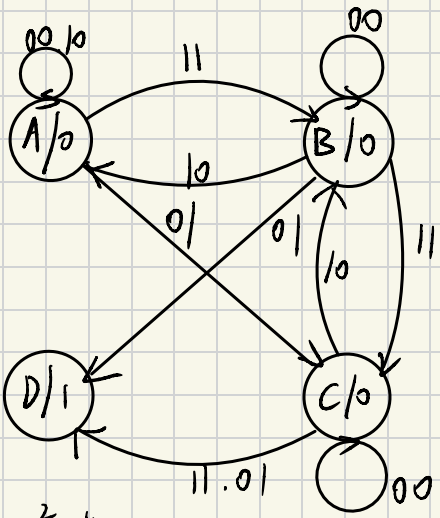
大作业(2)

①原始状态图



原始状态表

现态	次态 $X_1=0\ X_2=0$	$X_1=0\ X_2=1$	$X_1=1\ X_2=1$	$X_1=1\ X_2=0$	输出
A	A	C	B	A	0
B	B	D	C	A	0
C	C	D	D	B	0
D	D	D	D	D	1

BC
AB
BCD

编码：

	0	1
0	A	D
1	B	C

故编码为 A：00　B：01　C：11　D：10

编码后的状态表

现态	次态 $X_1=0\ X_2=0$	$X_1=0\ X_2=1$	$X_1=1\ X_2=1$	$X_1=1\ X_2=0$	输出
00	00	11	01	00	0
01	01	10	11	00	0
11	11	10	10	01	0
10	10	10	10	10	1

状态转移真值表

X_1X_2 / Y_2Y_1	00				01				11				10				输出
	Y_2	Y_1	D_2	D_1	Y_2	Y_1	D_2	D_1	Y_2	Y_1	D_2	D_1	Y_2	Y_1	D_2	D_1	
00	0	0	0	0	1	1	1	1	0	1	0	1	0	0	0	0	0
01	0	1	0	1	1	0	1	0	1	1	1	1	0	0	0	0	0
11	1	1	1	1	1	0	1	0	1	0	1	0	0	1	0	1	0
10	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

y_2y_1 \ x_1x_2	00	01	11	10
00	0	1	0	0
01	0	1	1	0
11	1	1	1	0
10	1	1	1	1

$$D_2 = \bar{x}_1x_2 + y_2\bar{y}_1 + x_2y_1 + \bar{x}_1y_2$$

y_2y_1 \ x_1x_2	00	01	11	10
00	0	1	1	0
01	1	0	1	0
11	1	0	0	1
10	0	0	0	0

$$D_1 = x_2\bar{y}_2\bar{y}_1 + x_1x_2\bar{y}_2 + \bar{x}_1\bar{x}_2y_1 + \bar{x}_2y_2y_1$$

由上得激励函数和输出函数表达式如下

$$D_2 = \bar{x}_1x_2 + y_2\bar{y}_1 + x_2y_1 + \bar{x}_1y_2$$

$$D_1 = x_2\bar{y}_2\bar{y}_1 + x_1x_2\bar{y}_2 + \bar{x}_1\bar{x}_2y_1 + \bar{x}_2y_2y_1$$

$$Z = y_2\bar{y}_1$$

电路图如下