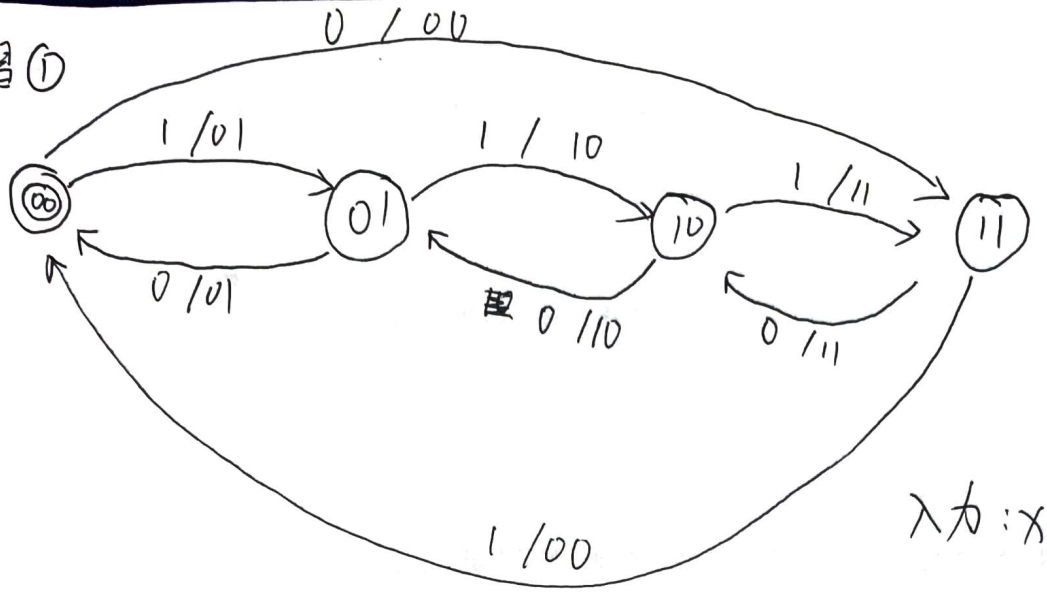
演習①



入力：x / 出力 $Y=(y, y_0)$

〈1〉出力表を描く

$q_1^{n+1}\,q_0^{n+1}$ / x ; $q_1^n\,q_0^n$	0	1
00	01 / 0	11 / 1
01	10 / 0	00 / 0
10	11 / 0	01 / 0
11	00 / 0	10 / 0

