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

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

(5) $(35.26)_8 = 29.34375$

1-8. (2). $(127)_{10} = (1111\ 111)_2 = (177)_8 = (7F)_{16} = (0001\ 0010\ 0111)_{8421BCD}$

(3). $(254.25)_{10} = (11111110.01)_2 = (376.2)_8 = (FE.4)_{16} = (0010\ 0101\ 0100,\ 0010\ 0101)_{8421BCD}$

1-17. $(Z)_补 = X_补 + (-Y)_补 = 0111010 1 + 1101001 1 = (01001000)_补$

$Z = (72)_{10}$ 或 $Z = +1001000$

1-18. $(2-9)_补 = (00010)_补 + (11001)_原 = (00010)_补 + (10111)_补 = (11001)_补 = (11000)_反 = (10111)_原 = (-7)_{10}$

$(6+7)_补 = (00110)_补 + (00111)_补 = (01101)_补 = (+13)_{10}$

$(8-2)_补 = (01000)_补 + (11110)_补 = (00110)_补 = (+6)_{10}$

$(4-9)_补 = (00100)_补 + (10111)_补 = (11011)_补 = (10101)_原 = (-5)_{10}$

或

$(2-9)_补 = (00000010)_补 + (11110111)_补 = [11111001]_补 = [1000\ 0111]_原 = -7$ ~~$[11111011]_补 = [10000101]_原 = -3$~~

$(6+7)_补 = [00000110]_补 + [00000111]_补 = [00001101]_补 = 13$

$(8-2)_补 = [0000\ 1000]_补 + [1111\ 1110]_补 = [0000\ 0110]_补 = 6$

$(4-9)_补 = [00000100]_补 + [11110111]_补 = [1111\ 1011]_补 = [1000\ 0101]_原 = -5$

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

(可有其它答案)

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

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

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

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

$= A+B$

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

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

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

$= BC + D + B$

$= B + D$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

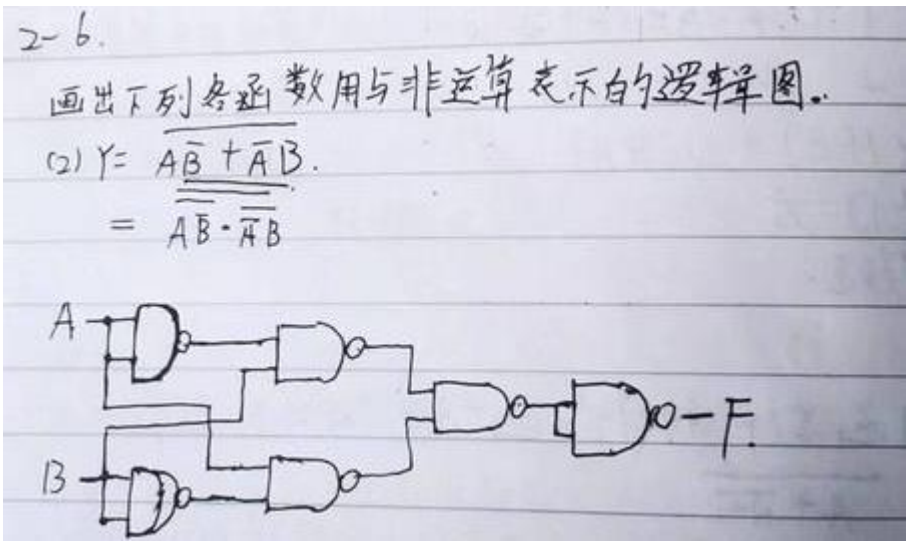
$= \bar{A}\bar{B}CD + \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}\bar{C}D + \bar{A}\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D} + A\bar{B}\bar{C}\bar{D}$

