

1. EXCESS-3

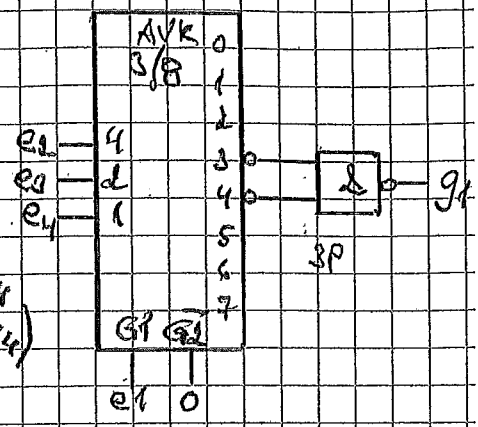
DEC	$e_1 e_2 e_3 e_4$
3	0 0 1 1
4	0 1 0 0
5	0 1 0 1
6	0 1 1 0
7	0 1 1 1
8	1 0 0 0
9	1 0 0 1
10	1 0 1 0
11	1 0 1 1
12	1 1 0 0

GRAY

$g_1 g_2 g_3 g_4$	MUX
0000	0
0001	$e_1 e_2$
0011	e_3
0110	1
0111	e_4
1000	0
1001	0
1100	0
1101	0

a/

$e_2 e_3$	00	01	11	10
00	-	-	0	1
01	0	0	0	0
11	1	-	-	-
10	0	0	1	0

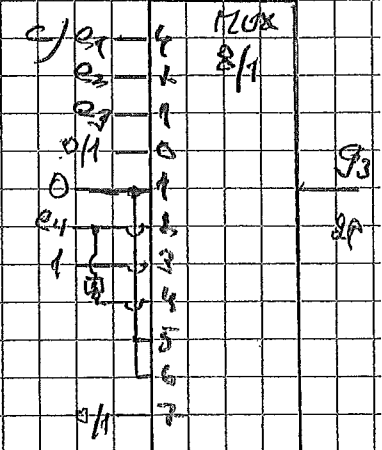
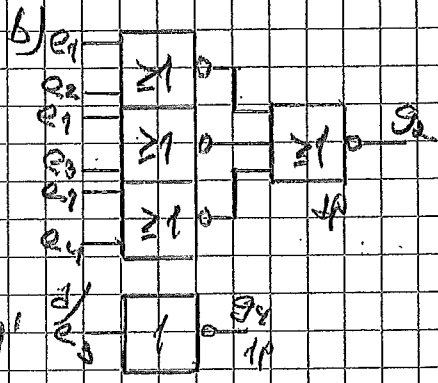


b/

$e_2 e_3$	00	01	11	10
00	1	-	0	0
01	0	0	1	0
11	1	-	-	-
10	1	1	1	1

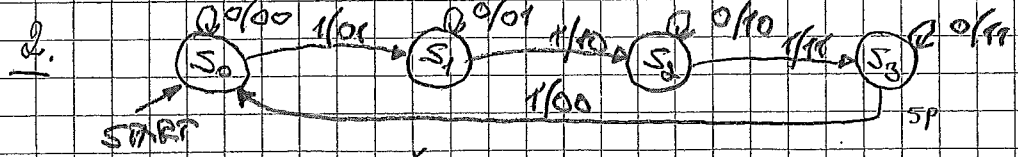
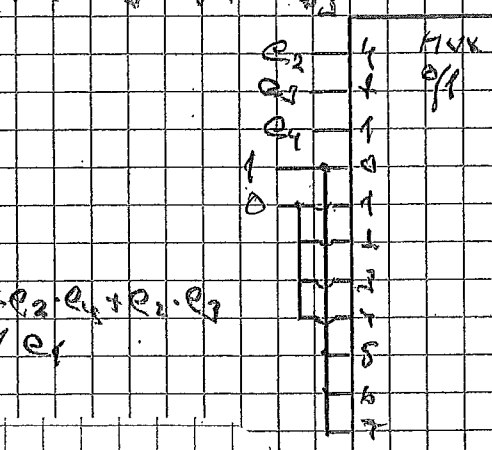
d/

$e_2 e_3$	00	01	11	10
00	-	-	0	-
01	1	1	0	0
11	1	-	-	-
10	1	1	0	0



c/

$e_2 e_3$	00	01	11	10
00	-	-	0	-
01	0	1	0	1
11	0	-	-	-
10	1	0	0	0



GI SVER TILL MODES

		X		
$g_1 g_0$		0	1	$u_x u_0$
S_0	00	00	01	00
S_1	01	01	10	01
S_2	11	11	00	11
S_3	10	10	11	10