〈2〉出力関数を書く

$$\begin{cases} J_0 = k_0 = 1 \\ J_1 = k_1 = x \oplus q_0^n \end{cases}$$

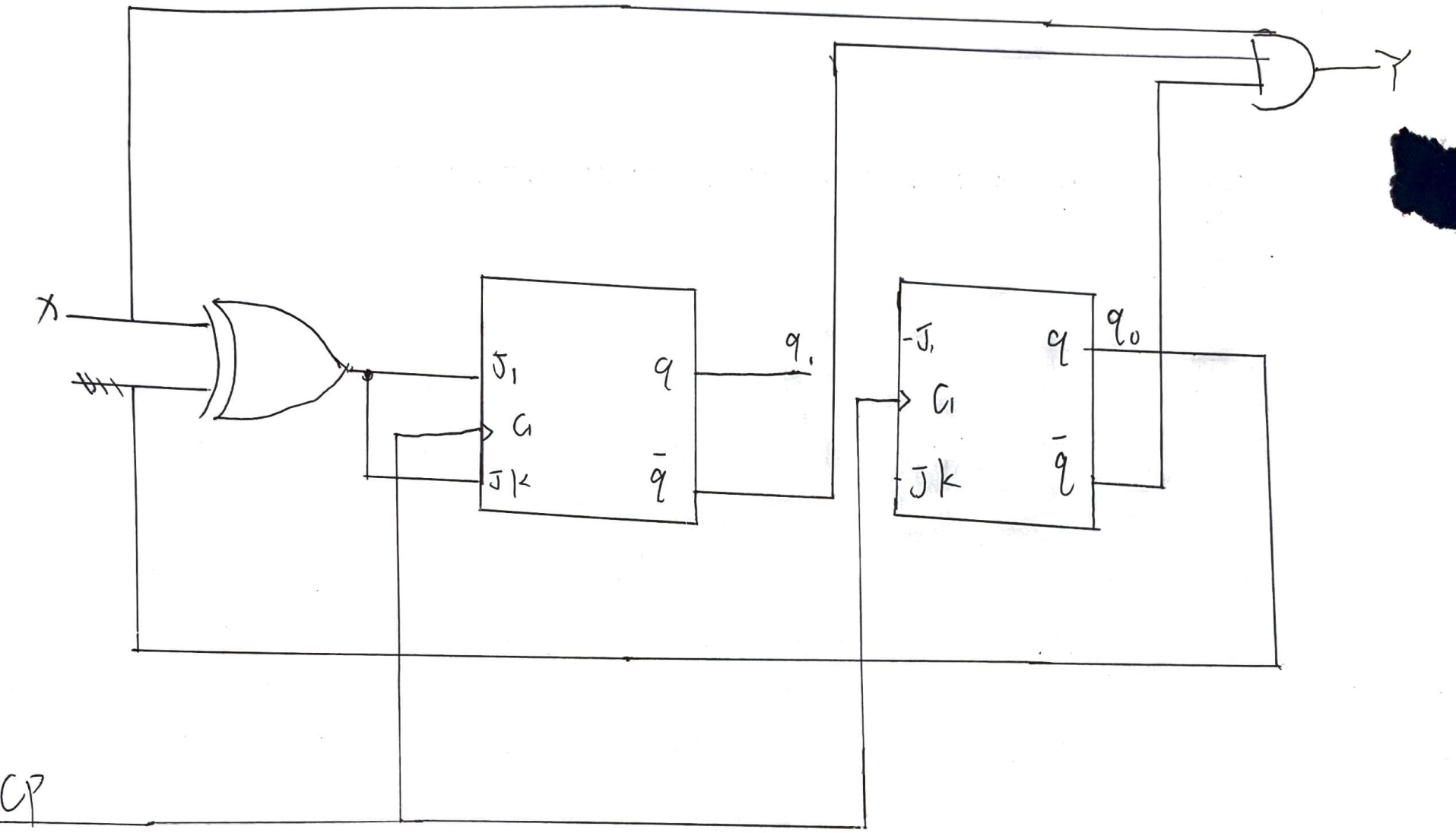
$$Y = x\,\bar{q}_1^n\,\bar{q}_0^n$$

〈3〉状態遷移関数

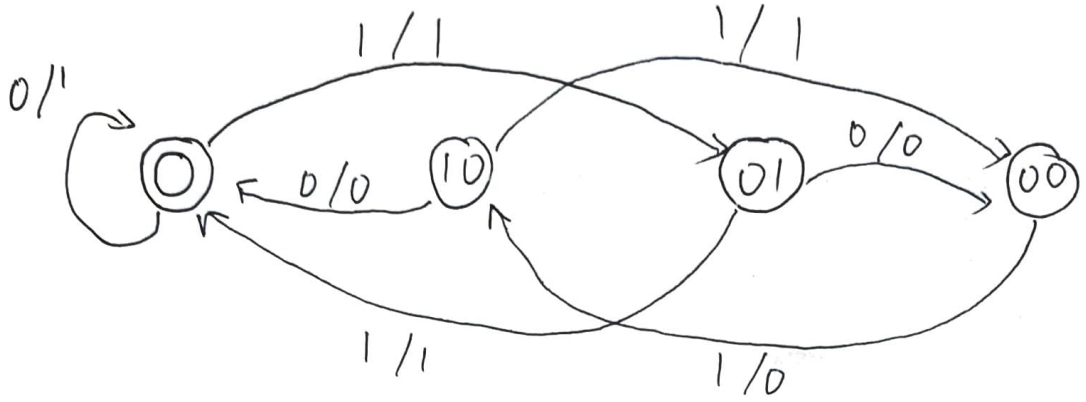
$$q_1^{n+1} = J_1\bar{q}_1^n + \bar{k}_1 q_1^n = (x \oplus q_0^n)\,\bar{q}_1^n + \overline{x \oplus q_0^n}\; q_1^n$$