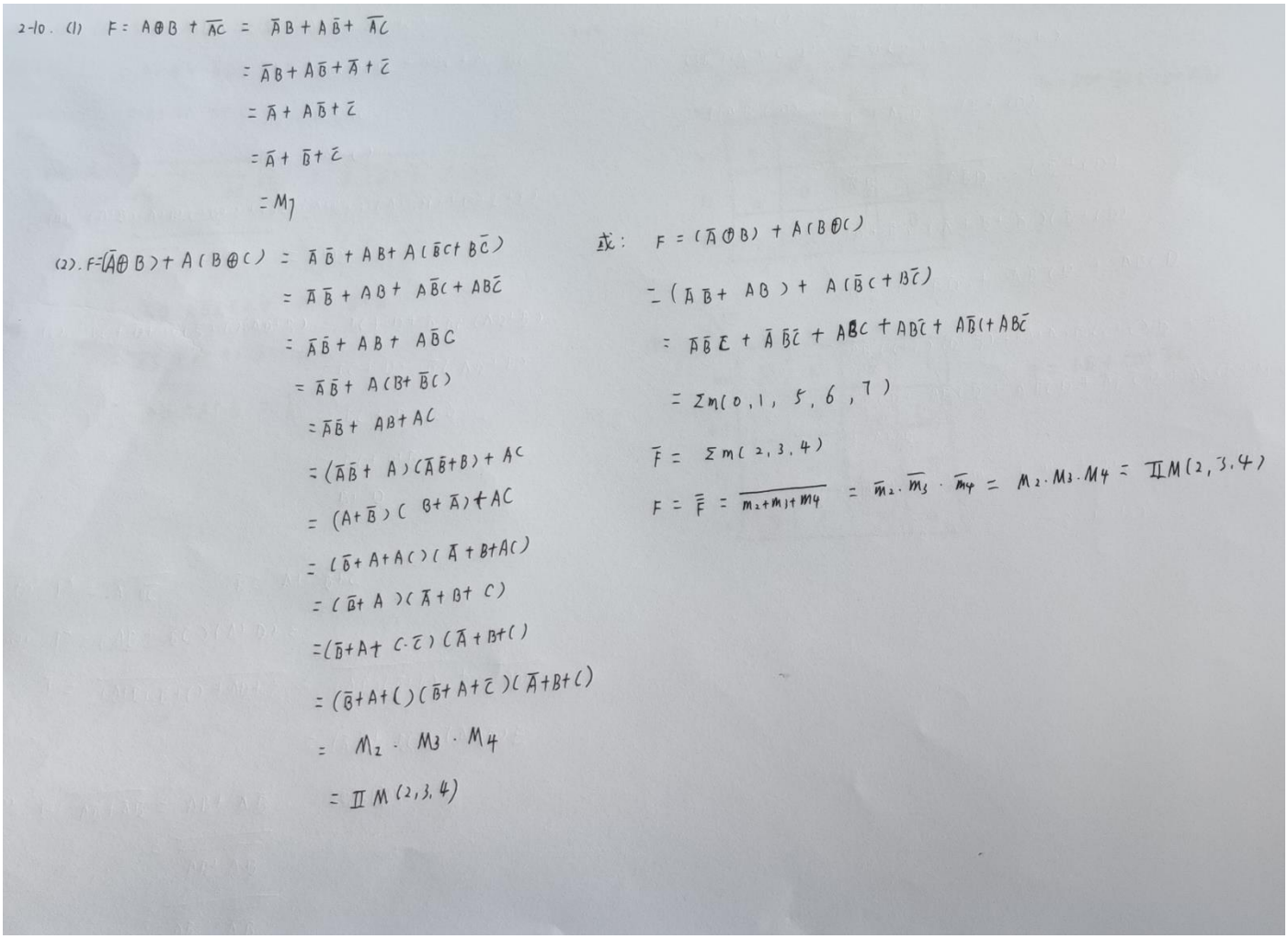
$+ ABCD$

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

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

2-6 第二种答案





2-10 (2)

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

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

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

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

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

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

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

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

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

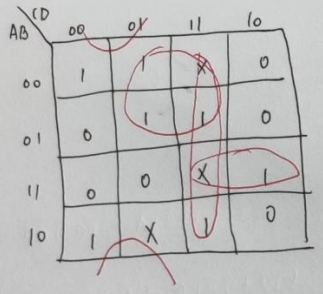
$=\overline{\overline{\bar{B}D}+BC}+\overline{\bar{A}}+\overline{\bar{B}D}$

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

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

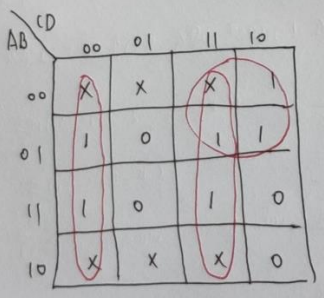
$=\bar{B}+\bar{D}+A+B=1$

2-14. (4).



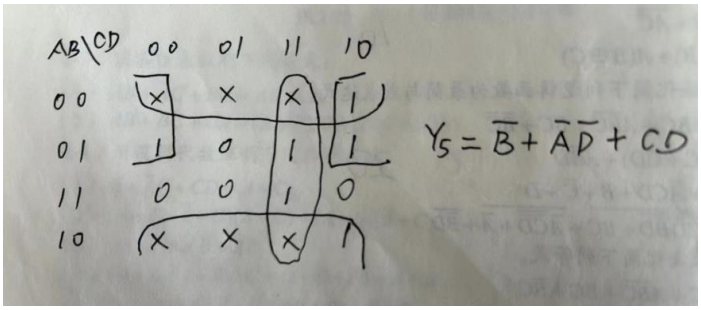
$Y_4=\bar{A}D+\bar{B}\bar{C}+CD+AB\bar{C}$

(5).



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

2-14-5 新版本题目：改成 m（2 4 6 7 10 15）



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

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

3-6.

$\bar{G}_1$	$1A_1$	$2A_1$	$1Y_1$	$2Y_1$
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

使输门

3-7. (1). ABC 三输入与门

(2). $\bar{A}\bar{B}\bar{C} = \overline{A+B+C}$ 三输入或非门