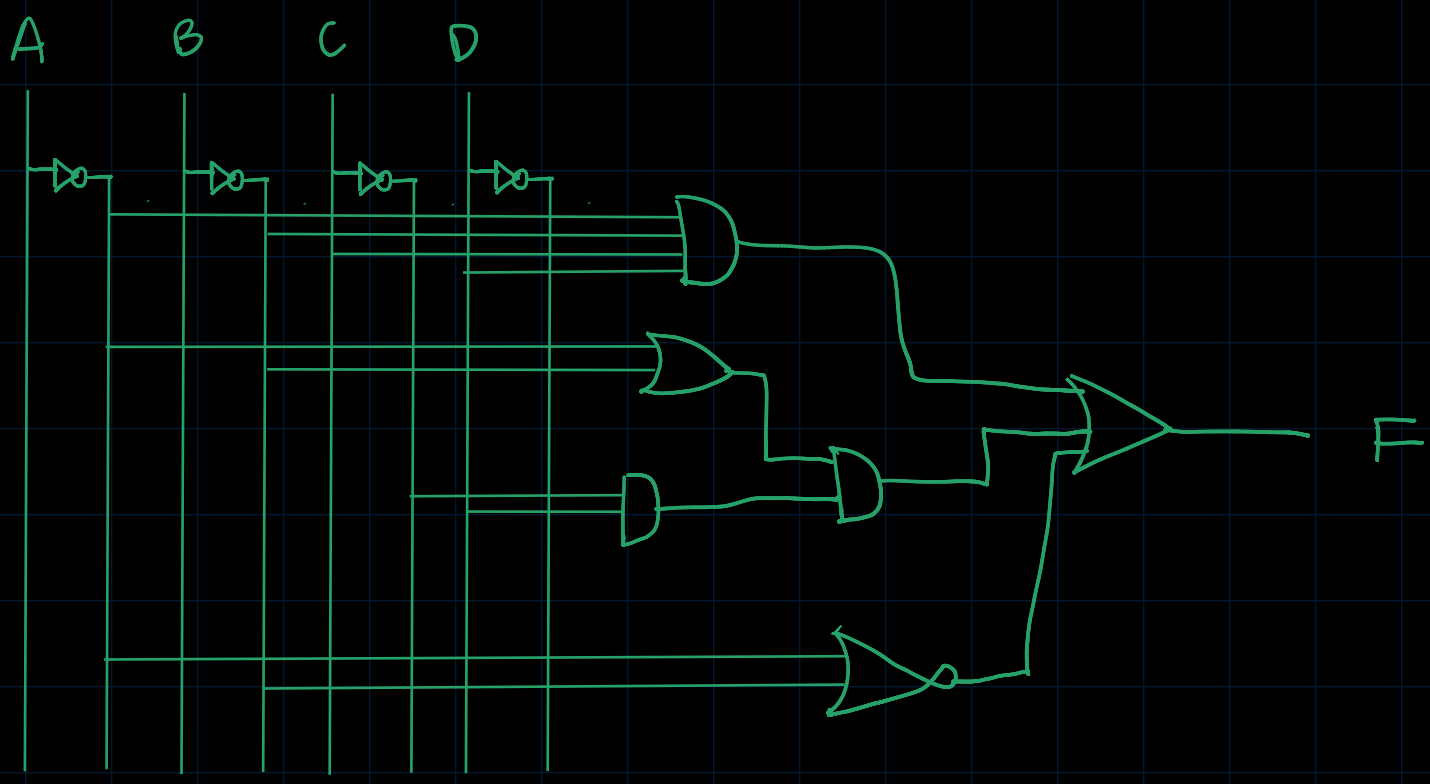
$$Y = \overline{A\bar{B}CD} + (\bar{A}+\bar{B})(\overline{CD}) + \overline{(\bar{A}+\bar{B})}$$

a)



b) $Y = A'B'CD + (A'+B')(C'D) + (A'+B')'$

$= A'B'CD + (A'+B')(C'D) + AB$ (De Morgans)

$= A'B'CD + A'C'D' + B'C'D' + AB$

$= AB + A'C'D' + B'C'D'$

Truth Table		A'B'CD + (A' + B') (C'D') + (A'B')'						
	A	B	C	D	A'B'CD	(A'+B')(C'D')	(A'B')'	R
	0	0	0	0	0	1	1	1
	0	0	0	1	0	0	0	0
	0	0	1	0	0	0	0	0
	0	0	1	1	1	0	0	0
	0	1	0	0	0	1	0	1
	0	1	0	1	0	0	1	1
	0	1	1	0	0	0	1	1
	0	1	1	1	0	0	1	1
	1	0	0	0	0	1	1	1
	1	0	0	1	0	0	1	1
	1	0	1	0	0	0	1	1
	1	0	1	1	0	0	1	1
	1	1	0	0	0	0	1	1
	1	1	0	1	0	0	1	1
	1	1	1	0	0	0	1	1
	1	1	1	1	0	0	1	1

