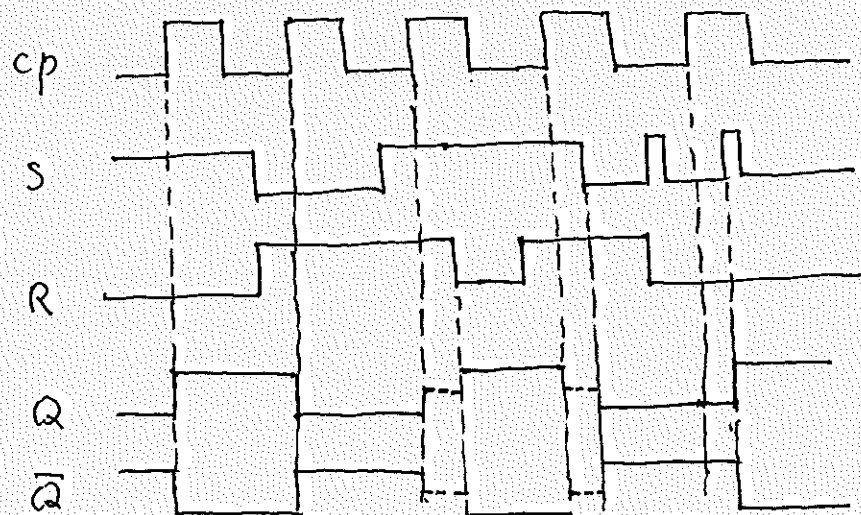
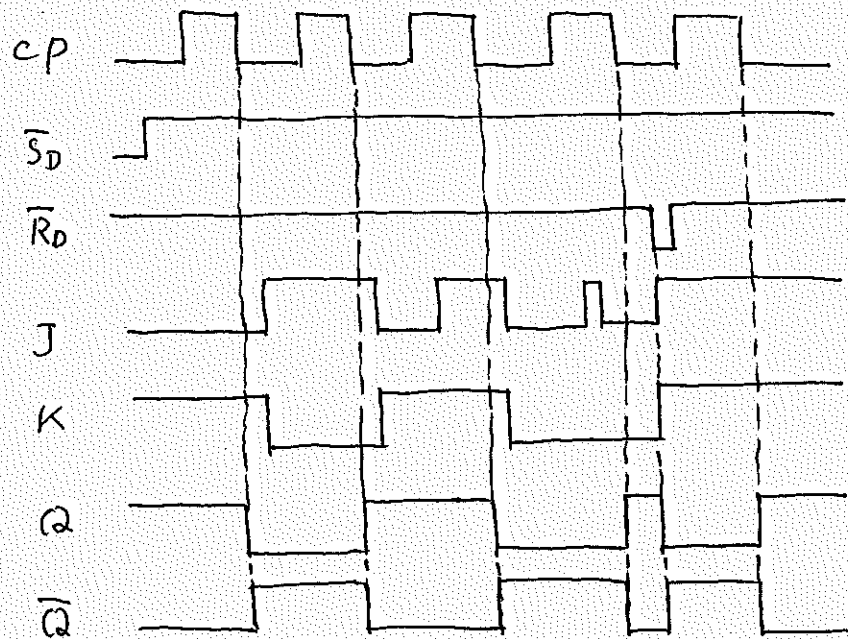


# 第5章部分习题参考答案

5-7.



5-9



5-17

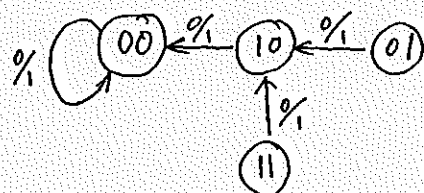
解. 由电路得驱动方程为:  $D_0 = x$ ,  $D_1 = Q_0^n$ , 代入特性方程得状态方程为:

$$\begin{cases} Q_0^{n+1} = x \\ Q_1^{n+1} = Q_0^n \end{cases}$$

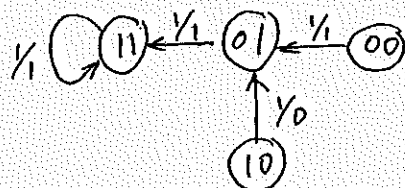
输出方程为:  $Y = \overline{Q_1^n Q_0^n} \cdot x$

状态转换图为:

当  $x=0$  时:



当  $x=1$  时:

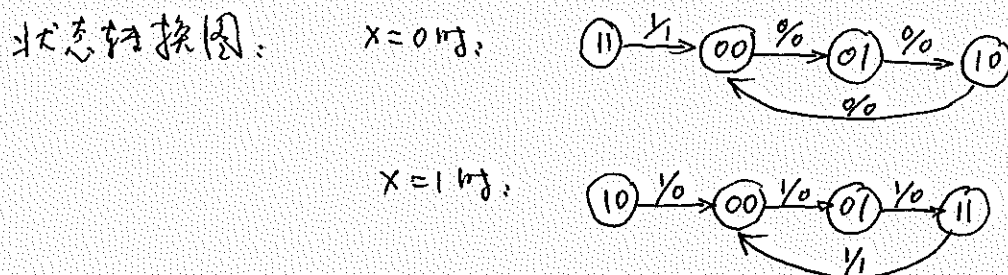


5-18

解: 驱动方程:  $\begin{cases} J_0 = \bar{Q}_1^n \\ K_0 = x \bar{Q}_1^n \end{cases}; \begin{cases} J_1 = Q_0^n \\ K_1 = 1 \end{cases}$

