

ECS 154A Homework 4

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1. Implement the following D flipflop as a JK flipflop.

D

		QX			
		00	01	11	10
YZ	00	1	0	0	1
	01	1	1	1	0
	11	1	1	1	1
	10	0	1	0	0

J

		QX			
		00	01	11	10
YZ	00	1	0	d	d
	01	1	1	d	d
	11	1	1	d	d
	10	0	1	d	d

$$J = Z + \overline{X} \overline{Y} + XY$$

K

		QX			
		00	01	11	10
YZ	00	d	d	1	0
	01	d	d	0	1
	11	d	d	0	0
	10	d	d	1	1

$$K = X\overline{Z} + Y\overline{Z} + \overline{X} \overline{Y}Z$$

2. Implement the following D flipflop as a T flipflop.

D

		QX			
		00	01	11	10
YZ	00	0	0	1	1
	01	1	1	0	0
	11	1	1	0	0
	10	0	0	1	1

T

		QX			
		00	01	11	10
YZ	00	0	0	0	0
	01	1	1	1	1
	11	1	1	1	1
	10	0	0	0	0

$T = Z$