



班级: 计01

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科目: 数电

4.3 逻辑表达式:

$$\begin{cases} G_0 = B_0 \oplus B_1 = B_0 \bar{B}_1 + \bar{B}_0 B_1 \\ G_1 = B_1 \oplus B_2 = B_1 \bar{B}_2 + \bar{B}_1 B_2 \\ G_2 = B_2 \oplus B_3 = B_2 \bar{B}_3 + \bar{B}_2 B_3 \\ G_3 = B_3 \end{cases}$$

功能表:

$B_0 B_1 B_2 B_3$	G_0	G_1	G_2	G_3
0 0 0 0	0	0	0	0
1 0 0 0	1	0	0	0
0 1 0 0	1	1	0	0
1 1 0 0	0	1	0	0
0 0 1 0	0	1	1	0
1 0 1 0	1	1	1	0
0 1 1 0	1	0	1	0
1 1 1 0	0	0	1	0
0 0 0 1	0	0	1	1
1 0 0 1	1	0	1	1
0 1 0 1	1	1	1	1
1 1 0 1	0	1	1	1
0 0 1 1	0	1	0	1
1 0 1 1	1	0	0	1
0 1 1 1	1	0	0	1
1 1 1 1	0	0	0	1

功能: 码制译码器: 8421 - 格雷码

4.5 逻辑表达式:

$K=0$:

$$\begin{cases} A_0 = B_0 \oplus B_1 \oplus B_2 \\ \quad = \bar{B}_0 B_1 \bar{B}_2 + B_0 \bar{B}_1 B_2 + B_0 B_1 \bar{B}_2 + \bar{B}_0 B_1 B_2 \\ A_1 = B_1 \oplus B_2 = B_1 \bar{B}_2 + \bar{B}_1 B_2 \\ A_2 = B_2 \end{cases}$$

$K=1$:

$$\begin{cases} A_0 = B_0 \oplus B_1 = B_0 \bar{B}_1 + \bar{B}_0 B_1 \\ A_1 = B_1 \oplus B_2 = B_1 \bar{B}_2 + \bar{B}_1 B_2 \\ A_2 = B_2 \end{cases}$$

功能:

 $K=0$: 码制译码: 格雷码 - 二进制 $K=1$: 码制译码: 二进制 - 格雷码4.5 $K=0$:

$B_0 B_1 B_2$	A_0	A_1	A_2
0 0 0	0	0	0
1 0 0	1	0	0
0 1 0	1	1	0
1 1 0	0	1	0
0 0 1	1	1	1
1 0 1	0	1	1
0 1 1	0	0	1
1 1 1	1	0	1

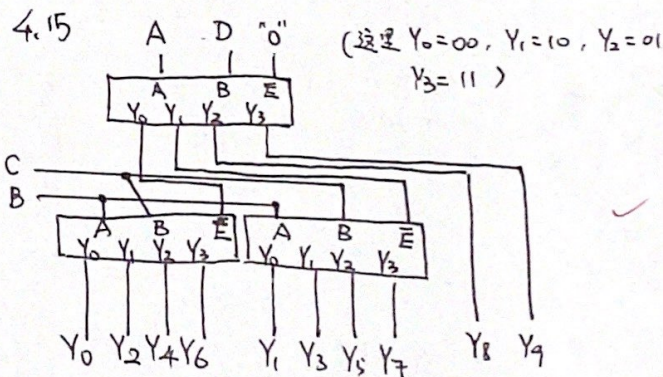
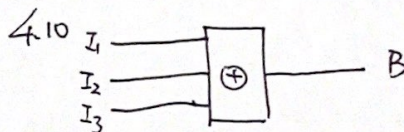
 $K=1$:

$B_0 B_1 B_2$	A_0	A_1	A_2
0 0 0	0	0	0
1 0 0	1	0	0
0 1 0	1	1	0
1 1 0	0	1	0
0 0 1	0	1	1
1 0 1	1	1	1
0 1 1	1	0	1
1 1 1	0	0	1

4.6 逻辑表达式:

$$\begin{cases} A = \overline{I_1 + I_9} \cdot \overline{I_3 + I_7} \cdot \overline{I_5 + I_7} = I_1 + I_3 + I_5 + I_7 + I_9 \\ B = \overline{I_2 + I_6} \cdot \overline{I_3 + I_7} = I_2 + I_3 + I_6 + I_7 \\ C = \overline{I_4 + I_6} \cdot \overline{I_5 + I_7} = I_4 + I_5 + I_6 + I_7 \\ D = I_2 + I_9 \end{cases}$$

功能: 8421 编码器





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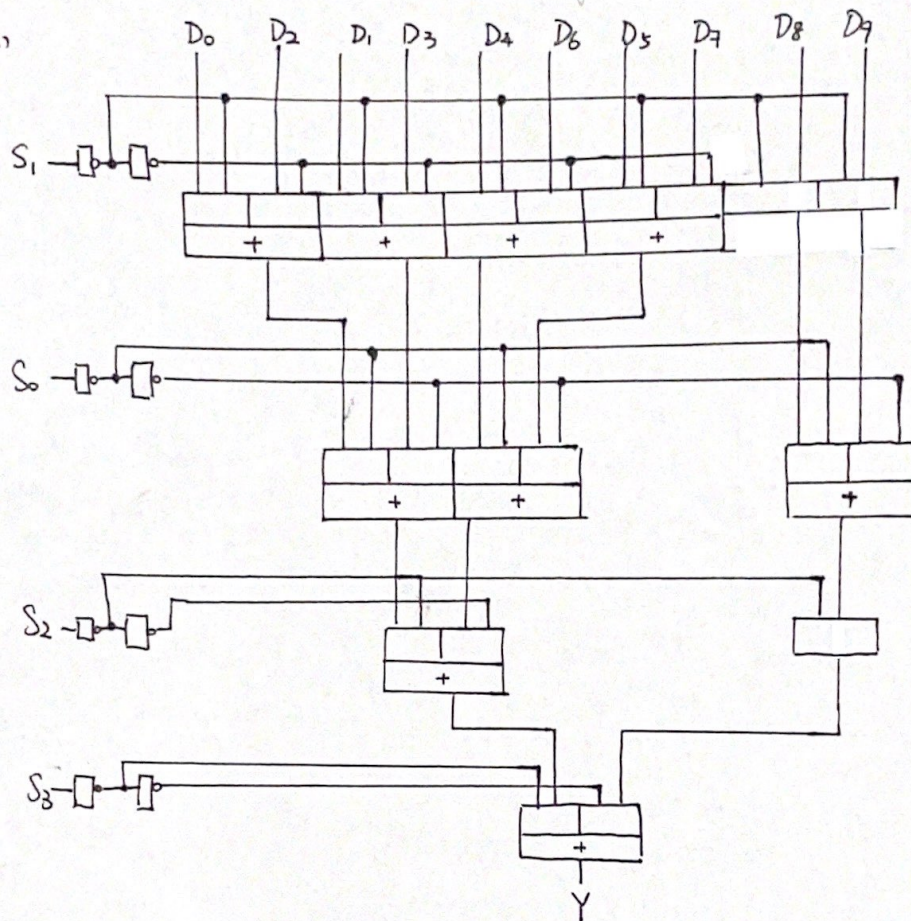
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第 2 页

4.22 (1)



(2)

