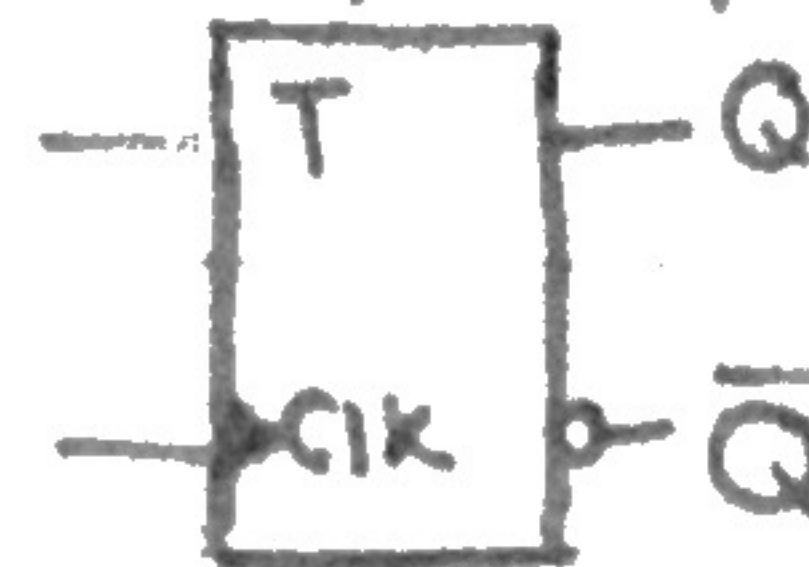


HOMEWORK #3

WRITTEN

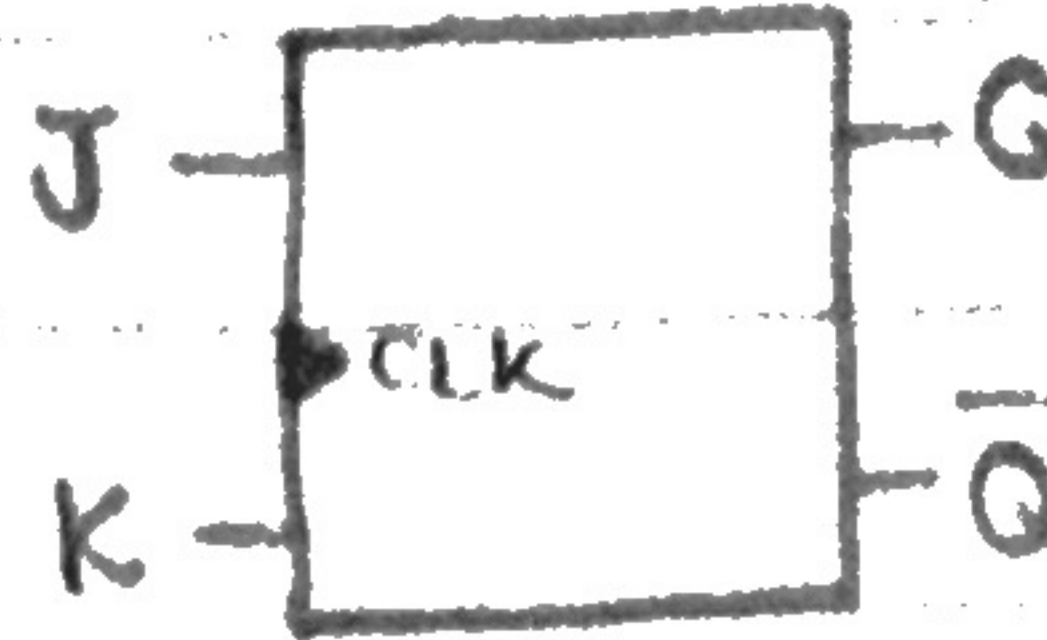
1.) JK Flip-Flop using T Flip-Flop and basic logic gates

