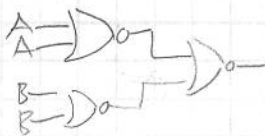


4.1



$$4.21 \quad A(B \oplus C) = AB \oplus AC$$

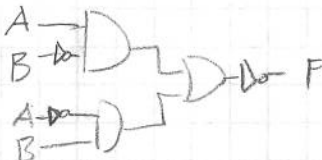
4.4



A	B	F
0	0	0
0	1	0
1	0	0
1	1	1

A	B	C	$B \oplus C$	AB	AC	F
0	0	0	0	0	0	0
0	0	1	1	0	0	0
0	1	0	1	0	0	0
0	1	1	0	0	0	0
1	0	0	0	0	0	0
1	0	1	1	0	1	1
1	1	0	1	1	0	1
1	1	1	0	1	1	0

$$4.5 \quad F = (AB' + A'B)'$$



$$5.1 \quad m_0 + m_1 + m_3 + m_5 + m_6$$

$$= \sum m(0, 1, 3, 5, 6)$$

$$4.6 \quad (A + (DE))(D + (D'F)) = Q$$

$$5.2 \quad M_2 \cdot M_4 \cdot M_7$$

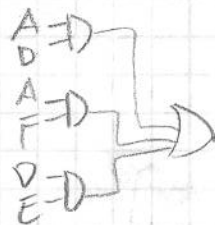
$$= \prod M(2, 4, 7)$$

$$4.8 \quad (A + (DE))(D + (D'F))$$

$$= (A + DE)(D + F)$$

$$= AD + AF + DE + DEF$$

$$= AD + AF + DE$$

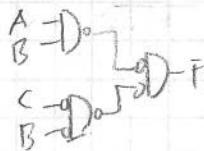


$$5.3 \quad [(AB + C' + 0)(A' + B'(D + C))]$$

$$(A + B')(C(1) + A(B + D'C'))$$

4.11

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



$$5.5 \quad F = \sum m(0, 1, 4, 7)$$

$$F = \prod M(2, 3, 5, 6)$$

$$5.7 \quad F = A + A'B' + BC'$$

A	B	C	$A'$	$B'$	F
0	0	0	1	0	1
0	0	1	1	0	1
0	1	0	0	1	1
0	1	1	0	0	0
1	0	0	0	0	1
1	0	1	0	0	1
1	1	0	0	1	1
1	1	1	0	0	1

$$\prod M 3$$

4.15

Levels of Logic	3
Delay	$2t_{AND2} + t_{OR2}$
Gate Count	5
Gate Inputs	10
Largest Gate	2 input

$$\begin{aligned} 5.8 \quad & A'B'C' + A'B'C + A'BC + AB'C + ABC' \\ &= A'(B'C' + B'C + BC) + A(B'C + BC') \\ &= A'(B'C' + C(B' + B)) + A(B'C + BC') \\ &= A'(B'C' + C) + A(B'C + BC') \\ &= A'(C + B') + A(B'C + BC') \\ &= A'C + AB' + AB'C + ABC' \\ &= C(A' + AB') + B(A' + AC') \\ &= C(A' + B') + B(A' + C') \\ &= A'C + B'C + A'B + BC' \\ &= A'B + B'C + A'C + BC' \end{aligned}$$