

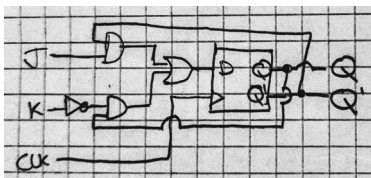
# Digital Systems HW9

1.

J	K	Q	D
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

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

$$D = JQ' + K'Q$$



2.

X	Y	Z <sub>n</sub>
0	0	0
0	1	Z <sub>n-1</sub>
1	0	Z <sub>n-1</sub> '
1	1	1

Z <sub>n-1</sub>	Z <sub>n</sub>	X	Y
0	0	0	Φ
0	1	1	Φ
1	0	Φ	0
1	1	Φ	1

3. This system is essentially just a T flip flop. When the input is a one, when the next clock strikes, the output will be toggled (1 becomes 0 and 0 becomes 1). When the input is 0, the output remains.