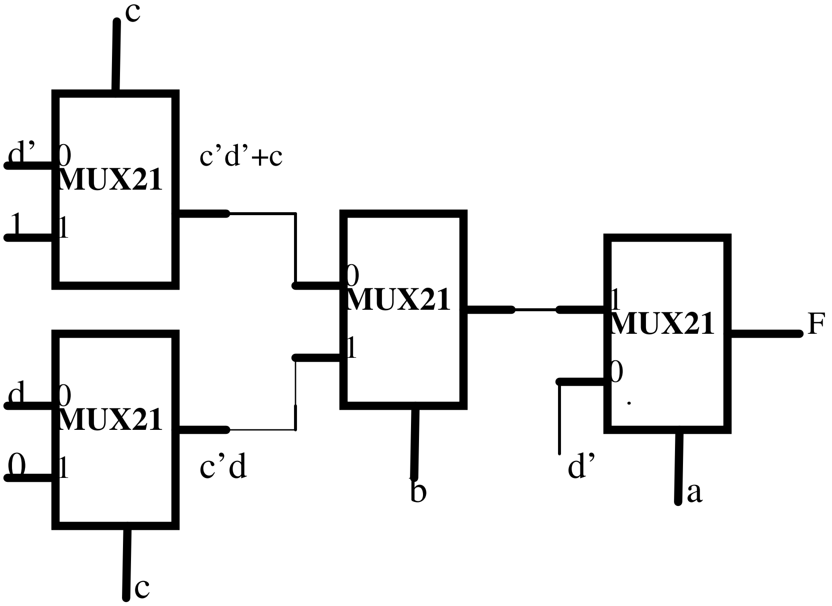

c
d’
0
MUX21
1
1
c’d’+c
d
0
MUX21
0
1
c’d
c
0
MUX21
1
b
1
MUX21
0
d’
a
F

	1	4	7	3	6
1,3	Ⓧ			X	
4,6		Ⓧ			X
3,7			X	X	
6,7			X		X

Thus we get [(1,3) ,(4,6), (3,7)] or [(1,3),(4,6),(6,7)]

ie. $f=a'c+ac'+bc$ or $f=a'c+ac'+ab$

(III)

a \ bc	00	01	11	10
0	0	0	1	1
1	1	1	1	0

$f(a,b,c)=a'b+ac+ab'+bc$

(IV)

a \ bcd	000	001	011	010	110	111	101	100	
0	1	-	0	1	1	-	0	-	L0=d’
1	1	0	1	1	0	0	1	0	L1

L1

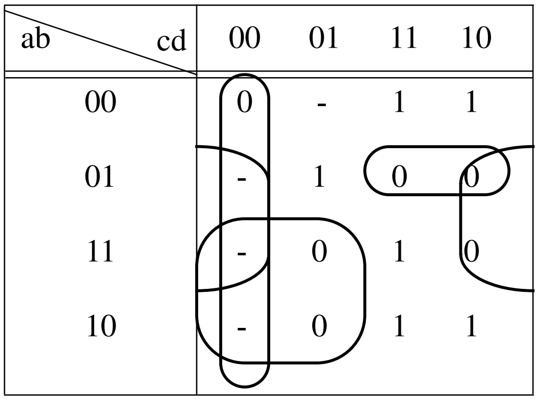
b \ cd	00	01	11	10	
0	1	0	1	1	L2
1	0	1	0	0	L3=c’d

L2

c \ d	0	1	
0	1	0	L4=d’
1	1	1	L5=1

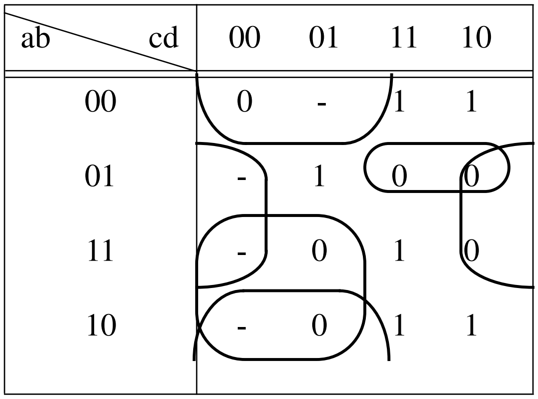
CSE 140A Midterm Solution , Winter 1998

(I)



ab \ cd	00	01	11	10
00	0	-	1	1
01	-	1	0	0
11	-	0	1	0
10	-	0	1	1

$F=(c+d)(a'+c)(b'+d)(a+b'+c')$



ab \ cd	00	01	11	10
00	0	-	1	1
01	-	1	0	0
11	-	0	1	0
10	-	0	1	1

$F=(b+c)(a'+c)(b'+d)(a+b'+c')$

(II)

1 4	0 1	0 0	1 0
3 6	0 1	1 1	1 0
7	1	1	1

→

1,3 4,6	0 1	- -	0 0
3,7 6,3	- 1	1 1	1 -