

DIGITALPRÜFUNG 20100406

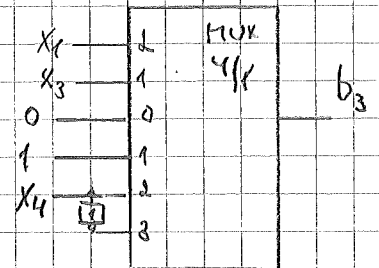
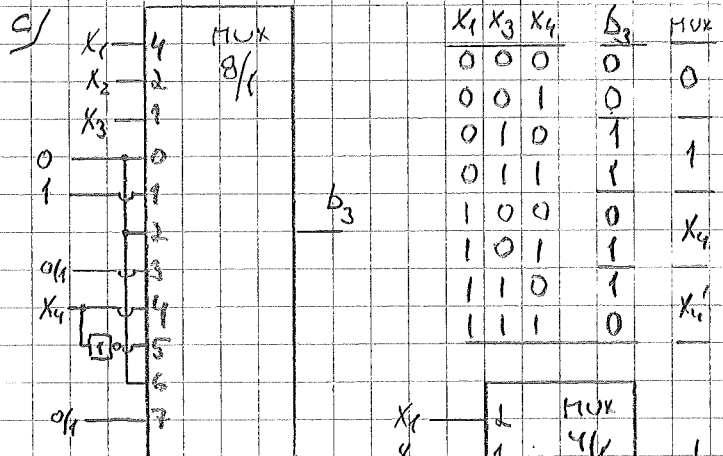
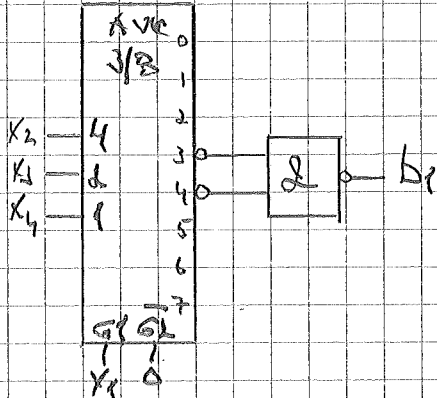
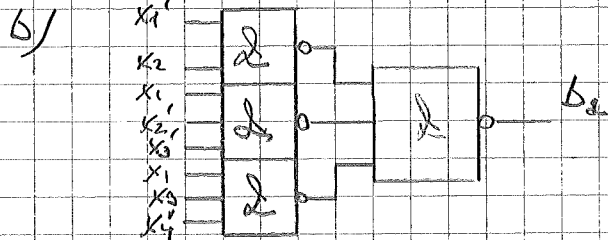
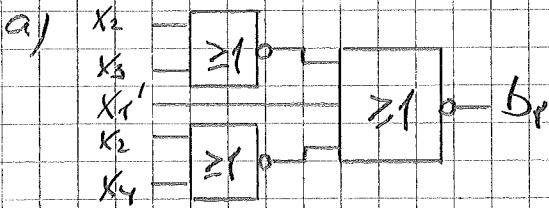
1. 5421-KOD → BINÄRKOD

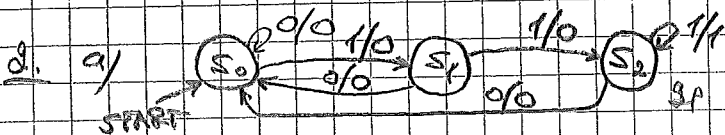
5	4	2	1	b_3	MUX		
x_1	x_2	x_3	x_4	b_1	b_2	b_3	b_4
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	0	1	0	0	0	1	0
0	0	1	1	0	0	1	1
0	1	0	0	0	1	0	0
1	0	0	0	0	1	0	1
1	0	0	1	0	1	1	0
1	0	1	0	0	1	1	1
1	0	1	1	1	0	0	0
1	1	0	0	1	0	0	1

$x_1 x_2$	$x_3 x_4$		b_1		b_2		b_3		b_4	
	00	01	11	10	00	01	11	10	00	01
00	0	0	0	0	0	0	0	0	0	1
01	0	-	-	-	1	-	-	-	0	-
11	1	-	-	-	0	-	-	-	1	-
10	0	0	1	0	1	1	0	1	0	1

Zusatz

a) $b_1 = x_1 \cdot (x_2 + x_3) \cdot (x_2 + x_4) = [x_1' + (x_2 + x_3)]' + (x_2 + x_4)$
 b) $b_2 = x_1' \cdot x_2 + x_1 \cdot x_2' \cdot x_3' + x_1 \cdot x_3 \cdot x_4' = [(x_1' \cdot x_2)' + (x_1 \cdot x_2' \cdot x_3)'] + (x_1 \cdot x_3 \cdot x_4)'$
 c) $b_3 = x_3 \cdot x_4' + x_1' \cdot x_3 + x_1 \cdot x_3' \cdot x_4$ ODER $x_1 \oplus x_4$
 d) $b_4 = x_1' \cdot x_2 + x_1 \cdot x_4' = x_1 \oplus x_4$





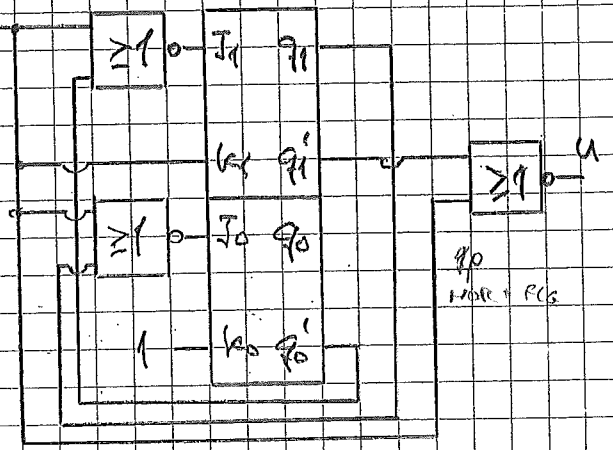
$q_1 q_0$	0	1
S_0	00/0	01/0
S_1	01/0	10/0
-	-/-	-/-
S_2	10/0	10/1

