

① (a)

Input is a, b.

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①

00	01	11	10
1	3	—	2
1	—	4	2
1	3	5	—
—	3	4	2
—	3	5	2

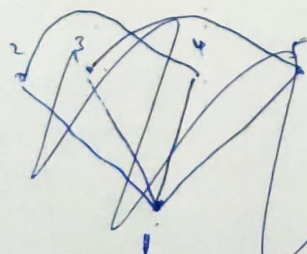
Output for the state  $\Rightarrow$

1	output	0, 0
2	output	1, 0
3	output	0, 1
4	output	1, 0
5	output	0, 1

~~State~~

$\Rightarrow$

	State / Output Input (a, b)			
PS	00	01	11	10
1	1, (0, 0)	3	—	2
2	1	—	4	2, (1, 0)
3	1	3, (0, 1)	5	—
4	—	3	4, (1, 0)	2
5	—	3	5, (0, 1)	2



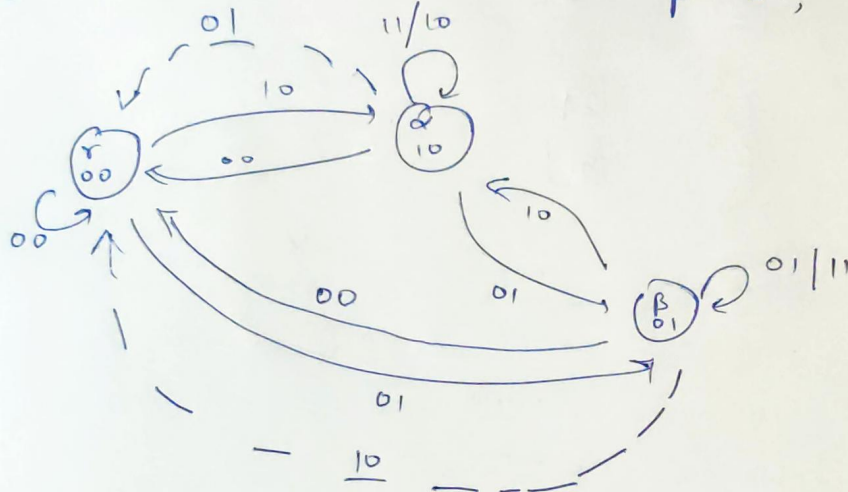
minimization

	00	01	11	10
1, 3, 5	$\alpha$	$\alpha$	$\alpha$	$\beta$
2, 4	$\beta$	$\alpha$	$\beta$	$\beta$

(2)

		Input (a, b)			
Output	PS	00	01	11	10
$\alpha$	10	$\gamma$	$\beta$	$\alpha$	$\alpha$
$\beta$	01	$\gamma$	$\beta$	$\beta$	$\alpha$
$\gamma$	00	$\gamma$	$\beta$	-	$\alpha$

(b) Since  $r = 00$ ,  $q = 10$  and  $\beta = 01$ ,



Since  $q \xrightarrow{01} r \xrightarrow{01} \beta$  goes fine

Hazard free ~~for~~ without any spikes

Since  $\beta \xrightarrow{10} r \xrightarrow{10} q$  goes fine

Hazard free without any spikes.

So Table is

		Input (a, b)			
Output		0, 0	0, 1	1, 1	1, 0
$\alpha$	$\gamma$	00	<del>00</del>	00	10
00		00	01	10	10
10		00	01	01	10
01		00	01	01	10