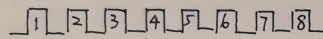
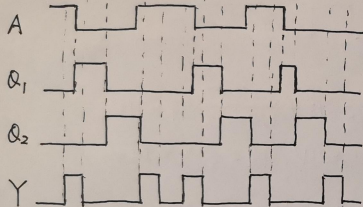


一.

1. $Y = B + A'C$

$Y = (B'C' + AC)'$ 或 $Y = (B'C' + AB')'$

2. CLK 

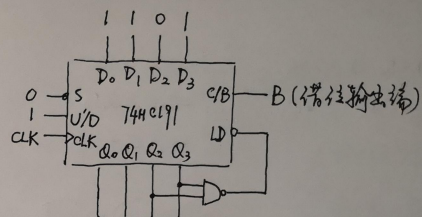


3. (a) $Y_1 = (A + B + C + D + E + F)'$

(b) $C = 0$ 时, $Y_2 = Z$

$C = 1$ 时, $Y_2 = A'B$

4.



5.

$A_1 A_0$	$D_3 D_2 D_1 D_0$
0 0	1 0 0 1
0 1	0 1 1 0
1 0	0 1 1 0
1 1	0 1 0 1

(2) $D_3 = A_1 A_0'$
 $D_2 = A_1 + A_0$
 $D_1 = A_1 \oplus A_0$
 $D_0 = A_1 \oplus A_0$

二.

(1) $X = A'B + A'C + BC$

$Y = A \oplus B \oplus C$

(2) 真值表略,

全减四; X: 借位信号; Y: 差

2. 令 $A_1 = A, A_0 = B, D_0 = C', D_1 = C, D_2 = 0, D_3 = C'$

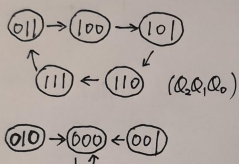
图略.

三.

1. $J_0 = Q_2, K_0 = Q_1' + Q_2'$
 $J_1 = Q_0 Q_2, K_1 = Q_2'$
 $J_2 = K_2 = Q_0 Q_1$

$Q_0^* = Q_2 Q_0' + Q_2' Q_1$
 $Q_1^* = Q_2 Q_0 + Q_2' Q_1$
 $Q_2^* = Q_2' Q_1 Q_0 + Q_2 (Q_1 Q_0)'$

$Q_2 Q_1 Q_0$	$Q_2^* Q_1^* Q_0^*$
0 0 0	0 0 0
0 0 1	0 0 0
0 1 0	0 0 0
0 1 1	0 0 0
1 0 0	1 0 1
1 0 1	1 0 1
1 1 0	1 1 0
1 1 1	1 1 0



同步制计数, 不能自启动

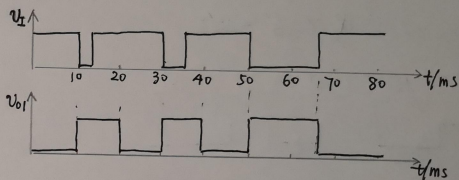
2.

(1) $Q_2^* = A'Q_0' + Q_2Q_0' + A Q_1 Q_0$
 $Q_1^* = A'Q_2 + Q_1Q_0' + A Q_2' Q_1 Q_0$
 $Q_0^* = A'Q_1 + A Q_0'$
 $D_2 = A'Q_0' + Q_2Q_0' + A Q_1 Q_0$
 $D_1 = A'Q_2 + Q_1Q_0' + A Q_2' Q_1 Q_0$
 $D_0 = A'Q_1 + A Q_0'$
 $Y = A'Q_1 Q_0 + A Q_2 Q_0$ 或 $Y = A'Q_1 Q_0 + Q_2 Q_1 Q_0$

(2) 图略.

四.

(1) $t_w = 10ms$



(2) $V_{CO} = \frac{10/110}{10/110+5} \times 15 + \frac{5/110}{5/110+10} \times 14 = 11V$

$V_{T+} = V_{CO} = 11V, V_{T-} = \frac{1}{2} V_{CO} = 5.5V$

$T_1 = 1.5ms, T_2 = 0.5ms, T = 2ms$