

题 3  $Y_2 = (AB + AC + BC)$

$$Y_1 = [(A+B+C) \cdot Y_2' + ABC] = ABC + AB'C' + A'BC' + A'B'C$$

其逻辑功能为全加数

ABC 为加数 被加数与进位,  $Y_1$  是和,  $Y_2$  是进位输出.

A	B	C	$Y_1$	$Y_2$
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

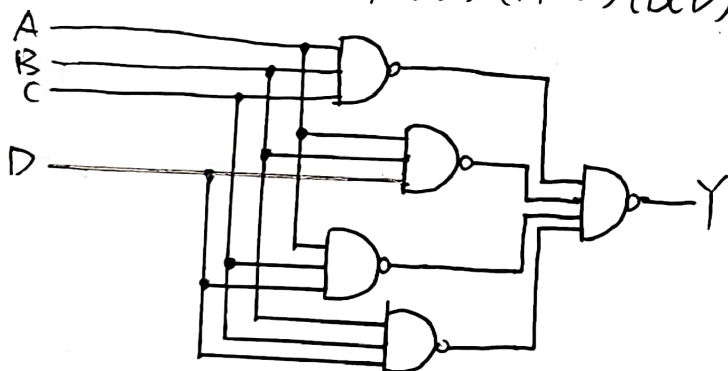
4.2 真值表

题 4.5  $Y = ABCD + ABCD' + ABC'D$

$$+ AB'(CD + A'BCD)$$

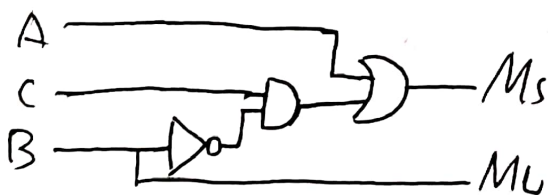
$$= ABC + ABD + ACD + BCD$$

$$= [(ABC)'(ABD)'(ACD)'(BCD)']'$$



题 4.6  $M_5 = A'B'C + ABC = A + B'C$

$$M_4 = A'B'C + ABC = B$$



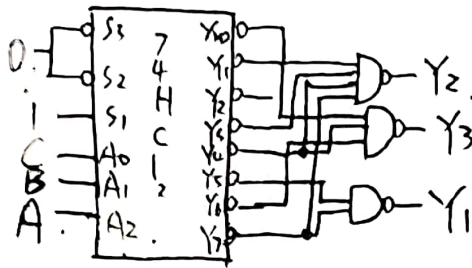
A \ BC	00	01	11	10
0	0	1	0	X
1	X	X	1	X

$$M_5 = A + B'C$$

A \ BC	00	01	11	10
0	0	0	1	X
1	X	X	1	X

$$M_4 = B$$

题 4.12



$$Y_1(ABC) = ABC + A'BC = Y_5 + Y_7 = (Y_5' \cdot Y_7')'$$

$$Y_2(ABC) = A'B'C + AB'C + ABC + A'BC = Y_1 + Y_3 + Y_4 + Y_7 = (Y_1' \cdot Y_3' \cdot Y_4' \cdot Y_7')'$$

$$Y_3(ABC) = AB'C' + A'B'C' + ABC' = Y_0 + Y_4 + Y_6 = (Y_0' \cdot Y_4' \cdot Y_6')'$$

题 4.16  $Z = D(C'B'A' + C'BA' + CBA' + CBA) + C'BA' + D'CBA'$

$$= D(C'B' + C'B) + (C' + D'C)BA'$$

$$= B'D' + A'BD' + A'C'D$$

AB	00	01	11	10
00	0	1	1	0
01	1	1	0	1
11	0	0	0	0
10	0	1	1	0

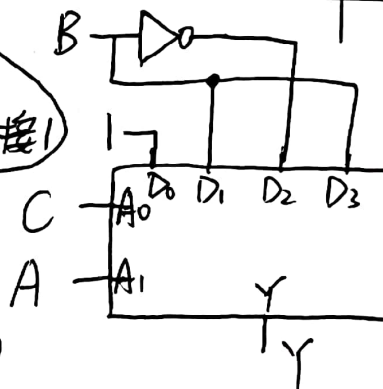
题 4.18 令 A 接 A<sub>1</sub>, C 接 A<sub>0</sub>, D<sub>1</sub>, D<sub>3</sub> 接 B, D<sub>2</sub> 接 B', D<sub>0</sub> 接 1

$$Y = AB'C' + A'C + BC$$

$$= (AC'B' + A'C) + (ACB + A'CB)$$

$$= (A_1A_0')D_2 + A_1A_0' + A_1A_0D_3 + A_1'A_0D_1$$

逻辑电路图如右。



题 4.23  $Y = M'(ABC + A'B'C') + M(ABC + A'BC + AB'C + ABC')$

$$= ABC + M'A'B'C' + M(A'BC + AB'C + ABC')$$