		X	X
g_1^+	g_0^+	0 1	0 1
S_0	00	0 0	0 1
S_1	01	0 1	1 0
S_2	11	1 0	1 0
S_3	10	1 1	0 1

$$\begin{cases} g_1^+ = g_1 \cdot g_0' + g_1 \cdot X' + g_1' \cdot g_0 \cdot X \\ g_0^+ = g_0 \cdot X' + g_0 \cdot X = g_0 \oplus X \end{cases}$$

$$\begin{cases} u_1 = g_1 \\ u_0 = g_0 \end{cases}$$

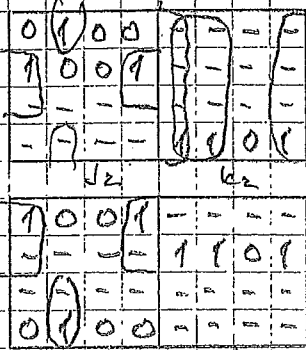
FORTS. PÅ NÄSTA SIDA!

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				X	
q ₂	q ₁	q ₀	0	1	
0	0	0	010/0	101/0	
0	0	1	011/0	000/1	
0	1	0	100/1	001/0	
0	1	1	101/1	010/0	
1	0	0	000/0	011/0	
1	0	1	001/0	100/0	

$q_2^+ q_1^+ q_0^+ / RCO$

				q ₀ X	
00	01	10	11	00	01
00	01	10	11	00	01
00	01	10	11	00	01
00	01	10	11	00	01
00	01	10	11	00	01

