

【例 5.4】同步时序逻辑电路的逻辑图如图 5-10 所示，分析其逻辑功能。

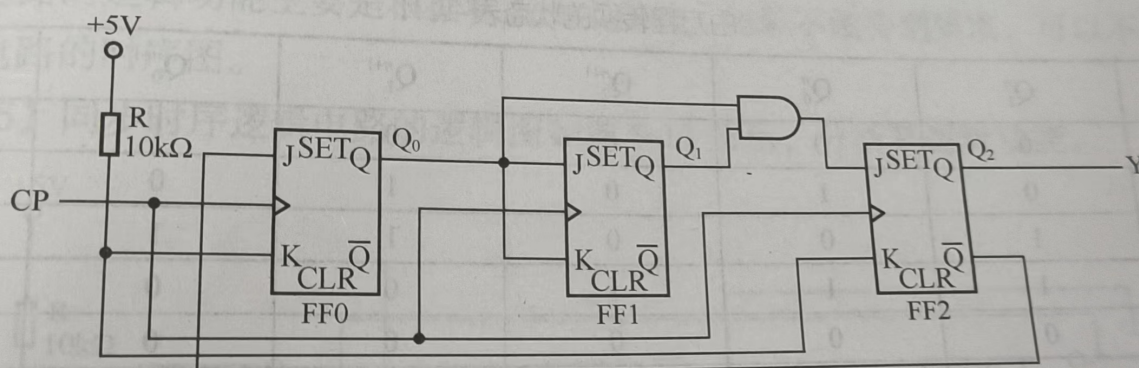


图 5-10 同步时序逻辑电路逻辑图

(1) 列方程

1. 输出方程

$$Y = Q_2$$

2. 激励方程

$$\begin{cases} J_2 = Q_1^n \cdot Q_0^n \\ K_2 = 1 \end{cases}$$

$$\begin{cases} J_1 = Q_0^n \\ K_1 = Q_0^n \end{cases}$$

$$\begin{cases} J_0 = \overline{Q_2^n} \\ K_0 = 1 \end{cases}$$

3. 激励方程组

$$Q_2^{n+1} = J_2 \overline{Q_2^n} + \overline{K_2} Q_2^n = \overline{Q_2^n} Q_1^n Q_0^n$$

$$Q_1^{n+1} = J_1 \overline{Q_1^n} + \overline{K_1} Q_1^n = Q_0^n \oplus Q_1^n$$

$$Q_0^{n+1} = J_0 \overline{Q_0^n} + \overline{K_0} Q_0^n = \overline{Q_2^n} \overline{Q_0^n}$$