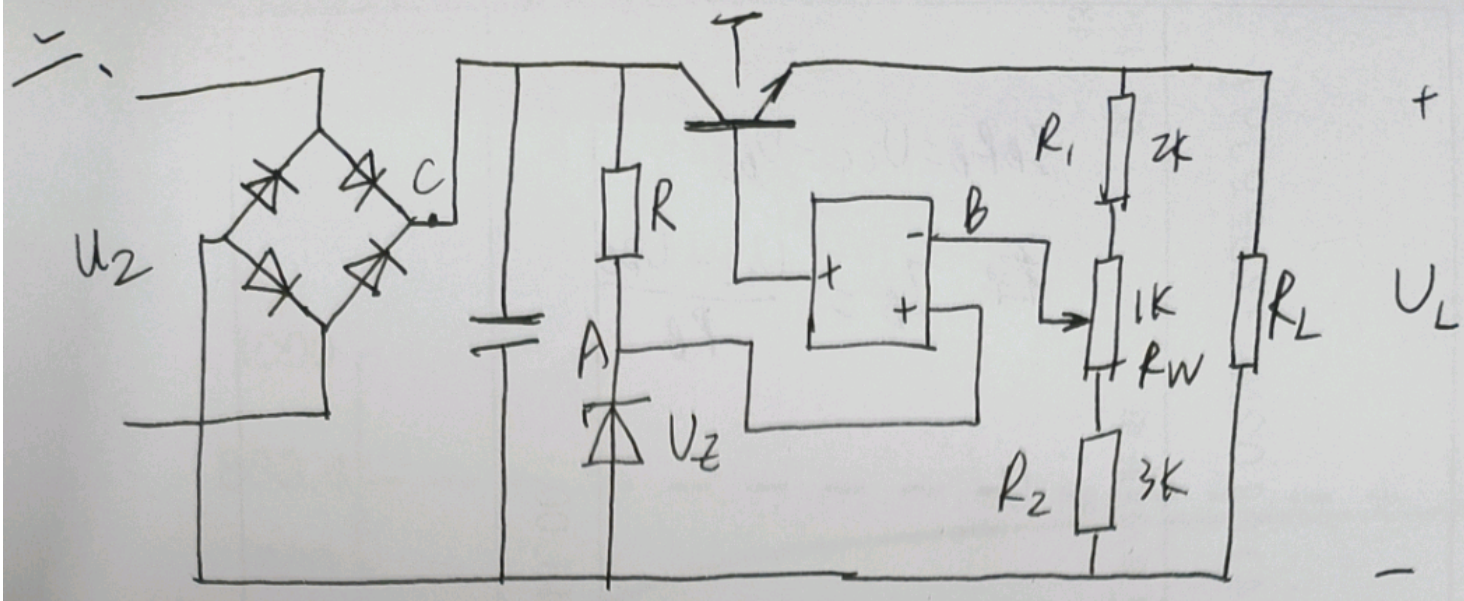
一、

$U_X=2.28V$

顺序	d_3	d_2	d_1	d_0	U_S/V	比较	去留
1	1	0	0	0	2	$U_S<U_X$	留
2	1	1	0	0	3	$U_S>U_X$	去
3	1	0	1	0	2.5	$U_S>U_X$	去
4	1	0	0	1	2.25	$U_S\approx U_X$	留

转换后的数字量为 1001

二、



a) 如图

b) $U_Z = 6V$ $U_B = U_A = U_Z = 6V$

$$U_L = \frac{R_1 + R_2 + RW}{R_2 + \frac{1}{2}RW} \cdot U_B = \frac{72}{7} V \simeq 10.2857V$$

$$U_C = U_L + 5V = 15.2857V$$

$$U_C = \frac{1}{1.2} U_2 \quad U_2 = 12.7381V$$

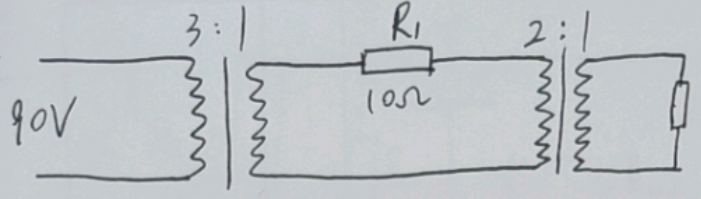
c)

$$U_{Lmax} = U_B \cdot \frac{R_1 + R_2 + RW}{R_2} = 12V$$

$$U_{Lmin} = U_B \cdot \frac{R_1 + R_2 + RW}{R_2 + RW} = 9V$$

调节范围 9~12 V

三、

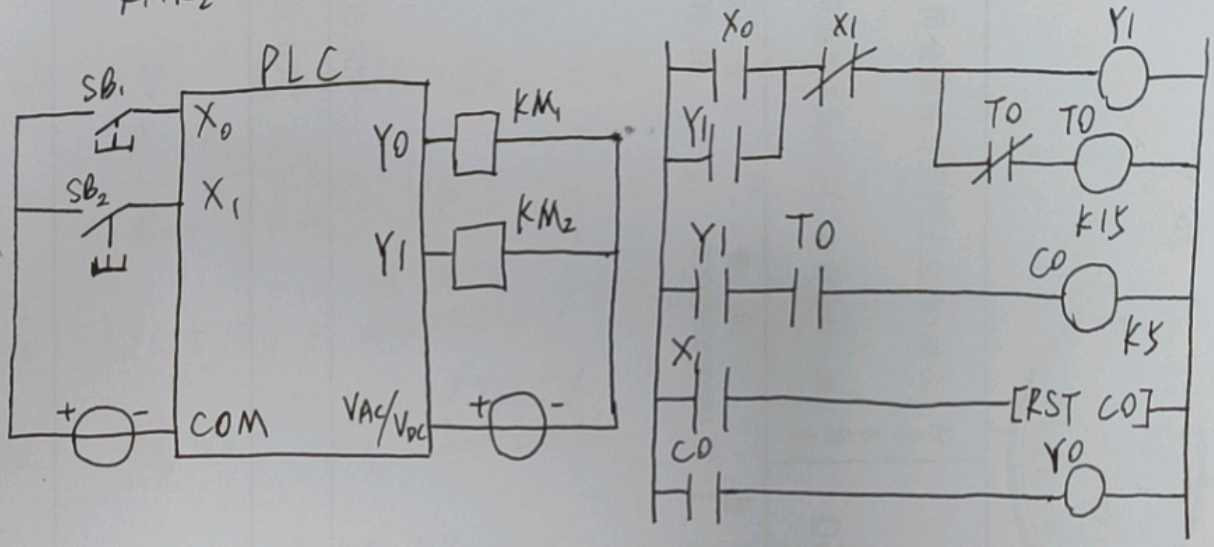


$k_1=3$ $k_2=2$ $R_2'=k_2^2R_2=20\Omega$

$U_1=90V$ $U_2=30V$

$I_2=\frac{U_2}{R_1+R_2'}=1A$ $P_1=I_2^2R_1=10W$ $P_2=I_2^2R_2'=20W$

四



当PLC控制接线图中的启动按钮 SB_1 按下时，(Y1自锁，T0开始延时)接触器线圈 KM_2 被接通，经过 7.5 秒延时再接通接触器线圈 KM_1