状态方程:  $\begin{cases} Q_0^{n+1} = \bar{Q}_1^n \bar{Q}_0^n + x \bar{Q}_1^n \\ Q_1^{n+1} = \bar{Q}_1^n Q_0^n \end{cases}$

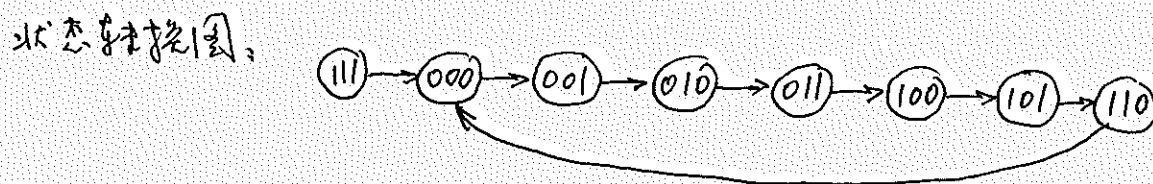
输出方程:  $y = x Q_1^n Q_0^n$



5-21

解: 驱动方程:  $\begin{cases} J_0 = \bar{Q}_2^n \bar{Q}_1^n \\ K_0 = 1 \end{cases}; \begin{cases} J_1 = Q_0^n \\ K_1 = \bar{Q}_2^n \bar{Q}_0^n \end{cases}; \begin{cases} J_3 = 1 \\ K_3 = 1 \end{cases}$

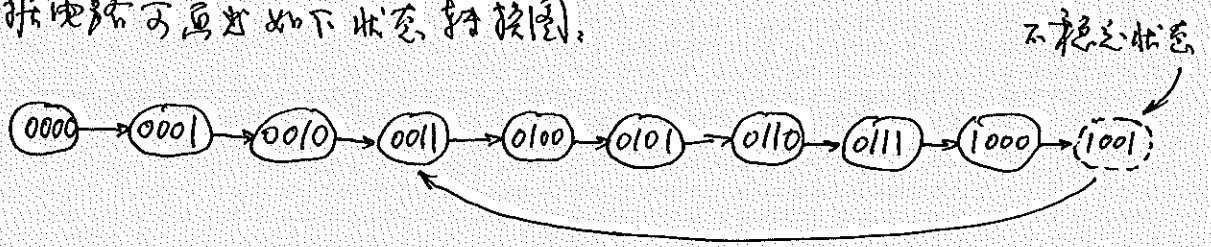
状态方程:  $\begin{cases} Q_0^{n+1} = \bar{Q}_2^n \bar{Q}_0^n + \bar{Q}_1^n \bar{Q}_0^n \\ Q_1^{n+1} = \bar{Q}_1^n Q_0^n + \bar{Q}_2^n Q_1^n \bar{Q}_0^n \\ Q_2^{n+1} = \bar{Q}_2^n \end{cases}$  时钟方程:  $\begin{cases} CP_0 = CP \\ CP_1 = CP \\ CP_2 = Q_1^n \end{cases}$



电路为模7计数器

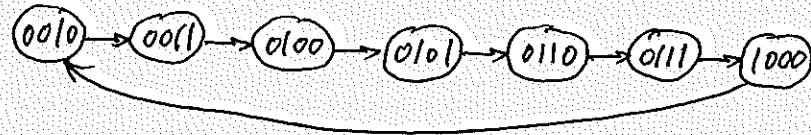
5-23

解：根据电路可画出如下状态转换图：

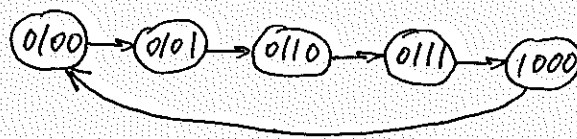


5-25

解：当  $M=0$  时：

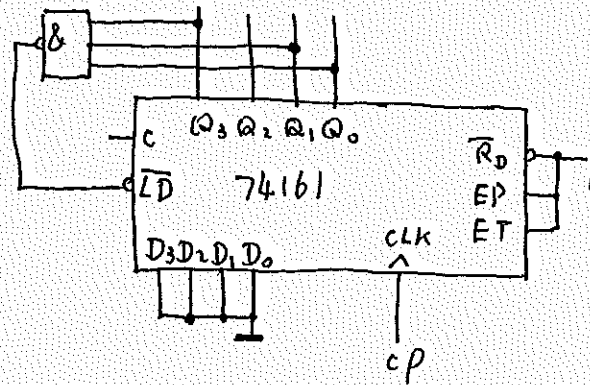


当  $M=1$  时：



5-26

解：



5-29

解：因为 74161 的预置数均取 0000，当高位计到 5，低位计到 2 时，接收预置数。由于 74161 是同步预置数方式，所以计数器的模为 53。

5-30

解：

