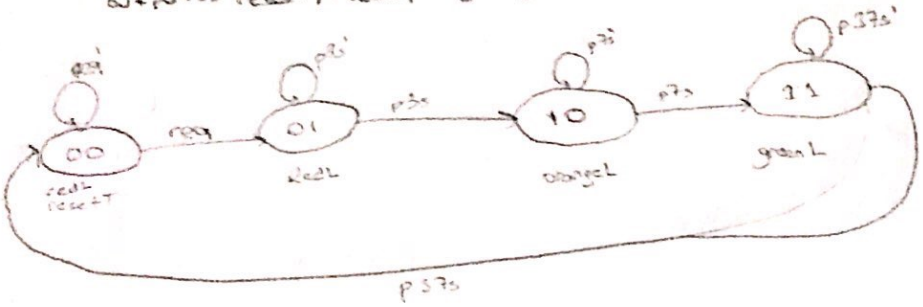
input = req, p3s, p7s, p37s

output = resetT, redL, orangeL, greenL



S_1	S_0	p3s	p7s	p37s	req	n_1	n_0	r	o	g	reset
0	0	x	x	x	0	0	0	1	0	0	1
0	0	x	x	x	1	0	1	1	0	0	1
0	1	0	x	x	x	0	1	1	0	0	0
0	1	1	x	x	x	1	0	1	0	0	0
1	0	x	0	x	x	1	0	0	1	0	0
1	0	x	1	x	x	1	1	0	1	0	0
1	1	x	x	0	x	1	1	0	0	1	0
1	1	x	x	1	x	0	0	0	0	1	0

N_1

$N_1 = S_1'S_0p3s + S_1S_0'p7s' + S_1S_0'p7s + S_1S_0p37s'$

$S_1S_0'(p7s' + p7s)$

$N_1 = S_1'S_0p3s + S_1S_0' + S_1S_0p37s'$

N_0

$N_0 = S_1'S_0'req + S_1'S_0p3s' + S_1S_0'p7s + S_1S_0p37s'$

Reset

$Reset = S_1'S_0'req' + S_1'S_0'req$

$= S_1'S_0'(req' + req) \Rightarrow S_1'S_0'$

Red

$R = S_1'S_0'req' + S_1'S_0'req + S_1'S_0p3s' + S_1'S_0p3s$

$R = S_1'S_0'(req' + req) + S_1'S_0(p3s' + p3s)$

$R = S_1'S_0' + S_1'S_0 = S_1'(S_0' + S_0)$

$R = S_1'$

Orange

$O = S_1S_0^1P_7S^1 + S_1S_0^1P_7S$

$O = S_1S_0^1$

green

$g = S_1S_0P_37S^1 + S_1S_0P_37S$

$g = S_1S_0$