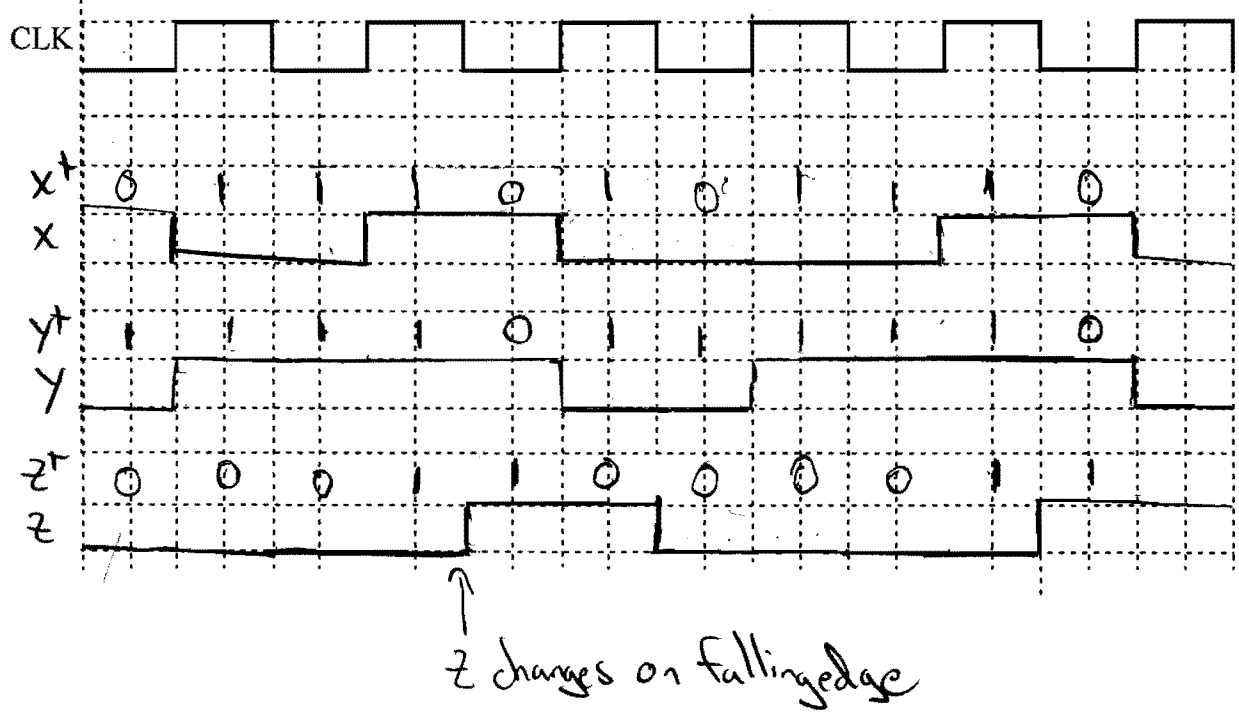
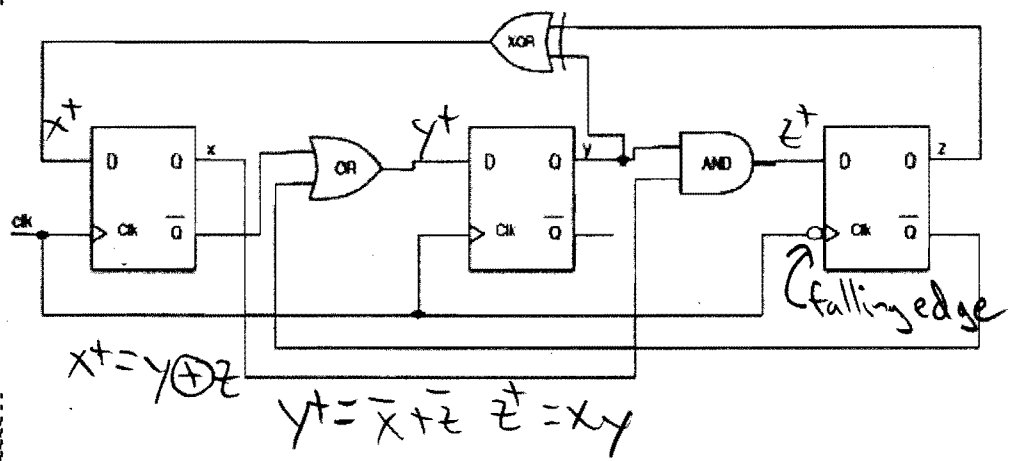
