國立高雄應用科技大學
101 學年度碩士班招生考試
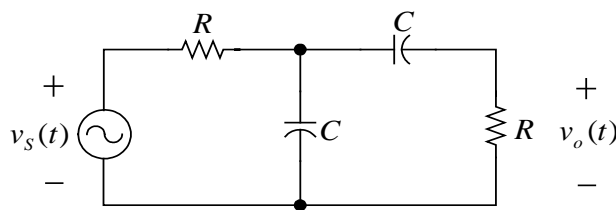# 電子工程系

准考證號碼□□□□□□□□□□　（考生必須填寫）

電子學（甲組）

注意：a.本試題共 5 題，每題 20 分，共 100 分。
　　　b.作答時不必抄題。
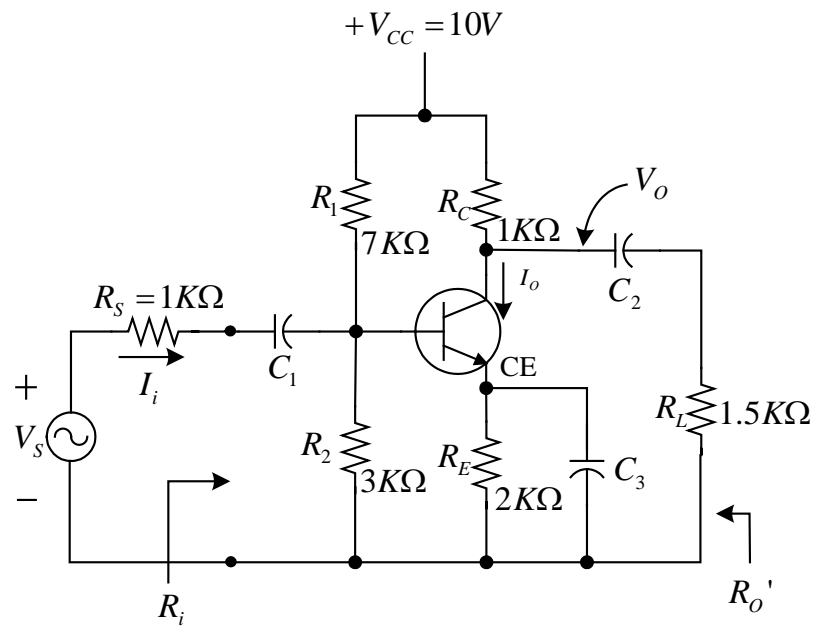　　　c.考生作答前請詳閱答案卷之考生注意事項。

1.　Find the transfer function $A_v(s) = \dfrac{V_o(s)}{V_s(s)}$ by using the following

　　method:
　　(a) Network analysis method;
　　(b) Time constant method.

2. If $\beta = 150$, $V_S = 10mV\,(rms)$, then find:

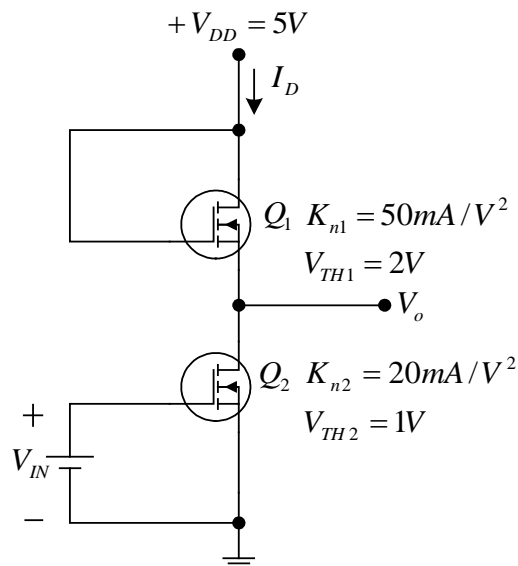(a) The operation point (Q point) and V_o under dc source;

(b) The values of R_i, I_o, and R_o' under ac source.

3. Find the values of I_D and V_o in the following cases:
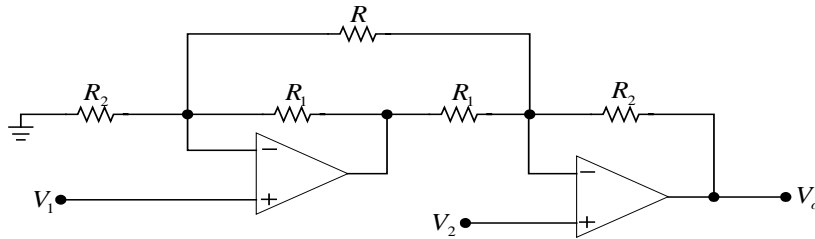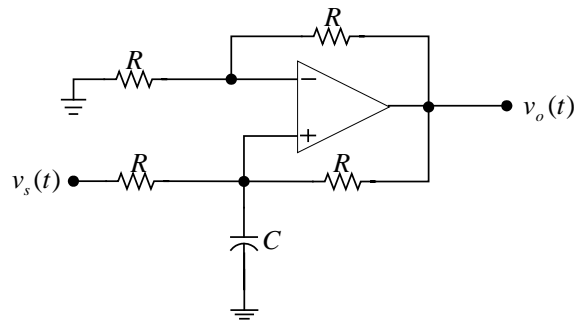   (a) $V_{IN} = 5$ V;
   (b) $V_{IN} = 3$ V.

4. Find the value of V_o or $v_o(t)$ in the following circuits:

(a)

(b)

5. (a) Find the function $A_v(s) = \dfrac{V_o(s)}{V_s(s)}$ in the following circuit;

(b) Find the values of ω_0 and Q;

(c) Determine the type of the filter circuit.

$$Gain \quad A_V = \frac{R_a + R_b}{R_a} = 1 + \frac{R_b}{R_a} > 0$$