Lecture Assignment 7.

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2 (a) $(c'+d)(b+c')$

Truth table

a	b	c	d	a'	b'	c'	d'	c'+d	b+c'	(c'+d')(b+c')
0	0	0	0	1	1	1	1	1	1	1
0	0	0	1	1	1	1	0	1	1	1
0	0	1	0	1	1	0	1	0	0	0
0	0	1	1	1	1	0	0	1	0	0
0	1	0	0	1	0	1	1	1	1	1
0	1	0	1	1	0	1	0	1	1	1
0	1	1	0	1	0	0	1	0	1	0
0	1	1	1	1	0	0	0	1	1	1
1	0	0	0	0	1	1	1	1	1	1
1	0	0	1	0	1	1	0	1	0	0
1	0	1	0	0	1	0	1	0	1	0
1	0	1	1	0	1	0	0	1	1	1
1	1	0	0	0	0	1	1	1	1	1
1	1	0	1	0	0	1	0	1	1	1
1	1	1	0	0	0	0	1	0	1	0
1	1	1	1	0	0	0	0	1	1	1

(b) $bd' + acd' + ab'c + a'c'$

bd'	acd'	ab'c	a'c'	bd' + acd' + ab'c + a'c'
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
1	0	0	1	1
0	0	0	1	1
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	1	0	1
0	0	1	0	1
1	0	0	0	1
0	0	0	0	0
1	1	0	0	1
0	0	0	0	0

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

$c'b + c'c' + db + dc'$

$c'b + c' + db + dc'$

(b) $bd' + acd' + ab'c + a'c'$

$d'(b+ac) + ab'c + a'c'$

③ (a) $F(A,B,C,D) = \sum m(2,4,7,10,12,14)$

Since it's 4 variables, the minterms are $2^n = 2^4 = 16$.

Therefore from $m(0) \to m(15)$. Therefore

Complement of $F(A,B,C,D) = \sum m(0,1,3,5,6,8,9,11,13,15)$

(b) $F(x,y,z) = \prod M(3,5,7)$

We know that Maxterm is where $F(x,y,z)$ is zero(0) at $(3,5,7)$

Therefore, the Minterm is $2^n = 2^3 = 8$ $[m(0) \to m(7)]$ is one(1) at:

$$F'(x,y,z) = \sum_m (0,1,2,4,6)$$

② (a) $\sum(0,1,4,5,7) = \bar{d}\bar{c}\bar{b} + \bar{d}\bar{c}b + d\bar{c}\bar{b} + d\bar{c}b + dcb$

d	c	b	$\bar{c}$	$(\bar{c}+d)(b+\bar{c})$	
0	0	0	1	1	m_0
0	0	1	1	1	m_1
0	1	0	0	0	m_2
0	1	1	0	0	m_3
1	0	0	1	1	m_4
1	0	1	1	1	m_5
1	1	0	0	0	m_6
1	1	1	0	1	m_7

$m_0 = \bar{d}\bar{c}\bar{b}$

$m_1 = \bar{d}\bar{c}b$

$m_4 = d\bar{c}\bar{b}$

$m_5 = d\bar{c}b$

$m_7 = dcb$

$\prod(2,3,6) = (d+\bar{c}+b)(d+\bar{c}+\bar{b})(\bar{d}+\bar{c}+b)$