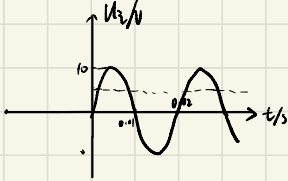


T1-6 解 1.  $I = \frac{10-0.7}{51} = 1.82 \text{ mA}$   
 2.  $U_{D1} \quad I = \frac{10-U_D}{R} \uparrow$   
 $U_D$  减小  $I$  增大

5

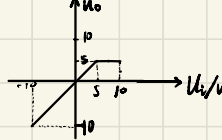
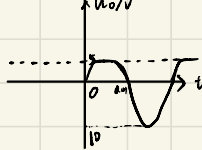
T1.8 解  $U_{i2} = 10 \sin 100\pi t \text{ V}$



a)  $U_{i2} + U_{D2} = 5 \text{ V} \quad U_{D2} = 5 - U_{i2}$

当  $U_{i2} < 5 \text{ V}$  时  $U_{D2} > 0$  此时二极管导通  $U_o = U_{i2}$

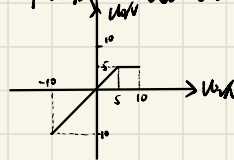
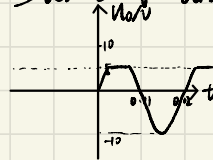
当  $U_{i2} > 5 \text{ V}$  时  $U_{D2} < 0$  此时二极管截止  $U_o = 5 \text{ V}$



b)  $U_{D2} + 5 = U_{i2} \quad U_{D2} = U_{i2} - 5$

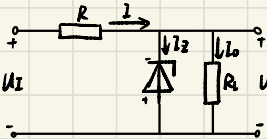
当  $U_{i2} > 5 \text{ V}$  时  $U_{D2} > 0$  二极管导通  $U_o = 5 \text{ V}$

当  $U_{i2} < 5 \text{ V}$  时  $U_{D2} < 0$  二极管截止  $U_o = U_{i2}$



T1-9 解 串联可得 (都反接)  $6+9=15 \text{ V}$ ,  $6+0.7=6.7 \text{ V}$ ,  $9+0.7=9.7 \text{ V}$ ,  $0.7 \times 2=1.4 \text{ V}$   
 共四种  
 并联可得  $6 \text{ V}$  (两个都反接)  $0.7 \text{ V}$  (至少一个正接)  
 共两种

T1-10 解



$U_{i2} = 6 \text{ V}$   
 $I_2 = 10 \text{ mA}$   
 $P_Z = 200 \text{ mW}$   
 $R = 50 \Omega$

1) 当  $U_o = 20 \text{ V}$ ,  $R_L = 1 \text{ k}\Omega$  时  $U_o$ ?

假设稳压管可以正常工作

$U_{i2} = 6 \text{ V} = U_o \quad I_o = \frac{6}{10^3} = 6 \text{ mA}$

$I = \frac{U_{i2}-6}{R} = \frac{20-6}{50} = 28 \text{ mA} \quad I_Z = 28-6 = 22 \text{ mA}$

$P_Z = 22 \times 6 = 132 \text{ mW} < 200 \text{ mW}$   $\therefore$  可以正常工作  $U_o = 6 \text{ V}$

2) 假设可以正常工作

$U_o = U_{RL} = 20 \times \frac{100}{100+500} = 3.3 \text{ V} \neq 6 \text{ V}$  不可正常工作  $U_o = 3.3 \text{ V}$

3) 假设取正常稳压

$U_R = U_{i2} - U_Z = 20-6 = 14 \text{ V}$

$I = \frac{U_R}{R} = \frac{14}{50} = 28 \text{ mA} = I_Z$

$P_Z = 28 \times 6 = 168 \text{ mW} < 200 \text{ mW}$

$\therefore$  取正常稳压

4) 假设可以正常稳压

$U_{i2} = 6 \text{ V} = U_{RL} \quad U_R = 7-6 = 1 \text{ V}$

$I = \frac{1}{50} = 2 \text{ mA} \quad I_o = 1 - I_Z = 2-10 < 0$

$\therefore$  不能正常稳压