

中國文化大學 104 學年度碩士班考試入學招生考試試題

M-7-2

系所組：機械工程學系數位機電碩士班

節次：第 2 節

科目：應用電子學

1. Please draw the collector characteristic curve of BJT and label the 3 operation regions. (10%)
2. Please draw the circuit symbols of
(1) *pnp* BJT (2) diode (3) *p* channel E-MOS (15%)
3. Please draw the complete diode model includes the barrier potential, forward resistance and reverse resistance. (15%)
4. What are the input and output resistances and the gain of the noninverting amplifier (Fig. 1)? Assume the op amp has $A_{ol} = 100,000$, $R_{in} = 2 \text{ M}\Omega$, and $R_{out} = 75 \Omega$. (20%)
5. Please find I_B , I_E , and I_C for the circuit shown in Fig. 2. ($\alpha_{DC} = 0.98$ and $\beta_{DC} = 49$) (20%)
6. Determine A_v and A_i for the amplifier shown in Fig. 3. (20%)

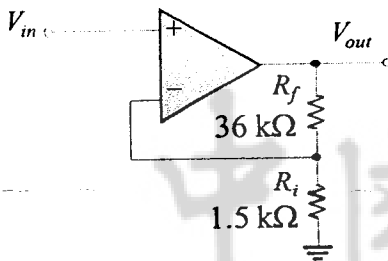


Fig. 1

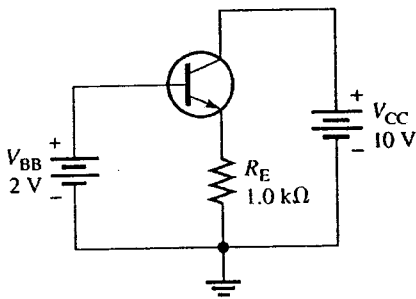


Fig. 2

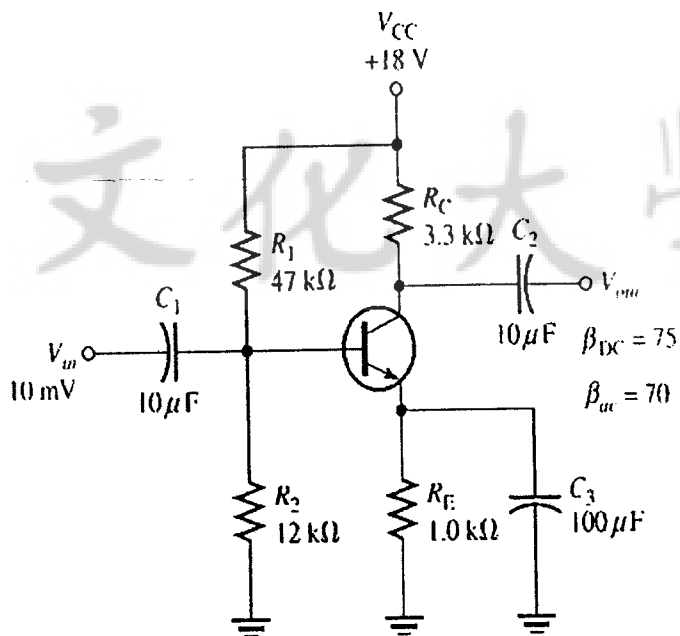


Fig. 3

第 1 頁 共 1 頁