$$= x \oplus q_0^n \oplus q_1^n$$

$$q_0^{n+1} = J_0\bar{q}_0^n + \bar{k}_0 q_0^n = \bar{q}_0^n$$


X
J1
C1
JK
q
q̄
q1
-J1
C1
JK
q
q̄
q0
Y
CP

演習⑫ ②



入力 x / 出力 Y

出力関数

$Z = x \,\&\, y_2 \,\&\, y_1$

$k_1 = k_2 = x'$

$J_1 = x \quad J_2 = y_1 \,\&\, x$

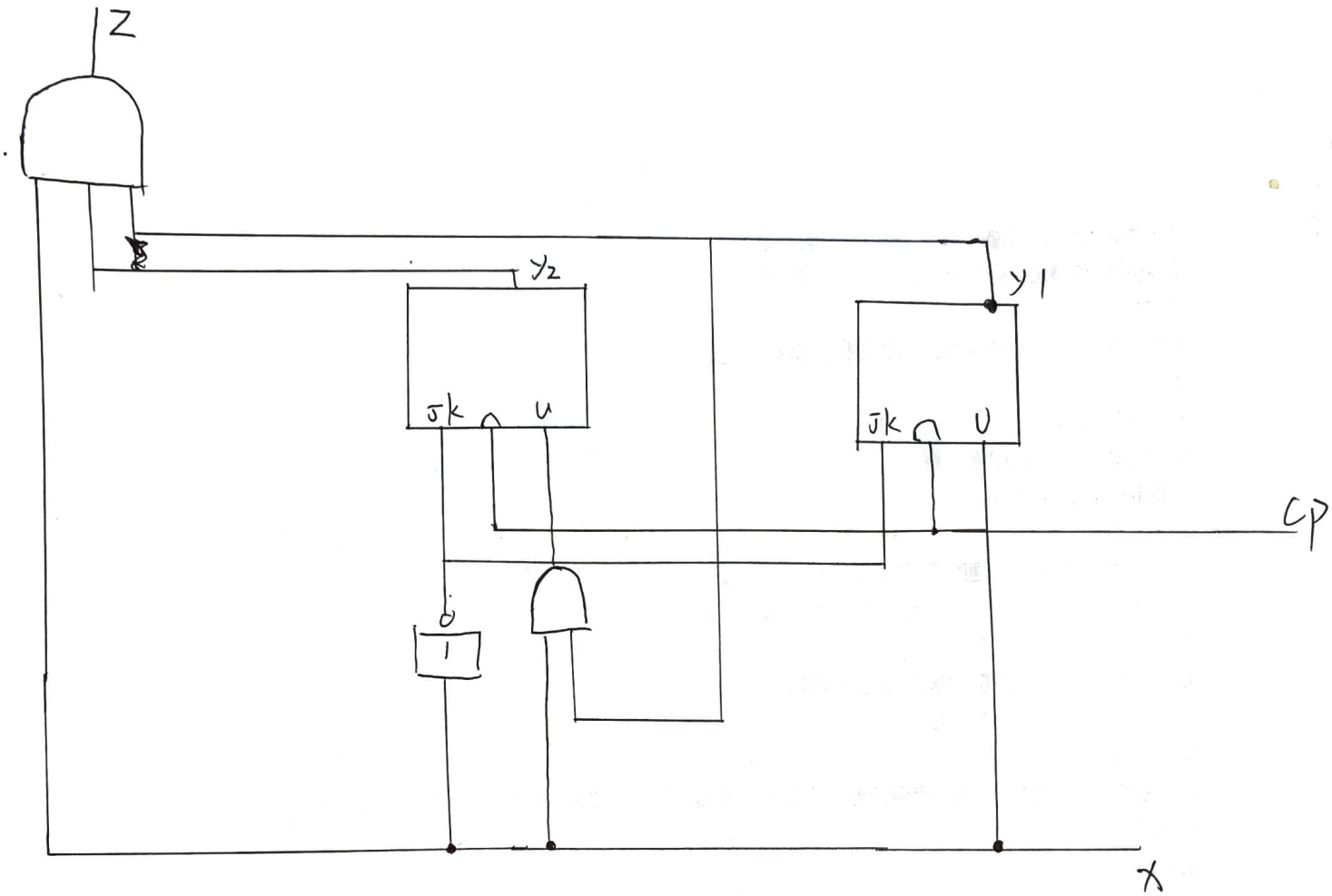
状態遷移関数

$y_1(n+1) = x\bar{y}_1(n) + \bar{x}y_1(n)$

$y_2(n+1) = y_1 x\bar{y}_2(n) + \bar{x}y_2(n)$

代入 $Q(n+1) = JQ'(n) + k'Q(n)$

x	y_{1n}	y_{2n}	状態	Z	y_{1n+1}	y_{2n+1}
0	0	0	Q	0	0	0
0	0	1		0	0	
0	1	0		0	0	
1	0	0		0	1	0
0	1	1		0	0	0
1	0	1		0	1	1
1	1	0		0	1	1
1	1	1		1	1	1



状態遷移表

現状態		次状態 y2 y1 / Z	
y2	y1	X=0	X=1
0	0	00/0	01/0
0	1	00/0	11/0
1	0	00/0	11/0
1	1	00/0	11/1