

Lösningförslag till dugga 3 i TMEL53 Digitalteknik 2015-02-20

1. $T = Q_1 \oplus \bar{Q}_3$

$S = Q_1$

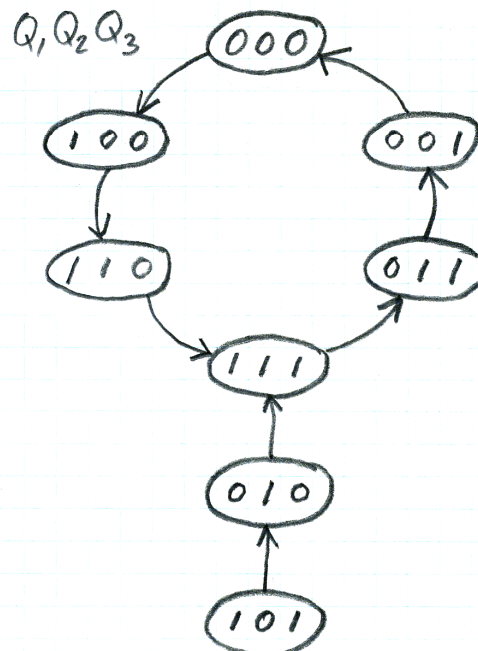
$R = \bar{Q}_1 Q_3$

$D = Q_2$

FÖRE CP

EFTER CP

$Q_1 Q_2 Q_3$	T	S	R	D	$Q_1^+ Q_2^+ Q_3^+$
0 0 0	1	0	0	0	1 0 0
0 0 1	0	0	1	0	0 0 0
0 1 0	1	0	0	1	1 1 1
0 1 1	0	0	1	1	0 0 1
1 0 0	0	1	0	0	1 1 0
1 0 1	1	1	0	0	0 1 0
1 1 0	0	1	0	1	1 1 1
1 1 1	1	1	0	1	0 1 1



2.

FORE CP

EFTER CP

X	Q ₁	Q ₂	J ₁	K ₁	J ₂	K ₂	Q ₁ ⁺	Q ₂ ⁺
0	0	0	0	-	1	-	0	1
0	0	1	1	-	-	1	1	0
0	1	0	-	1	0	-	0	0
0	1	1	-	1	-	0	0	1
1	0	0	1	-	0	-	1	0
1	0	1	1	-	-	0	1	1
1	1	0	-	1	1	-	0	1
1	1	1	-	0	-	0	1	1

X	Q ₁ Q ₂			
	00	01	11	10
0	0	1	-	-
1	1	1	-	-

$$J_1 = X + Q_2$$

X	Q ₁ Q ₂			
	00	01	11	10
0	0	-	1	0
1	-	-	0	1

$$K_1 = \bar{X} + \bar{Q}_2 = \overline{X Q_2}$$

X	Q ₁ Q ₂			
	00	01	11	10
0	1	-	-	0
1	0	-	1	1

$$J_2 = \bar{X} \bar{Q}_1 + X Q_1 = \overline{X \oplus Q_1}$$

X	Q ₁ Q ₂			
	00	01	11	10
0	1	0	-	-
1	-	0	0	-

$$K_2 = \bar{X} \bar{Q}_1 = \overline{X + Q_1}$$

