

$$1-3. (1) (1010.1011)_2 = 10.6875$$

$$(4) (2E5.3)_{16} = 741.1875$$

$$(5) (35.26)_8 = 29.375$$

$$1-8. (2) (127)_{10} = (1111111)_2 = (177)_8 = (7F)_{16} = (0001000111111111)_{421111110}$$

$$(3) (254)_{10} = (11111110.01)_2 = (316.2)_8 = (FE.4)_{16} = (001001010100, 00100101)_{421111110}$$

$$1-17. (2) x_2 = x_4 + (-y)_4 = 0110101 + 1101001 = (01001000)_4$$

$$z = (72)_{10} \quad \text{或} \quad z = +1001000$$

$$1-18. (2-9)_{10} = (0001000)_2 + (1101101)_2 = (0001000)_2 + (1011111)_2 = (1100111)_2 = (1100011)_2 = (1011111)_2 = (-7)_{10}$$

$$(6+7)_{10} = (0011010)_2 + (0001111)_2 = (0110111)_2 = (+13)_{10}$$

$$(8-2)_{10} = (0100010)_2 + (1001010)_2 = (0011010)_2 = (+6)_{10}$$

$$(4-9)_{10} = (0010010)_2 + (1001111)_2 = (1101111)_2 = (1010111)_2 = (-5)_{10}$$

或

$$(2-9)_{10} = (00000010)_2 + (11110111)_2 = [11111001]_2 = [10000111]_2 = -7$$

$$(6+7)_{10} = [00000110]_2 + [00000111]_2 = [00001101]_2 = 13$$

$$(8+2)_{10} = [00001000]_2 + [11111110]_2 = [00000110]_2 = 6$$

$$(4-9)_{10} = [00000100]_2 + [11110111]_2 = [11110111]_2 = [10000101]_2 = -5$$

$$2-4 (2). (A+B)(\bar{A}+C)(B+C) = (\bar{A}B + A + B)(\bar{A}C + B + C)$$

(可有其他答案)

$$= \bar{A}B + ABC + BC + \bar{A}BC + AC + BC$$

$$= \bar{A}B + BC + AC$$

$$= (A+B)(\bar{A}+C)$$

$$(4). (A+B)(A+B+C+D+E+F) = (A+B) + (A+B)(C+D+E+F)$$

$$= A+B$$

$$(5). BC + D + \bar{D}(\bar{B} + \bar{C})(AD + B) = BC + D + \bar{D}\bar{B}\bar{C}(AD + B)$$

$$= BC + D + \bar{D}(AD + B)$$

$$= BC + D + B\bar{D}$$

$$= B(C + D + \bar{D})$$

$$= B + D$$

$$2-5. (2). F^* = \overline{A \cdot BC} \quad \bar{F} = A + \overline{B+C}$$

$$(4). F^* = (AB + \bar{B}C)(A+D)\bar{E}$$

$$\bar{F} = \overline{(A+B\bar{C}) + AD + E} = \overline{(A+B)(\bar{B}+C) + AD + E} = (\bar{A} + \bar{B}\bar{C}) \cdot (\bar{A} + \bar{D})\bar{E}$$

$$= (\bar{A} + \bar{B}\bar{C}) \cdot (\bar{A} + \bar{D})\bar{E}$$

$$2-6. (2). Y = \overline{AB + \bar{A}B} = AB + \bar{A}\bar{B} \quad \text{电路图略}$$

$$= \overline{AB + \bar{A}\bar{B}}$$

$$= \overline{AB} \cdot \overline{\bar{A}\bar{B}}$$

$$2-9 (2). F(A,B,C) = \sum m(3,5,6,7)$$

$$(3). F(A,B,C,D) = \sum m(0,1,2,3,8,10,15)$$

$$F(A,B,C,D) = \overline{\bar{A}B + A\bar{B}D} \cdot (\bar{B} + CD)$$

$$= \overline{\bar{A}B} \cdot \overline{A\bar{B}D} \cdot (\bar{B} + CD)$$

$$= (A + \bar{B}) \cdot (\bar{A} + B + \bar{D}) \cdot (\bar{B} + CD)$$

$$= \bar{A}\bar{B} + \bar{B}\bar{D} + \bar{A}\bar{B}CD + AB\bar{C}D$$

$$= \bar{A}\bar{B}(C + \bar{C})(D + \bar{D}) + (\bar{A} + A)\bar{B}(\bar{C} + C)\bar{D} + \bar{A}\bar{B}CD + AB\bar{C}D$$

$$= \bar{A}\bar{B}CD + \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D + \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}CD + AB\bar{C}\bar{D} + AB\bar{C}D$$

$$= m_3 + m_2 + m_1 + m_0 + m_{10} + m_8 + m_{15}$$

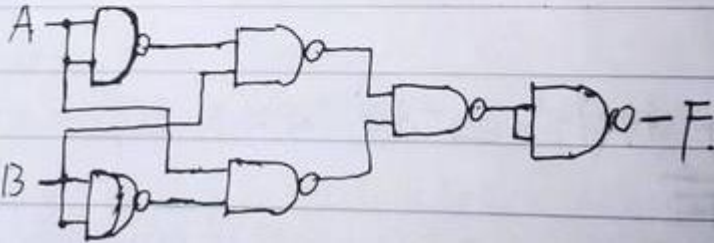
$$= \sum m(0,1,2,3,8,10,15)$$

2-6 第二种答案

2-6.

