Dj Elec. Digital Electronics 2003 IML pg3

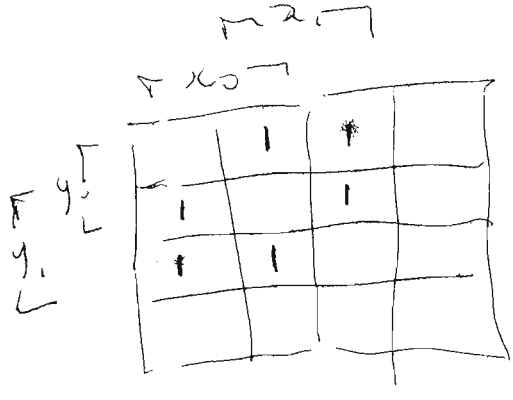
(a)

x_1	x_0	y_1	y_0	Z_3	Z_2	Z_1	Z_0
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0
0	0	1	0	0	0	0	0
0	0	1	1	0	0	0	0
0	1	0	0	0	0	0	0
0	1	0	1	0	0	0	1
0	1	1	0	0	0	1	0
0	1	1	1	0	0	1	1
1	0	0	0	0	0	0	0
1	0	0	1	0	0	1	0
1	0	1	0	0	1	0	0
1	0	1	1	0	1	1	0
1	1	0	0	0	0	0	0
1	1	0	1	0	0	1	1
1	1	1	0	0	1	1	0
1	1	1	1	1	0	0	1

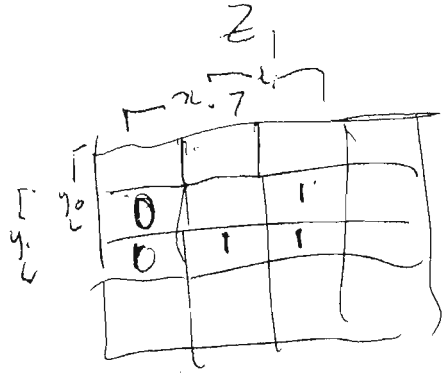
$$Z_3 = x_1 x_0 y_1 y_0$$

$$Z_0 = x_0 y_0$$

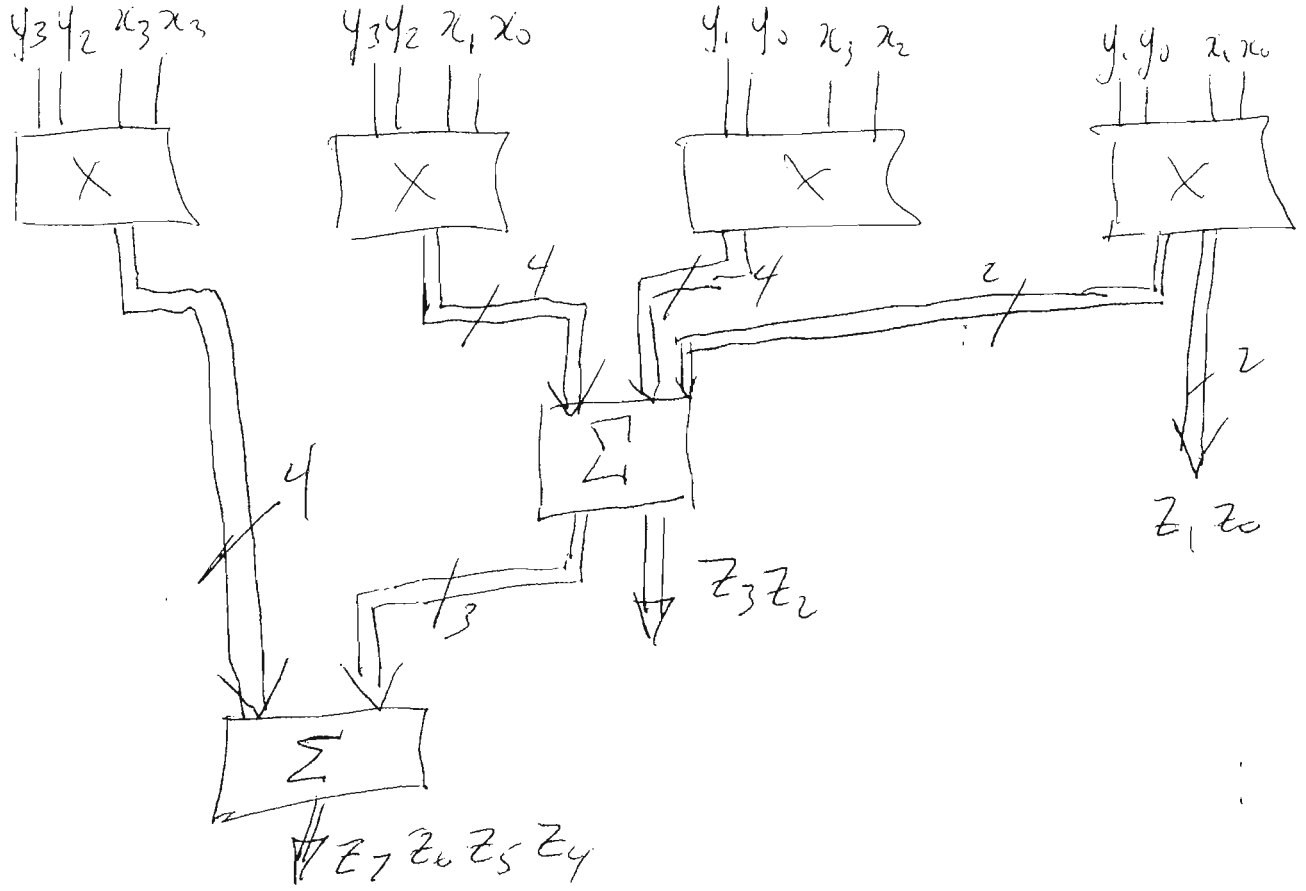
$$Z_1 = y_1 \bar{x}_1 x_0 + y_1 \bar{y}_0 x_0 + \bar{y}_1 y_0 x_1 + y_0 \bar{x}_0 x_1$$



