

试题名称：

电子线路

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1. (a) NPN管 V_{BE} 反偏， $\therefore$ 截止
 - (b) PNP管发射结正偏，集电结反偏， $\therefore$ 放大区
 - (c) 集电结零偏， $\therefore$ 临界饱和
 - (d) $V_{BE}=0$ $I_B \neq 0$ $I_C \neq 0$ 证明发射结已短路，损坏

2. ① $A_v = (-100) \times (-100) \frac{R_L}{R_o + R_L} = 3333.3$

② $A_v = \frac{R_i}{R_i + R_s} (-100) \frac{R_i}{R_o + R_L} (-100) \frac{R_L}{R_L + R_o} = 1190.5$

3. $\begin{cases} V_o = A_1 \times 10 \text{ mV} = 5.5 \text{ V} \rightarrow A_1 = 550 \\ V_o = A_2 \times 15 \text{ mV} = -6.75 \text{ V} \rightarrow A_2 = -450 \end{cases} \rightarrow \begin{cases} A_c = A_1 + A_2 = 100 \\ A_d = A_1 - A_2 = 1000 \end{cases}$

$\therefore \text{CMRR} = \frac{|A_d|}{|A_c|} = 10 \text{ or } 20 \text{ dB}$

4. $V_i > 12 \text{ V}$ D_1 导通, D_2 截止 $\therefore V_o = 4 \text{ V} + \frac{2}{3} V_i$

$V_i < -10 \text{ V}$ D_1 截止, D_2 导通 $V_o = -\frac{10}{3} \text{ V} + \frac{2}{3} V_i$