國立彰化師範大學 100 學年度碩士班招生考試試題
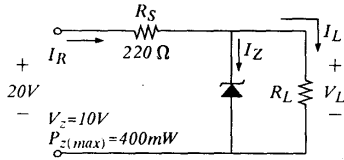
系所： 車輛科技研究所　　　　　　　　　　　　科目：電子學
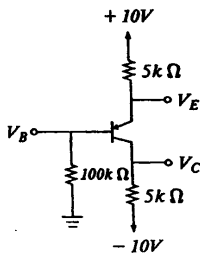
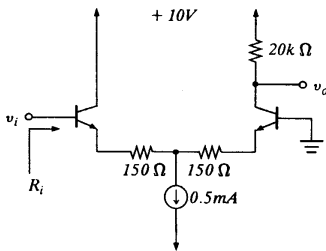☆☆請在答案紙上作答☆☆　　　　　　　　　　　共 1 頁，第 1 頁

1. Determine V_L, I_L, I_z and I_R for the following circuit if R_L=280Ω. (20%)


2. Determine α, β and V_c for the transistor in the following circuit if V_B=1.0V and V_E=1.7V. (20%)

3. Assume each transistor in figure has β=80 and r_e=100Ω. Find
   (1) the voltage gain of the amplifier
   (2) the input resistance of the amplifier(20%)

4. The two transistor amplifiers shown in the following figure combine an FET and a BJT to achieve both a high input impedance and a large voltage gain. Determine the voltage gain v_o/v_i of the amplifier by considering Q_1 with g_m=1ms, r_π=1kΩ and β=120. (20%)
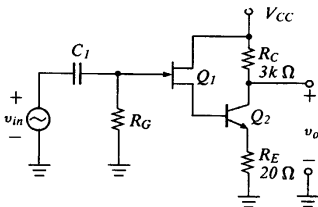
5. Calculate v_o (biased DC value) in the bipolar differential amplifier circuit shown in the following figure. (20%)