1. CLK ↑

A	now Q_2	now Q_1	$\overline{Q_2}$	$\overline{Q_1}$	next Q_2^*	next Q_1^*	Y
0	0	0	1	1	0	1	0
	0	1	1	0	1	0	0
	1	0	0	1	1	1	0
	1	1	0	0	0	0	1
1	0	0	1	1	1	1	1
	1	1	0	0	1	0	0
	1	0	0	1	0	1	0
	0	1	1	0	0	0	0

$Q_1^* = 1D = \overline{Q_1}$

$Q_2^* = 2D = Q_2 \oplus Q_1 \oplus A$

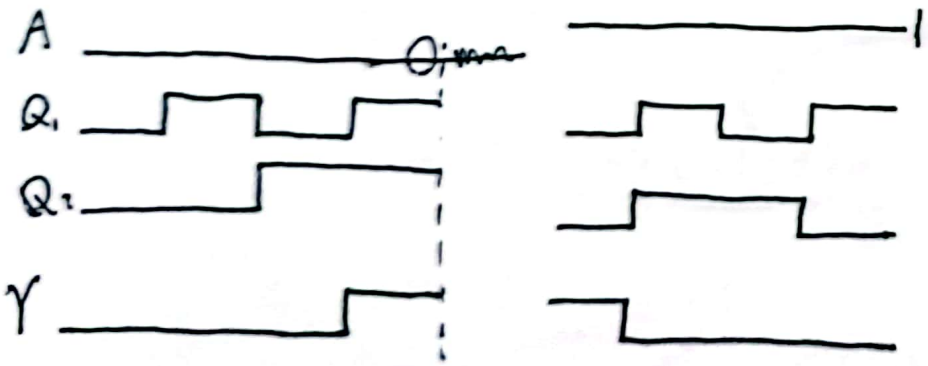
$Y = \overline{\overline{A}Q_1Q_2 \cdot A\overline{Q_1}\overline{Q_2}}$

$= \overline{A}Q_1Q_2 + A\overline{Q_1}\overline{Q_2}$

功能：产生脉冲信号，

当A固定为0/1时，

Y总是 0001 …… ，产生脉冲。



2. $Q_1^* = J_1\overline{Q}_1 + \overline{K}_1 Q_1$

$Q_2^* = J_2\overline{Q}_2 + \overline{K}_2 Q_2$

$Q_3^* = J_3\overline{Q}_3 + \overline{K}_3 Q_3$.

~~$Q_3Q_2Q_1 = 000$~~ 时：$J_2 = K_2 = Q_1 = 0 \Rightarrow Q_2^* = Q_2 = 0 \Rightarrow Q_3^* = 0 \Rightarrow Q_1^* = 0$

$Q_3Q_2Q_1 = 000$

010：$Q_2^* = \overline{Q}_2 = 1$，$Q_3^* = \overline{Q}_3 = 1$，

$Q_1^* = 1 \rightarrow 111$

111：$Q_2^* = \overline{Q}_2 = 0$、$Q_3^* = 0$、$Q_1^* = 0$

000：

000 → 000 无法自启动.

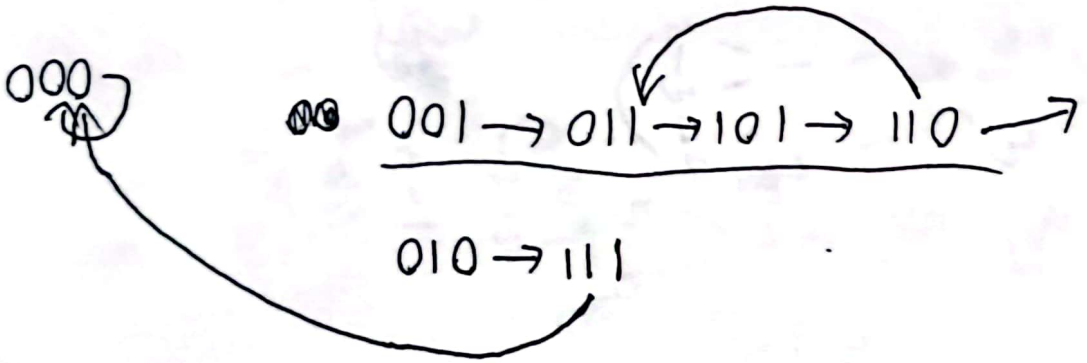
$Q_3Q_2Q_1 = 001$ 时：$J_2 = K_2 = 1 \Rightarrow Q_2^* = \overline{Q}_2 = 1 \Rightarrow Q_3^* = Q_3 = 0 \Rightarrow Q_1^* = 1$

011：$Q_2^* = \overline{Q}_2 = 0 \Rightarrow Q_3^* = \overline{Q}_3 = 1 \Rightarrow Q_1^* = 1$

101：$Q_2^* = \overline{Q}_2 = 1 \Rightarrow Q_3^* = Q_3 = 1 \Rightarrow Q_1^* = 0$

110：$Q_2^* = Q_2 = 1 \Rightarrow Q_3^* = \overline{Q}_3 = 0 \Rightarrow Q_1^* = \overline{Q}_1 = 1$

~~001~~ 011



3.

Q_3	Q_2	Q_1	Q_3^*	Q_2^*	Q_1^*
0	0	0	0	0	1
0	0	1	0	1	1
0	1	0	1	0	0
0	1	1	1	1	0
1	0	0	0	0	0
1	0	1	0	1	0
1	1	0	1	0	0
1	1	1	1	1	0

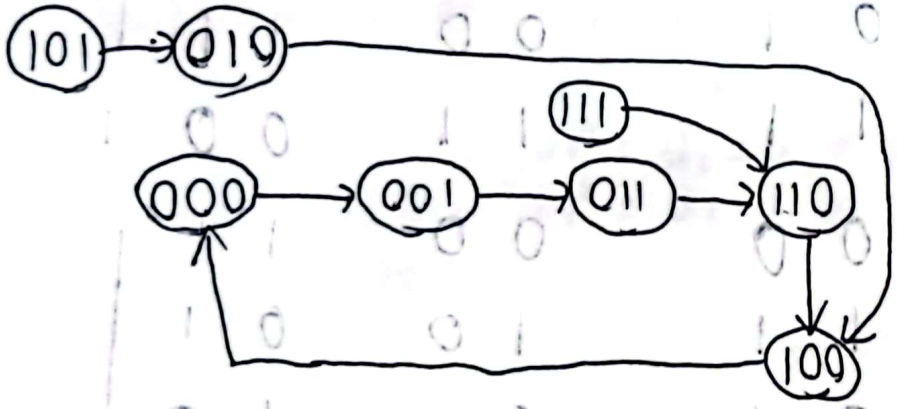
$Q_2^* = Q_1$

$Q_3^* = Q_2$

$Q_1^* = \overline{Q_2} \cdot \overline{Q_3}$

由输入序列 00001111 可得

输出序列 00110011



可自启动.