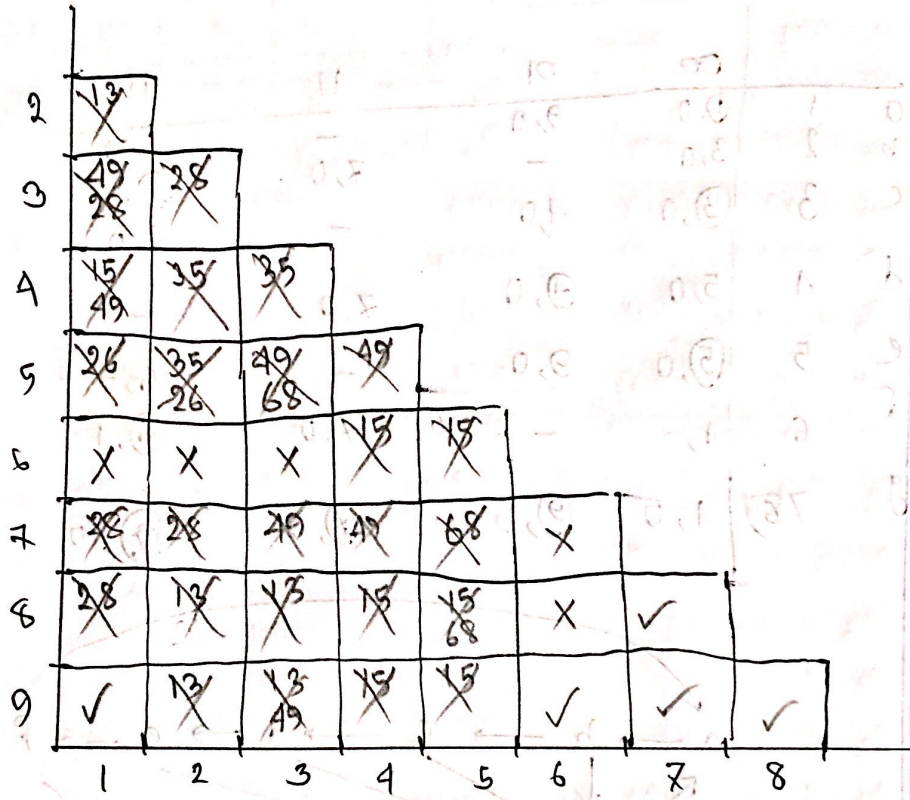
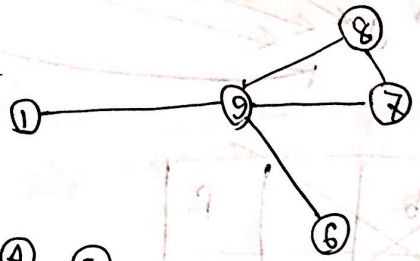
Primitive Flow Table:

	x_1x_2 = 00	01	11	10
1	(1), 0	9, 0	—	2, 0
2	3, 0	—	7, 0	(2), 0 ←
3	(3), 0 ←	4, 0	—	8, 0
4	5, 0	(4), 0 ←	7, 0	—
5	(5), 0 ←	9, 0	—	6, —
6	1, —	—	7, 0	(6), 1 ←
7	—	9, 0	(7), 0	8, 0
8	1, 0	—	7, 0	(8), 0
9	1, 0	(9), 0	7, 0	~~8, 0~~ —

Implication Table:



Merger Diagram



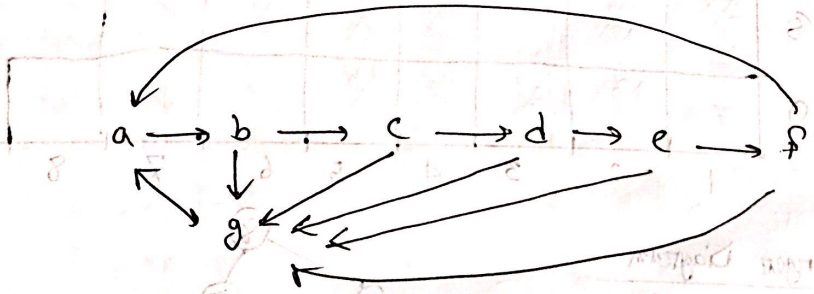
(2)

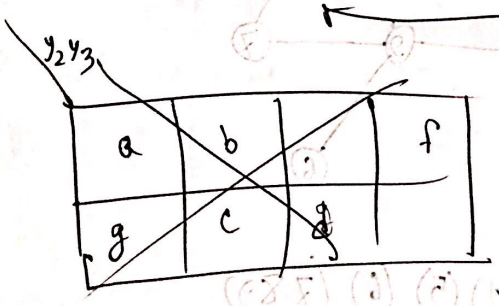
(3) (4) (5)

∴ (1), (2)(3)(4)(5)(6)(789)

