11201912845 李洗春 1907

10-5.

1. $U_{O(AV)} = 0.9U_2 = 18V$

$I_{D(AV)} = \frac{1}{2}I_{O(AV)} = \frac{0.45U_2}{R_L}$

$= 9mA$

$U_{RM} = \sqrt{2}U_2 = 28.2V$

2. VD_1 接反

VD_1 与 VD_3 形成短路，会烧坏变压器.

10-10

1. $R=0$，容易烧坏稳压管，破坏稳压效果.

2. $\frac{U_{Zmax} - U_O}{R} < I_{Zmax}$

$U_{Zmax} = 110\% \times 1.2U_2 = 14.8V$

$\therefore R > \frac{U_{Zmax} - U_O}{I_{Zmax}} = 36.5\Omega$

$\frac{U_{Zmin} - U_O}{R} - I_{Omax} > I_{Zmin}$

$\therefore U_{Zmin} = 90\% \times 1.2U_2 = 16.2V$

$\therefore R < \frac{U_{Zmin} - U_O}{I_{Omax} + I_Z} = 680\Omega$

6.1

1) $U_1 = 24V$

$$U_2 = \frac{U_1}{1.2} = 20V$$

2) $$\frac{U_o}{R_3 + R_{RP} + R_4} = \frac{U_{BE} + U_Z}{R_4 + R_P'}$$

① 电位器调到最下端

$R_P' = 0$

$$\therefore U_{o\max} = \frac{R_3 + R_{RP} + R_4}{R_4}(U_{BE} + U_Z) = 18V$$

② 调到最上端

$R_P = 300\Omega$

$$U_{o\min} = \frac{R_3 + R_P + R_4}{R_4 + R_P}(U_{BE} + U_Z) = 9V$$

$\therefore U_o$ 范围 $(9 \sim 18)V$

3) $$U_{3max} = \frac{R_3 + R_P + R_4}{R_4}(U_{BE} + U_Z) = 24V$$

此时 $U_o = U_Z$. $U_{CE3} = 0V$, 饱和

$\therefore U_{3max} = (24 - 2)V = 22V$

10-17

1) a中输出电流 I_o 恒定

b中输出电压 U_o 恒定可调

2) $I_o = \frac{U_{xx}}{R} + I_3 = \frac{5V}{R} + I_3$

3) $U_o = \frac{R_1+R_2}{R_1} U_{xx} + I_3 R_2 = \frac{R_1+R_2}{R_1} \times 5V + I_3 R_2$.

10-19

$U_{o(max)} = (U_{xx} + U_{EB}) \frac{R_1+R_P+R_2}{R_3} = 15.2V$ ✓

$U_{omin} = (U_{xx} + U_{EB}) \frac{R_1+R_P+R_2}{R_3+R_P} = 17.7V$ ✓