CSE 232 HW1

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① $F(x,y,z) = xy + x'z + yz + (x.x')$

$z(x'+y) + xy + (x.x')$

$z(x'+y) + x(x'+y)$

$\Rightarrow (x+z).(x'+y)$

② $(x+y)(x'+z)(y+z) = (x+y)(x'+z)$

$(x+y)(x'+z)(y+z+x.x')$

$(x+y)(x'+z)(x+y+z)(x'+y+z)$

$(x+y)\underbrace{(1+z)}_{1}(x'+z)\underbrace{(1+y)}_{1}$

$\Rightarrow (x+y)(x'+z)$

③ a)

A	B	C	D	B'D	A'D	BD	F		
0	0	0	0	0	0	0	0		m_0
0	0	0	1	1	1	0	1	$\rightarrow a'b'c'd$	m_1
0	0	1	0	0	0	0	0		m_2
0	0	1	1	1	1	0	1	$\rightarrow a'b'cd$	m_3
0	1	0	0	0	0	0	0		m_4
0	1	0	1	0	1	1	1	$\rightarrow a'bc'd$	m_5
0	1	1	0	0	0	0	0		m_6
0	1	1	1	0	1	1	1	$\rightarrow a'bcd$	m_7
1	0	0	0	0	0	0	0		m_8
1	0	0	1	1	0	0	1	$\rightarrow ab'c'd$	m_9
1	0	1	0	0	0	0	0		m_{10}
1	0	1	1	1	0	0	1	$\rightarrow ab'cd$	m_{11}
1	1	0	0	0	0	0	0		m_{12}
1	1	0	1	0	0	1	1	$\rightarrow abc'd$	m_{13}
1	1	1	0	0	0	0	0		m_{14}
1	1	1	1	0	0	1	1	$\rightarrow abcd$	m_{15}

Sum of minterms $\Sigma(1,3,5,7,9,11,13,15)$

Product of maxterm $\Pi(0,2,4,6,8,10,12,14)$

b) $F(A,B,C,D) = B'D + A'D + BD$

$D(\underbrace{B' + A' + B}_{1}) = D\underbrace{(1+A')}_{1} = D$

$A+A'=1$

$A'+1=1$