



班级: 计01

姓名: 容逸然

编号: 202001089

科目: 数电

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2.7 (1) $F = ABC + \bar{A} + \bar{B} + \bar{C}$

由卡诺图:

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

得 $F = \sum m^3(0, 1, 2, 3, 4, 5, 6, 7)$

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

由卡诺图:

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

得: $F = \sum m^4(0, 1, 2, 3, 5, 6, 7, 9, 10, 11, 13, 14, 15)$

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

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

$= A + \bar{B}C$

由卡诺图:

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

得: $F = \sum m^3(1, 3, 4, 5, 7)$

2.11 (1) $F = \sum m^3(0, 1, 2, 4, 5, 7)$

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

$F = \bar{B} + \bar{A}\bar{C} + AC$

(2) $F = \sum m^4(0, 1, 2, 3, 4, 6, 7, 8, 9, 11, 15)$

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

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

2.11 (3) $F = \sum m^4(3, 4, 5, 7, 9, 13, 14, 15)$

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

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

2.12 (1)

B \ AC	00	01	11	10
0	1	X	X	1
1	X	X	1	X

$F = \bar{D} + AC$

(2)

B \ AC	00	01	11	10
0	1	X	1	1
1	X	1	1	1

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

(3)

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

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

2.13 (1) $F = ABC + \bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + \bar{A}\bar{B}\bar{C}$

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

得: $F = \bar{A}\bar{C} + \bar{B}\bar{C} + \bar{A}\bar{B} + ABC$

(2) $F = AC + ABC + A\bar{C} + \bar{A}\bar{B}\bar{C} + BC$

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

得: $F = \bar{B}\bar{C} + A + BC$

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

B \ AC	00	01	11	10
0	1	1	1	1
1	1	1	1	1

得: $F = \bar{B}\bar{D} + \bar{A}\bar{B}\bar{C} + ABCD$