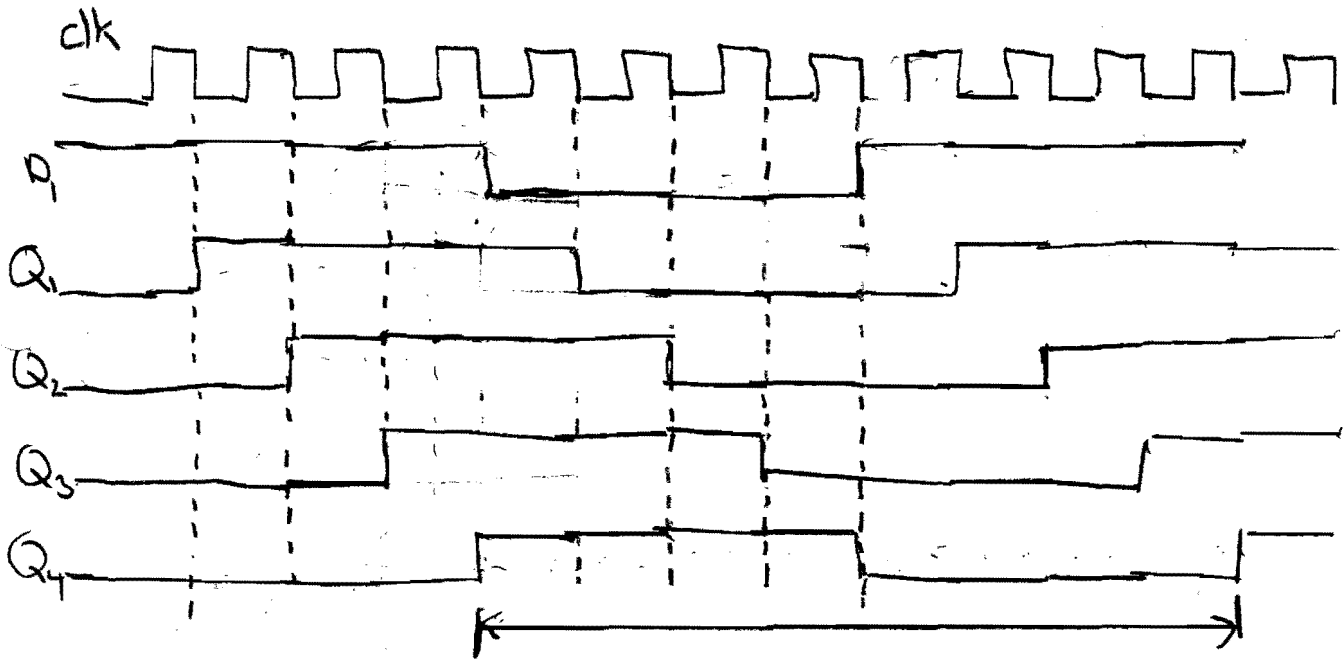
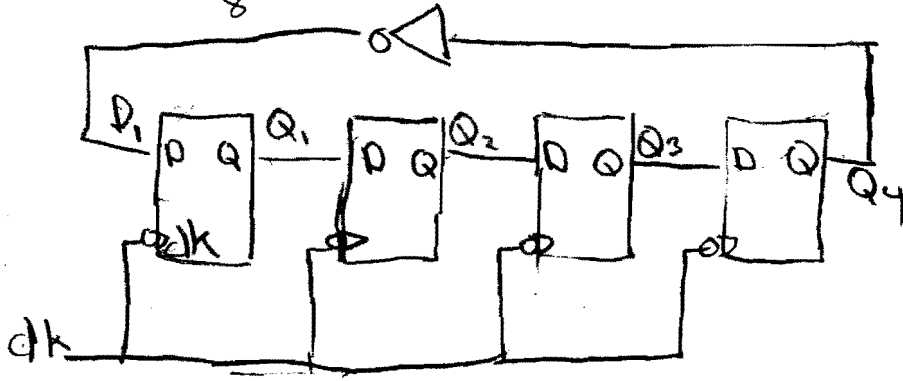