Pt 2

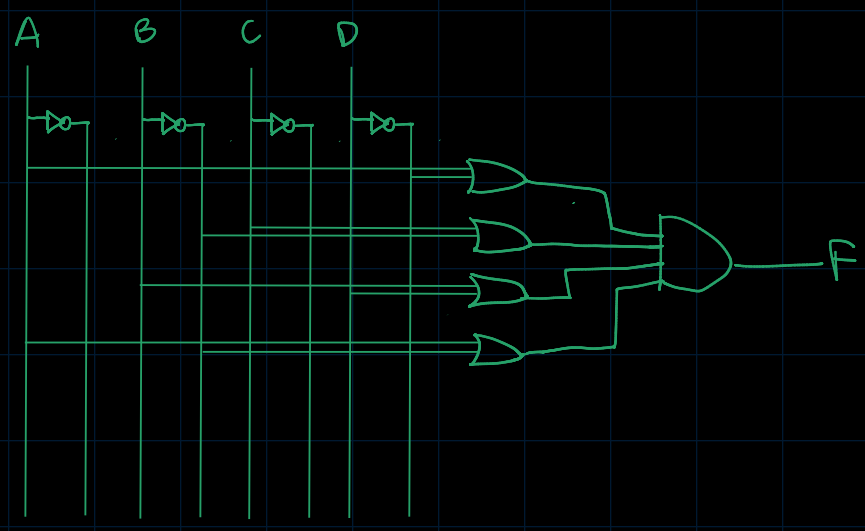
$$A'B'C'D' + A'B'CD' + AB'C'D' + A\bar{B}'C'D + AB'CD' + AB'CD + ABCD'$$

	CD	00	01	11	10
AB					
00		1	0	0	1
01		0	0	0	0
11		0	0	0	1
10		1	1	1	1

$$F = AB' + ACD' + B'D'$$
$$= (AB' + ACD' + B'D')'$$
$$= (AB')'(ACD')'(B'D')'$$

POS

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



A	B	C	D	(A+D')	(C+B')	(B+D)	(A+B')	R
0	0	0	0	1	1	0	1	0
0	0	0	1	0	1	1	1	0
0	0	1	0	1	1	0	1	0
0	0	1	1	0	1	1	1	0
0	1	0	0	1	0	1	0	0
0	1	0	1	0	0	1	0	0
0	1	1	0	1	1	1	0	0
0	1	1	1	0	1	1	0	0
1	0	0	0	1	1	0	1	0
1	0	0	1	1	1	1	1	1
1	0	1	0	1	1	0	1	0
1	0	1	1	1	1	1	1	1
1	1	0	0	1	0	1	1	0
1	1	0	1	1	0	1	1	0
1	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	1

	(D2.D1.D0) + (D3'.D1.D0) + (D3'.D2.D1) + (D2'.D1.D0)								
N	D3	D2	D1	D0	2.1'.0	3'.1.0	3'.2'.1	2'.1.0	P
0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	0	0
2	0	0	1	0	0	0	1	0	1
3	0	0	1	1	1	1	1	1	1
4	0	1	0	0	0	0	0	0	0
5	0	1	0	1	0	0	0	0	1
6	0	1	1	0	0	0	0	0	0
7	0	1	1	1	1	1	0	0	1
8	1	0	0	0	0	0	0	0	0
9	1	0	0	1	0	0	0	0	0
10	1	0	1	0	0	0	0	0	0
11	1	0	1	1	0	0	0	1	1
12	1	1	0	0	0	0	0	0	0
13	1	1	0	1	1	0	0	0	1
14	1	1	1	0	0	0	0	0	0
15	1	1	1	1	0	0	0	0	0

$(D_3'D_2'D_1D_0') + (D_3'D_2'D_1D_0) + (D_3'D_2D_1'D_0) + (D_3'D_2D_1D_0) + (D_3D_2'D_1D_0) + (D_3D_2D_1'D_0)$

3

	D1 D0	00	01	11	10	
D3 D2						
00		0	0	1	1	
01		0	1	1	0	
11		0	1	0	0	
10		0	0	1	0	

$Y = (D_3'D_2'D_1) + (D_3'D_2D) + (D_2'D_1D_0') + (D_2D_1'D_0)$

$y = [(D_3'D_2'D_1)'(D_3'D_2D_1)'(D_2'D_1D_0)'(D_2D_1'D_0)']'$

$[(A'B'C)'(A'BC)'(B'CD)'(BC'D)']'$