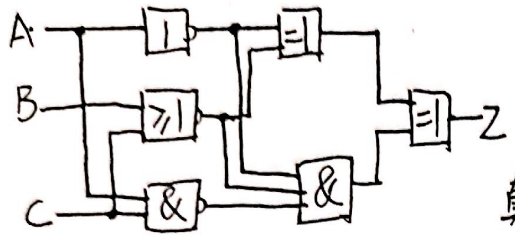
2-2、(a)



解：$Z=\bar{A}\oplus\overline{B+C}\oplus\overline{AC}\cdot\overline{B+C}\cdot\bar{A}$

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

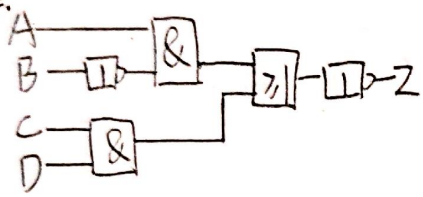
$Z=\bar{A}\oplus\bar{B}\bar{C}\oplus\bar{A}\bar{B}\bar{C}$

真值表：

A	B	C	Z	A	B	C	Z
0	0	0	1	1	0	0	1
0	0	1	1	1	0	1	0
0	1	0	1	1	1	0	0
0	1	1	1	1	1	1	0

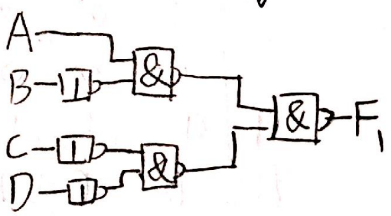
2-4.(5) $F_5=\overline{A\bar{B}+CD}$

解：



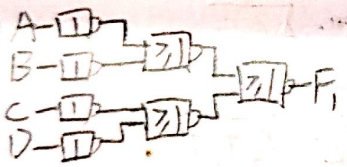
2-5.(1) $F_1=A\bar{B}+\overline{C+D}$

解：



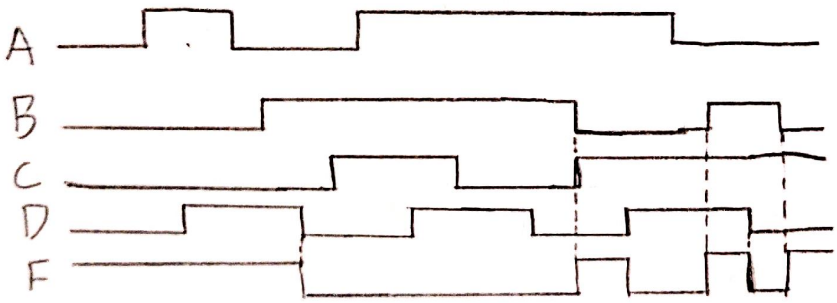
2-6、(1) $F_1=(A+\bar{B})(\bar{C}+\bar{D})$

解：



2-9、

解：



卡诺图：

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

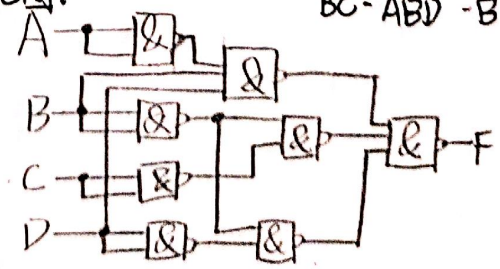
真值表：

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

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

$F=\overline{\overline{\bar{B}\bar{C}}\cdot\overline{\bar{A}BD}\cdot\overline{\bar{B}\bar{D}}}$

电路图：



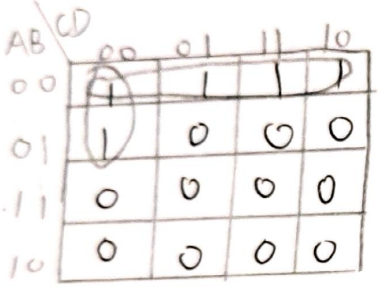
2-13、

解：真值表：~~X~~分别以A、B、C、D代表T_3 T_2 T_1 T_0

A	B	C	D	X	Y	A	B	C	D	X	Y
0	0	0	0	1	0	1	0	0	0	0	0
0	0	0	1	1	0	1	0	0	1	0	0
0	0	1	0	1	0	1	0	1	0	0	0
0	0	1	1	1	0	1	0	1	1	0	1
0	1	0	0	1	0	1	1	0	0	0	1
0	1	0	1	0	0	1	1	0	1	0	1
0	1	1	0	0	0	1	1	1	0	0	1
0	1	1	1	0	0	1	1	1	1	0	1

卡诺图：

X：

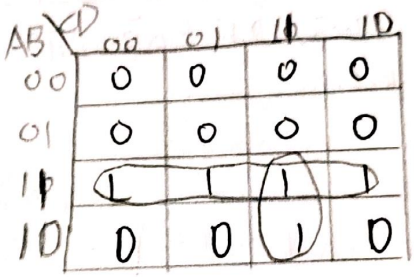


$X=\bar{A}\bar{B}+\bar{A}\bar{C}\bar{D}$

$X=\overline{\bar{A}\bar{B}\cdot\bar{A}\bar{C}\bar{D}}$

即 $X=\overline{\overline{T_3}\cdot\overline{T_2}\cdot\overline{T_3}\cdot\overline{T_1}\cdot\overline{T_0}}$

Y



~~$Y=A\bar{B}+AC\bar{D}$~~ $Y=AB+ACD$

~~$Y=\overline{A\bar{B}\cdot AC\bar{D}}$~~ $Y=\overline{\bar{A}B}\cdot\overline{ACD}$

~~即 $Y=\overline{T_3\overline{T_2}\cdot T_3T_1\overline{T_0}}$~~ $Y=\overline{\overline{T_3}T_2}\cdot\overline{T_3T_1T_0}$

电路图：