Initial $xyz = 100$

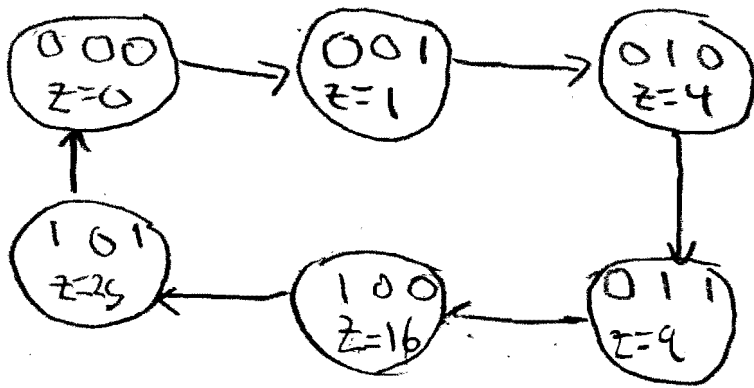


2. $f_{out} = \frac{f_{clk}}{8}$



$f_{out} = \frac{f_{clk}}{8}$

3. Moore Machine 6 states = 3 FF with 2 unused states



state $Q_2 Q_1 Q_0$	next state $D_2 D_1 D_0$	output z
000	001	$z_4 z_3 z_2 z_1 z_0$ 00000
001	010	00001
010	011	00100
011	100	01001
100	101	10000
101	000	11001
110	x x x	x x x x x
111	x x x	x x x x x

swap

D_2

$Q_2 Q_1 Q_0$	0	1
00	0	1
01	0	0
11	1	x
10	0	x

D_1

$Q_2 Q_1 Q_0$	0	1
00	0	0
01	1	0
11	0	x
10	1	x

D_0

$Q_2 Q_1 Q_0$	0	1
00	1	1
01	0	0
11	0	x
10	1	x

$$D_2 = Q_1 Q_0 + Q_2 \bar{Q}_0$$

$$D_1 = \bar{Q}_1 Q_0 \bar{Q}_2 + Q_1 \bar{Q}_0$$

$$D_0 = \bar{Q}_0$$

z_4

$Q_2 Q_1 Q_0$	0	1
00	0	1
01	0	1
11	0	x
10	0	x

z_3

$Q_2 Q_1 Q_0$	0	1
00	0	0
01	0	1
11	1	x
10	0	x

z_2

$Q_2 Q_1 Q_0$	0	1
00	0	0
01	0	0
11	0	x
10	1	x

z_1

$Q_2 Q_1 Q_0$	0	1
00	0	0
01	0	0
11	0	x
10	0	x

z_0

$Q_2 Q_1 Q_0$	0	1
00	0	0
01	1	1
11	1	x
10	0	x

$z_4 = Q_2$

$z_3 = Q_1 Q_0 + Q_0 Q_2$

$z_2 = Q_1 \bar{Q}_0$

$z_1 = 0$

$z_0 = Q_0$

4. Mealy Machine '0110' detector