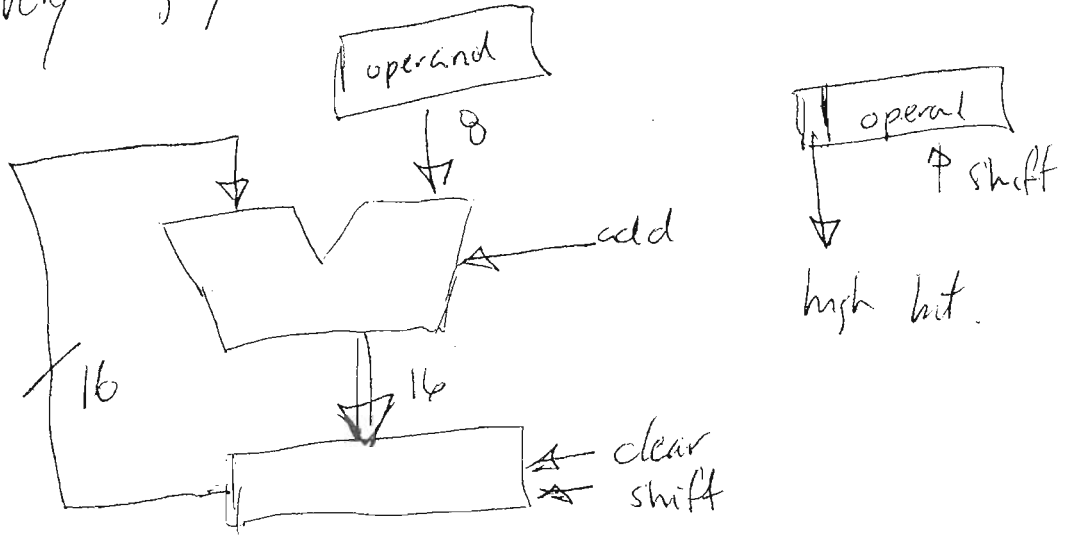
$$Z_2 = \cancel{y_1 \bar{x}_1 x_0} \; y_1 x_1 x_0 + y_1 y_0 x_1$$

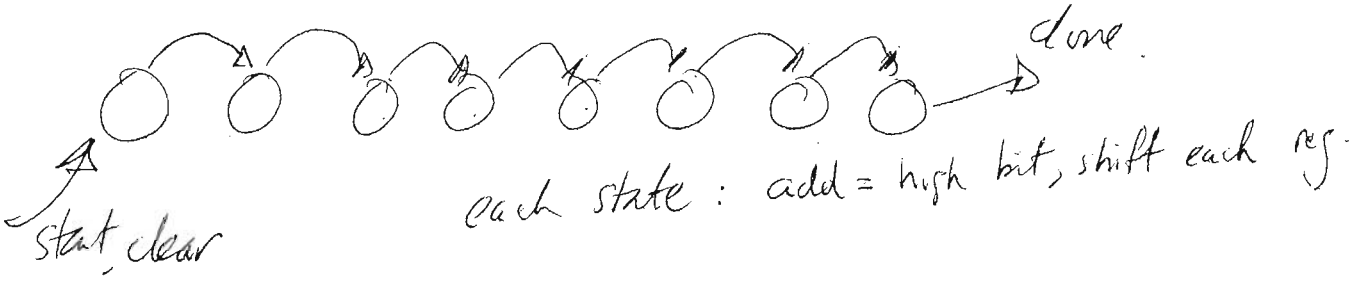


b)



c) Very roughly:





d) Very much like c, but need comparator to decide if to subtract.