T Flip-Flop

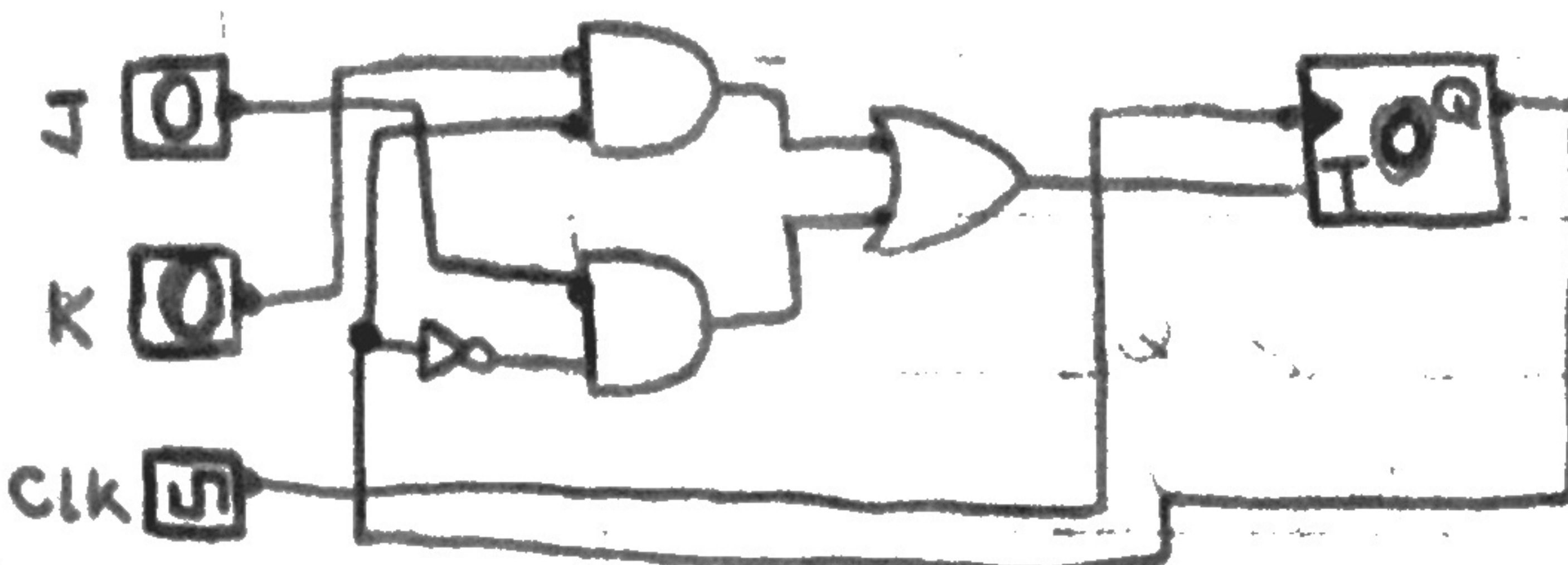


T	Q_{next}
0	Q_{prev}
1	$\overline{Q_{prev}}$

JK Flip-Flop



JK \ Q	0	1
00	0	0
01	0	1
11	1	1
10	1	0



JK \ PS	00	01	10	11
0	0	0	1	1
1	1	0	1	0

PS \ JK	0	1
0	0x	1x
1	x1	x0

J	K	Q_{prev}	Q_{next}	T
0	0	0	0	0
0	0	1	1	0
0	1	0	0	0
0	1	1	0	1
1	0	0	1	1
1	0	1	1	0
1	1	0	1	1
1	1	1	0	1

JK \ Q	00	01	11	10
0	0	0	1	1
1	0	1	1	0

$T = J\overline{Q} + KQ$

2.) SR Flip-Flop using D Flip-Flop

SR \ PS	00	01	10	11
0	0	0	1	x
1	1	0	1	x

PS \ SR	0	1
0	0	1
1	0	1

S	R	Q_{prev}	Q_{next}	D
0	0	0	0	0
0	0	1	1	1
0	1	0	0	0
0	1	1	0	0
1	0	0	1	1
1	0	1	1	1
1	1	0	x	x
1	1	1	x	x

SR \ PS	00	01	11	10
0	0	0	x	1
1	1	0	x	1

$D = S + \overline{R}Q$