$q_1 q_0$	01	01	01
00	00	00	-
01	01	01	-
10	01	-	10
11	-	-	-
00	01	01	-
01	00	-	11
10	00	00	-

$u = q_1 \cdot x = (q_1' + x)'$

$J_1 = x \cdot q_0 = (x' + q_0)'$
 $K_1 = x'$

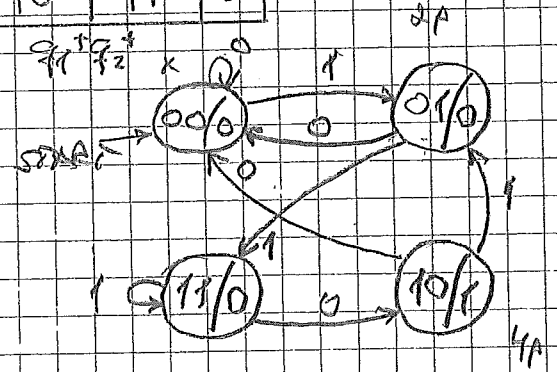
$J_0 = x \cdot q_1' = (x' + q_1)'$
 $K_0 = 1$



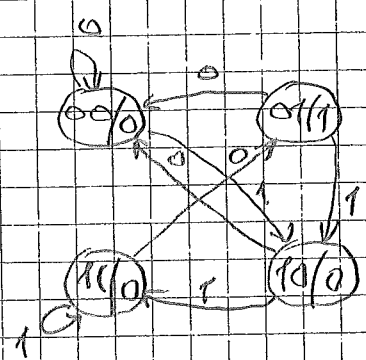
b) $q_1' = D_1 = [(q_1 \cdot q_2)' \cdot (x \cdot q_2)]'$
 $= q_1' \cdot q_2 + x \cdot q_2$
 $q_2' = D_2 = x$

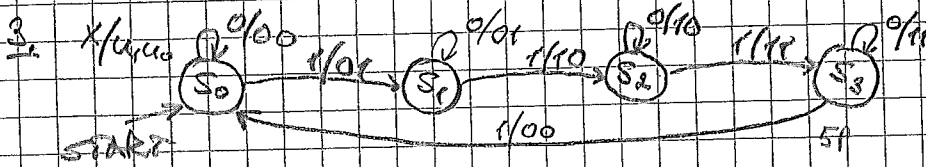
$q_1 q_2$	0	1	u
00	00	01	0
01	00	11	0
10	00	01	1
11	10	11	0

$u = [(q_1 \cdot q_2)']' = q_1 \cdot q_2$
 Moore type $u = g(q)$



$q_1 q_0$	0	1	u
00	00	10	0
01	00	10	1
10	00	11	0
11	01	11	0





	X	0	1
q ₁ q ₀	0	0	1
S ₀	00	00/00	01/01
S ₁	01	01/01	10/10
S ₂	11	11/11	00/00
S ₃	10	10/10	11/11

	X	0	1
q ₁ q ₀	0	0	1
00	00	01	10
01	01	10	10
11	11	01	01
10	10	01	01

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

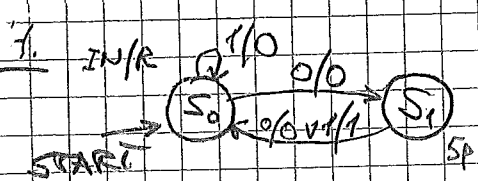
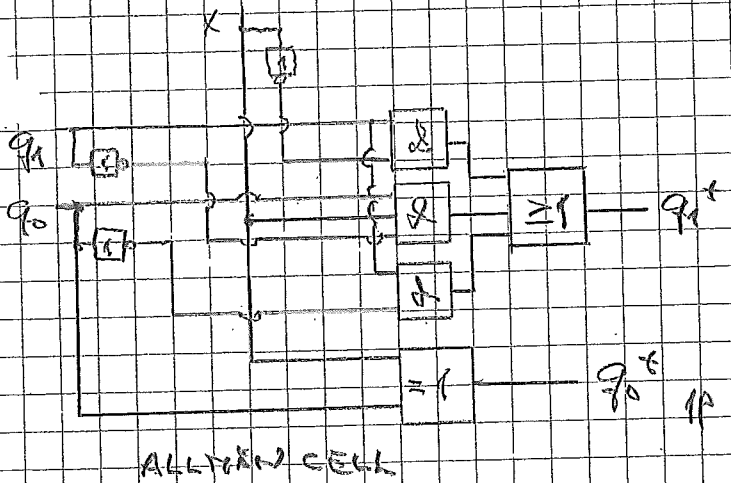
$$\begin{cases}
 u_1 = q_1^+ \\
 u_0 = q_0^+
 \end{cases}$$

CELL 0: q₁ = q₀ = 0

CELL 1:

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

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



	IN	0	1
q ₁ q ₀	0	0	1
S ₀	00	1/0	0/0
S ₁	01	0/0	0/1

	X	0	1
q ₁ q ₀	0	0	1
00	01	01	01
01	10	--	--
10	--	11	--
11	--	--	--

$$\begin{cases}
 J = IN' \\
 K = 1 \\
 u = q \cdot IN
 \end{cases}$$

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