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Problem 1

Truth Table:

D_3	D_2	D_1	D_0	Y_1	Y_0
0	0	0	0	X	X
0	0	0	1	0	0
0	0	1	0	0	1
0	0	1	1	0	1
0	1	0	0	1	0
0	1	0	1	0	0
0	1	1	0	0	1
0	1	1	1	0	1
1	0	0	0	1	1
1	0	0	1	1	1
1	0	1	0	1	1
1	0	1	1	1	1
1	1	0	0	1	1
1	1	0	1	1	1
1	1	1	0	1	1
1	1	1	1	1	1

$D_3D_2 \backslash D_1D_0$	00	01	11	10
00	X	0	0	0
01	1	0	0	0
11	1	1	1	1
10	1	1	1	1

KMap for Y_1

$$Y_1 = \overline{D_0} \overline{D_1} + D_3$$

$$Y_0 = D_1 + D_3$$

$D_3D_2 \backslash D_1D_0$	00	01	11	10
00	X	0	1	1
01	0	0	1	1
11	1	1	1	1
10	1	1	1	1

KMap for Y_0