

- 2.2) a. $xy + xy' = x(y + y') = x \cdot 1 = x$
 b. $(x + y)(x + y') = x + yy' = x + 0 = x$
 c. $xyz + x'y + xyz' = xy(z + z') + x'y = xy + x'y = (x + x')y = 1 \cdot y = y$
 d. $(A + B)'(A' + B')' = A'B'(A + B) = A'B'A + A'B'B = 0 + 0 = 0$

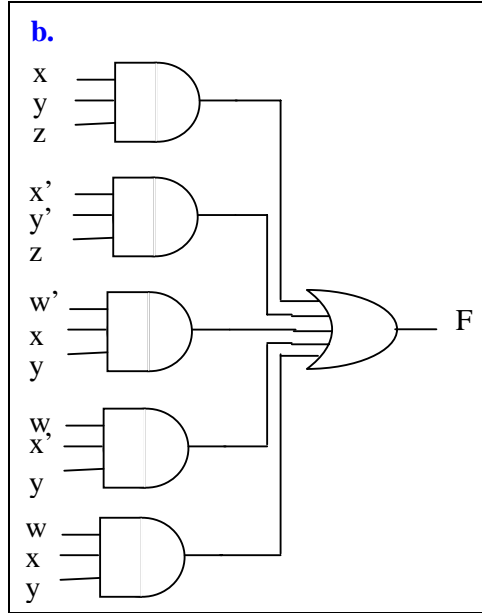
2.5) $F = x + yz \rightarrow \therefore F' = (x + yz)' = x'(y' + z')$
 $FF' = (x + yz)x'(y' + z') = (xx' + x'yz)(y' + z') = x'zyy' + x'yz'z' = 0 + 0 = 0$
 $F + F' = (x + yz) + x'(y' + z') = x + yz + x'y' + x'z' = x + y' + z + z'$
 $= x + y' + 1 = 1$

- 2.9) A = 10101101
 B = 10001110
 a. A.B = 10001100
 b. A+B = 10101111
 c. A⊕B = 00100011
 d. Not A = 01010010
 e. Not B = 01110001

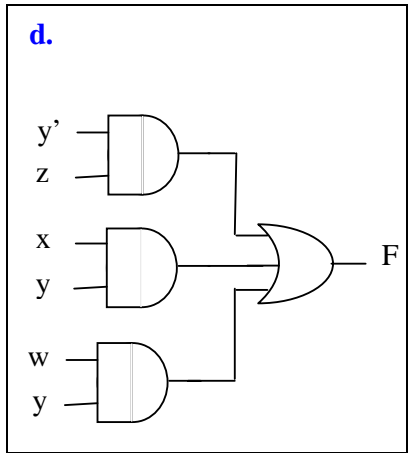
2.12)
 $T_1 = A'B'C' + A'B'C + A'BC' = A'B'(C' + C) + A'C'(B' + B)$
 $= A'B' + A'C' = A'(B' + C')$
 $T_2 = A'BC + AB'C' + AB'C + ABC' + ABC$
 $= A'BC + A(B'C' + B'C + BC' + BC)$
 $= A'BC + A(B' + B) = A'BC + A$
 $= (A' + A)(BC + A) = A + BC$

2.15)

w	x	y	z	F
0	0	0	0	0
0	0	0	1	1
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	0
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1



c.
 $F = y'z + xy + wy$



2.17)

- a. $F' = \sum(1,3,4,5,7,8,9,10,12,15)$
 b. $F' = \sum(0,3,6,7)$