画出下列各函数用与非运算表示的逻辑图.

$$\begin{aligned} (2) Y &= \overline{A\bar{B} + \bar{A}B} \\ &= \overline{A\bar{B}} \cdot \overline{\bar{A}B} \end{aligned}$$



$$\begin{aligned} 2-10. (1) F &= A \oplus B + \bar{A}C = \bar{A}B + A\bar{B} + \bar{A}C \\ &= \bar{A}B + A\bar{B} + \bar{A} + C \\ &= \bar{A} + A\bar{B} + C \\ &= \bar{A} + \bar{B} + C \\ &= M_7 \end{aligned}$$

$$\begin{aligned} (2). F &= (\bar{A} \oplus B) + A(B \oplus C) = \bar{A}\bar{B} + AB + A(\bar{B}C + B\bar{C}) \\ &= \bar{A}\bar{B} + AB + A\bar{B}C + AB\bar{C} \\ &= \bar{A}\bar{B} + AB + A\bar{B}C \\ &= \bar{A}\bar{B} + A(B + \bar{B}C) \\ &= \bar{A}\bar{B} + AB + AC \\ &= (\bar{A}\bar{B} + A)(\bar{A}\bar{B} + B) + AC \\ &= (A + \bar{B})(B + \bar{A}) + AC \\ &= (\bar{B} + A + A)(\bar{A} + B + AC) \\ &= (\bar{B} + A)(\bar{A} + B + C) \\ &= (\bar{B} + A + C)(\bar{A} + B + C) \\ &= (\bar{B} + A + C)(\bar{B} + A + \bar{C})(\bar{A} + B + C) \\ &= M_2 \cdot M_3 \cdot M_4 \\ &= \Pi M(2, 3, 4) \end{aligned}$$

$$\text{或: } F = (\bar{A} \oplus B) + A(B \oplus C)$$

$$\begin{aligned} &= (\bar{A}\bar{B} + AB) + A(\bar{B}C + B\bar{C}) \\ &= \bar{A}\bar{B} + AB + A\bar{B}C + AB\bar{C} \\ &= \Sigma m(0, 1, 5, 6, 7) \end{aligned}$$

$$\bar{F} = \Sigma m(2, 3, 4)$$

$$F = \bar{F} = \overline{m_2 + m_3 + m_4} = \bar{m}_2 \cdot \bar{m}_3 \cdot \bar{m}_4 = M_2 \cdot M_3 \cdot M_4 = \Pi M(2, 3, 4)$$

2-10 (2)

$$(2) F = (\bar{A} \oplus B) + A(B \oplus C)$$

$$\text{解: 原式} = (\bar{A}\bar{B} + AB) + A(\bar{B}C + B\bar{C})$$

$$= \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C} + ABC + A\bar{B}C + AB\bar{C}$$

$$= \sum m(0, 1, 5, 6, 7)$$

$$= \prod M(2, 3, 4)$$

$$2-11. (3). Y_3 = A\bar{B} + \bar{A}C + B + C + D$$

$$= A + B + \bar{A}D + C + D$$

$$= A + B + D + C$$

$$(4). Y_4 = \overline{AC\bar{C}D} + \overline{\bar{B}D + BC} + \overline{\bar{A}\bar{C}\bar{D} + \bar{A}} + \overline{\bar{B}D}$$

$$= \overline{\bar{B}D + BC} + \bar{A} + \bar{B}D$$

$$= \bar{B}D \cdot (\bar{B} + C) + A + B + \bar{D}$$

$$= \bar{B}D + A + B + \bar{D}$$

$$= \bar{B} + \bar{D} + A + B = 1$$

$$2-14. (4).$$

AB \ CD	00	01	11	10
00	1	1	1	0
01	0	1	1	0
11	0	0	1	1
10	1	1	1	0

$$Y_4 = \bar{A}D + \bar{B}\bar{C} + CD + AB\bar{C}$$

AB \ CD	00	01	11	10
00	1	1	1	1
01	1	0	1	1
11	1	0	1	0
10	1	1	1	0

$$Y_5 = \bar{C}\bar{D} + CD + \bar{A}C$$

2-14-5 新本题目：改成 m (2 4 6 7 10 15)

AB \ CD	00	01	11	10
00	1	1	1	1
01	1	0	1	1
11	0	0	1	0
10	1	1	1	1

$$Y_5 = \bar{B} + \bar{A}\bar{D} + CD$$

$$3-5. \quad \overline{AB \cdot BC \cdot \bar{D} \cdot E} = \overline{A B C \bar{D} E}$$

3-6.

\bar{Q}_1	$1A_1$	$2A_1$	$1Y_1$	$2Y_1$
1	x	x	高阻	高阻
0	0	0	0	0
0	0	1	0	1
0	1	0	1	0
0	1	1	1	1

佳输入门

3-7. (1). $ABC \quad \equiv \text{输入与门}$

(2). $\bar{A}\bar{B}\bar{C} = \overline{A+B+C} \quad \equiv \text{输入或非门}$