1-1.
(3) 13.125_{10}
1101.001_2
15.1_8
$D.2_{16}$

1-2.
(3) 101.001_2
5.1875_{10}
5.14_8
5.3_{16}

1-3.
(3) 61.53_8
49.671875_{10}
110001.101011_2
$31.AC_{16}$

1-4.
(3) $D3.E_{16}$
211.875_{10}
11010011.1110_2
323.7_{16}

1-7.
(1) $F_1 = A\bar{B}C + \bar{A}B\bar{C}$
$\bar{F}_1 = (\bar{A}+B+\bar{C})\cdot(A+\bar{B}+C)$

(3) $F_3 = (\bar{A}+B)(C+\bar{D})$
$\bar{F}_3 = A\cdot\bar{B} + \bar{C}\cdot D$

1-8.
(1) $F_1 = A\bar{B} + \bar{C}D$
$F_1' = (A+\bar{B})\cdot(\bar{C}+D)$

(3) $F_3 = \bar{A}(B+\bar{D}) + BC(A+\bar{C})$
$F_3' = (\bar{A}+B\cdot\bar{D})\cdot(B+A\cdot\bar{C})$

1-9、

(3) $F_3=\bar{A}B+\bar{B}(C+AD)$　　真值表：

A	B	C	D	F	A	B	C	D	F
0	0	0	0	0	1	0	0	0	0
0	0	0	1	0	1	0	0	1	1
0	0	1	0	1	1	0	1	0	1
0	0	1	1	1	1	0	1	1	1
0	1	0	0	1	1	1	0	0	0
0	1	0	1	1	1	1	0	1	0
0	1	1	0	1	1	1	1	0	0
0	1	1	1	1	1	1	1	1	0

卡诺图：

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

1-10、

A	B	C	D	F	A	B	C	D	F
0	0	0	0	0	1	0	0	0	1
0	0	0	1	1	1	0	0	1	0
0	0	1	0	1	1	0	1	0	1
0	0	1	1	0	1	0	1	1	0
0	1	0	0	1	1	1	0	0	0
0	1	0	1	0	1	1	0	1	0
0	1	1	0	0	1	1	1	0	1
0	1	1	1	1	1	1	1	1	0

解：标准与或表达式：

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

标准或与表达式：

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

1-11、

(3) $F_3=A\bar{B}+\overline{A+BC}$

解：$=A\bar{B}+\bar{A}\cdot\overline{BC}$
$=A\bar{B}+\bar{A}\cdot(\bar{B}+\bar{C})$
$=A\bar{B}+\bar{A}\bar{B}+\bar{A}\bar{C}$
$=A\bar{B}C+A\bar{B}\bar{C}+\bar{A}\bar{B}C$
$\bar{A}\bar{B}\bar{C}+\bar{A}B\bar{C}$

即：$F_3=\sum m(0,1,2,4,5)$

(7) $F_7(A,B,C)=\prod M(1,3,4,7)$

解：~~$\sum(A+B+C+D)$~~

$F_7=\sum m(0,2,5,6)$

1-12、

(1) $F_1=A\bar{B}+B\bar{C}+C\bar{A}$

解：$F_1=\sum m(1,2,3,4,5,6)$

$F_1=\prod M(0,7)$

(7) $F_7(A,B,C)=\sum m(0,1,4,6)$

解：$F_7=\prod M(2,3,5,7)$

1-14、

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

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

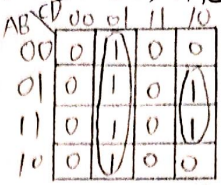
$=A+B+B\bar{C}\bar{D}$

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

$=A+B$

1-15

(5) $B\bar{C}(C\oplus D)+A\bar{C}D+\bar{B}\bar{C}D+B\bar{C}\bar{D}$

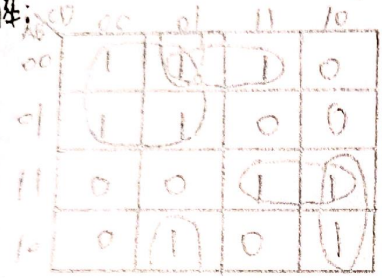


解: 原式 $=\bar{C}D+B\bar{C}\bar{D}$

1-16

(1) $F_1(A,B,C,D)=\sum m(0,1,3,4,5,9,10,14,15)$

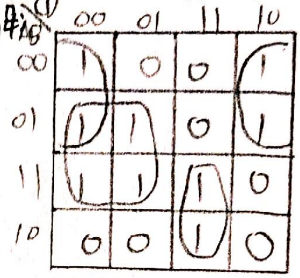
解:



$F_1(A,B,C,D)=\bar{A}\bar{C}+\bar{A}\bar{B}D+ABC+AC\bar{D}+\bar{B}\bar{C}D$

(5) $F_5(A,B,C,D)=\prod(1,3,7,8,9,10,14)$

解:



$F_5(A,B,C,D)=\bar{A}\bar{D}+B\bar{C}+ACD$

1-17

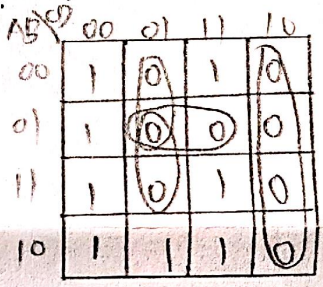
(1) $F_1(A,B,C)=\sum m(0,2,3,7)$

解:

$F_1=(B+\bar{C})(\bar{A}+C)$

(5) $F_5(A,B,C,D)=\prod M(1,2,5,6,7,10,13,14)$

解:



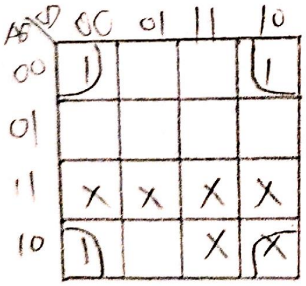
$F_5=(A+C+\bar{D})(\bar{B}+C+\bar{D})(A+\bar{B}+\bar{D})(\bar{C}+D)$

1-18、

(1) $F_1=\bar{A}\bar{B}\bar{C}\bar{D}+\bar{A}\bar{B}C\bar{D}+A\bar{B}\bar{C}\bar{D}$

约束条件: $AB+AC=0$

解:

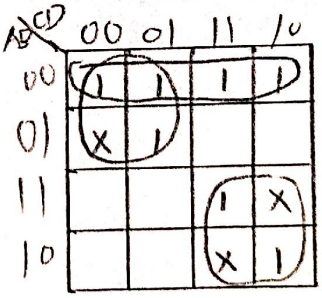


$F_1=\bar{B}\bar{D}$

1-19、

(1) $F_1=(A,B,C,D)=\sum m(0,1,3,5,10,15)+\sum d(2,4,9,11,14)$

解



$F_1=\bar{A}\bar{B}+\bar{A}\bar{C}+AC$