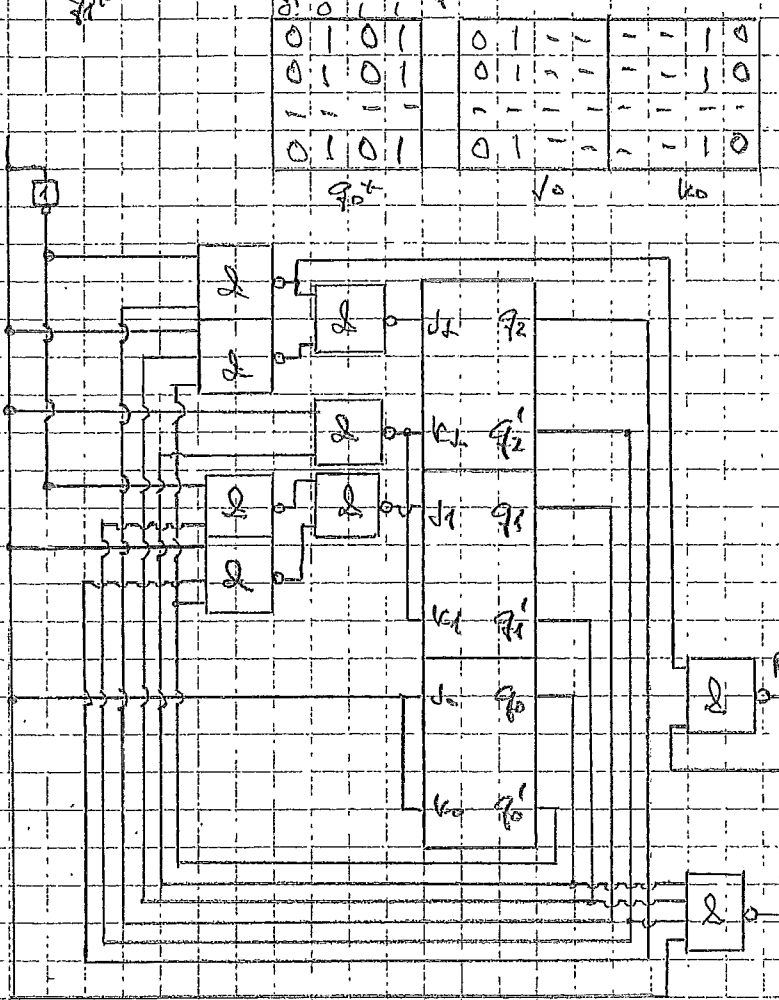


00	01	10	11
00	00	00	00
10	00	01	01
10	10	10	10
00	00	00	00

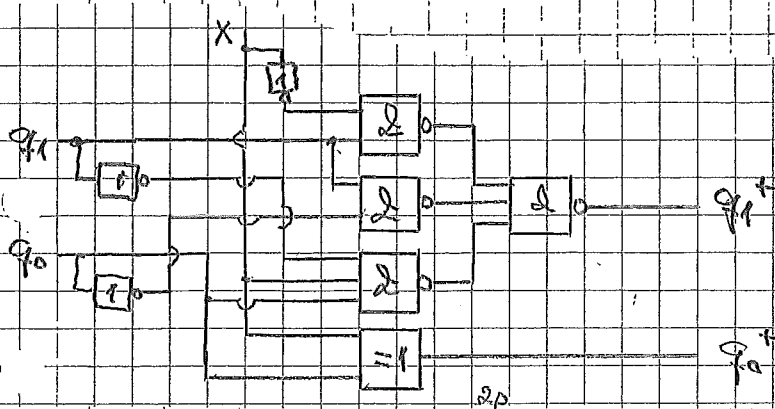
RCO

$$\begin{cases} V_{q_2} = q_1 \cdot X' + q_1' \cdot q_0 \cdot X \\ V_{q_1} = q_0' + X' = (q_0 \cdot X)' \\ V_{q_0} = q_2' X' + q_2 \cdot q_0' \cdot X \\ V_{R_{CO}} = q_0' + X' = (q_0 \cdot X)' = V_{q_1} \\ V_{R_{CO}} = V_{q_0} = X \end{cases}$$

X



2. (PART 2.)



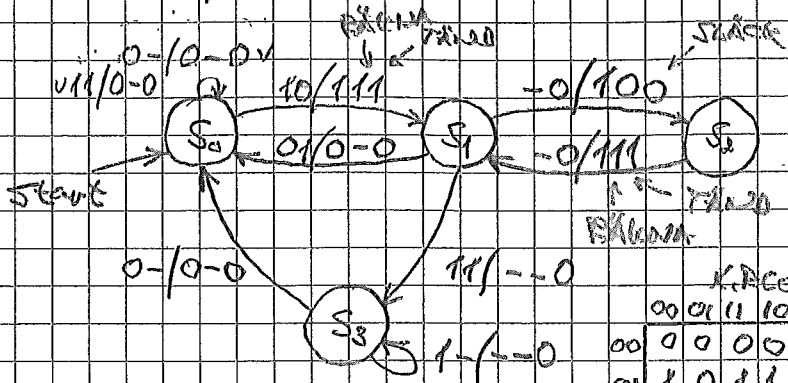
CELL 1: $\begin{cases} q_1 = 0 \\ q_0 = 0 \end{cases} \Rightarrow$

$\begin{cases} q_1^+ = 0 \\ q_0^+ = X \end{cases}$

CELL 2: $q_1 = 0$

$\begin{cases} q_1^+ = q_0 \cdot X \\ q_2^+ = q_0 \cdot X' + q_0' \cdot X = q_0 \oplus X \end{cases}$

4. $X, RCO/L, R, UT$



	K, RCO					L	R	UT
q_0	00	01	11	10				
q_1	00	00	00	00	01	0	-	0
q_2	01	10	00	11	10	1	1	1
q_3	11	00	00	11	11	-	-	0
q_4	10	01	-	-	01	1	0	0

$$J_1 = q_0 \cdot RCO' + q_0 \cdot X$$

$$K_1 = X' + q_0' = (X \cdot q_0)'$$

$$J_0 = X \cdot RCO' + q_1 = [X \cdot RCO'] \cdot q_1'$$

$$K_0 = X' + q_1' \cdot RCO' = [X \cdot (q_1' \cdot RCO)']'$$

$$L = q_1 + q_0 = (q_1' \cdot q_0)'$$

$$R = q_1' \text{ alle } R = q_0$$

$$UT = q_1' \cdot q_0$$

	K, RCO			
q_0	00	01	11	10
q_1	00	1	0	1
q_2	11	0	0	1
q_3	10	0	-	0

	$q_1 + q_0$					q_1
q_0	0	0	0	0	0	0
q_1	1	0	1	1	1	1
q_2	-	-	-	1	1	0
q_3	-	-	-	1	-	1

	q_1'			
q_0	0	0	0	1
q_1	0	0	1	0
q_2	0	0	1	1
q_3	1	-	-	1

	J_1					K_1
q_0	0	0	0	1	-	-
q_1	-	-	-	1	1	0
q_2	-	-	-	1	1	0
q_3	1	-	-	1	-	-