Reduced Flow Table:

		00	01	11	10
a	1	①, 0	9, 0	–	2, 0
b	2	3, 0	–	7, 0	②, 0
c	3	③, 0	4, 0	–	8, 0
d	4	5, 0	④, 0	7, 0	–
e	5	⑤, 0	9, 0	–	6, –
f	6	1, –	–	7, 0	⑥, 1
g	7 8 9	1, 0	⑨, 0	⑦, 0	⑧, 0





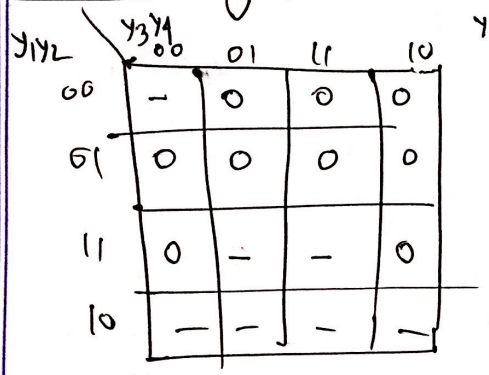
y_1y_2 \ y_3y_4	00	01	11	10
00	a	b	c	d
01	f_2	a	g	e
11	f_1		g_4	f
10		g_3	g_2	g_1

	00	01	11	10
a	(a), 0	g, 0	–	b, 0
b	3, 0	–	g_3, 0	(b), 0
c	(c), 0	d, 0	–	g, 0
d	5e, 0	(d), 0	g_1, 0	–
e	(e), 0	g, 0	–	(f), f, –
f	f_1, –	–	g_4, –	(f), 1
g	a, 0	(g), 0	(g), 0	(g), 0
g_1	–	–	g_2, 0	–
g_2	–	–	g_4, 0	–
g_3	–	–	g_2, 0	–
g_4	–	–	g, 0	–
f_1	f_2, –	–		
f_2	a, –	–	–	–

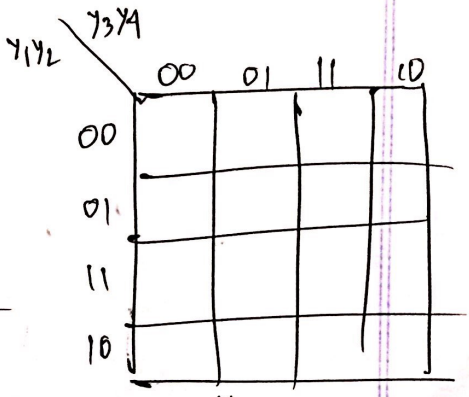
Transition Table:

$y_1y_2y_3y_4$	x_1x_2 = 00	01	11	10
x 0000	—	—	—	—
b 0001	0011	—	0001	0011
d 0010	0110	0010	1010	—
c 0011	0011	0010	—	0111
f_2 0100	0101	—	—	—
a 0101	0101	0111	—	0001
e 0110	0110	0111	—	1110
g 0111	0101	0111	0111	0111
X 1000	—	—	—	—
g_3 1001	—	—	1011	—
g_1 1010	—	—	1011	—
g_2 1011	—	—	1111	—
f_1 1100	0100	—	—	—
X 1101	—	—	—	—
f 1110	0100	—	1111	1110
g_4 1111	—	—	0111	—

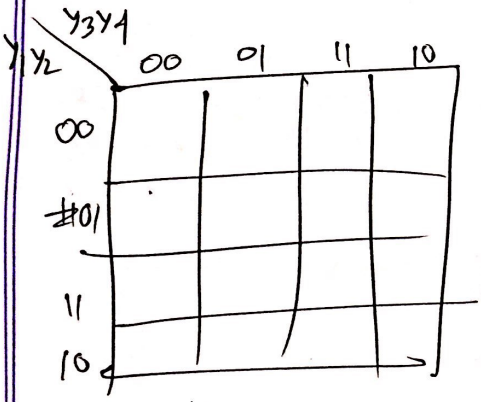
K-map using D latch



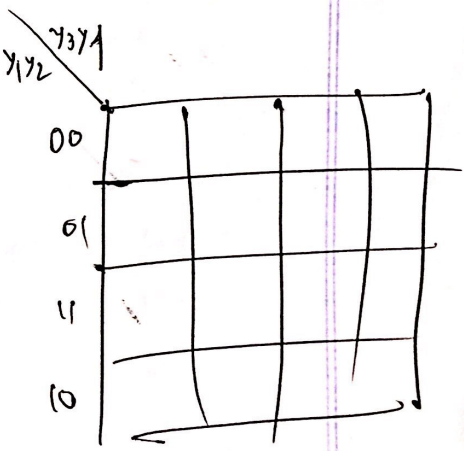
$Y_1 =$



$Y_2 =$



$Y_3 =$



$Y_4 =$