國立成功大學 工程科學系 試題

電子學 (總分 100 分)

學號 E94056063 姓名 林宥衡 2018/04/12

計算題 5 題(100 分，共三頁)。推導過程須要詳細寫出來，若觀念正確，才能斟酌給分。

1. Assume the op amplifier in Fig.1 is ideal.
   (a) Find the condition of the resistances that makes A_{cm}=0. (10%)
   (b) Assume R_1= 1kΩ, R_2= 2kΩ, R_3= 2kΩ and R_4= 4kΩ, find the resistance seen by V_{Icm}. (10%)

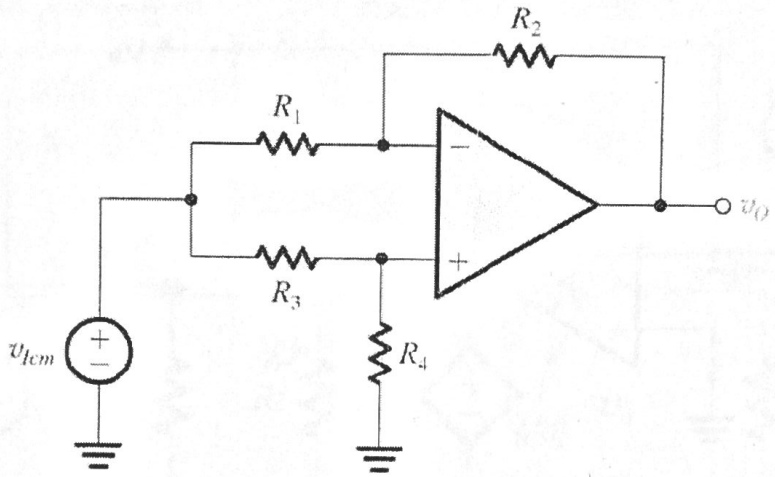

Fig.1

2. Consider the instrumentation amplifier in Fig.2. Let R_1 =0.5 kΩ, R_2 =0.5 MΩ, R_3 = R_4 =10 kΩ.
   (a) Find A_{Id} = v_o/v_{Id}.(v_{Id} = v_{I2}-v_{I1}) (10%)
   (b) For v_{I1}= 5-0.005sinωt and v_{I2}= 5+0.005sinωt, find the output voltage.(Hint: A_{cm} = 0) (10%)

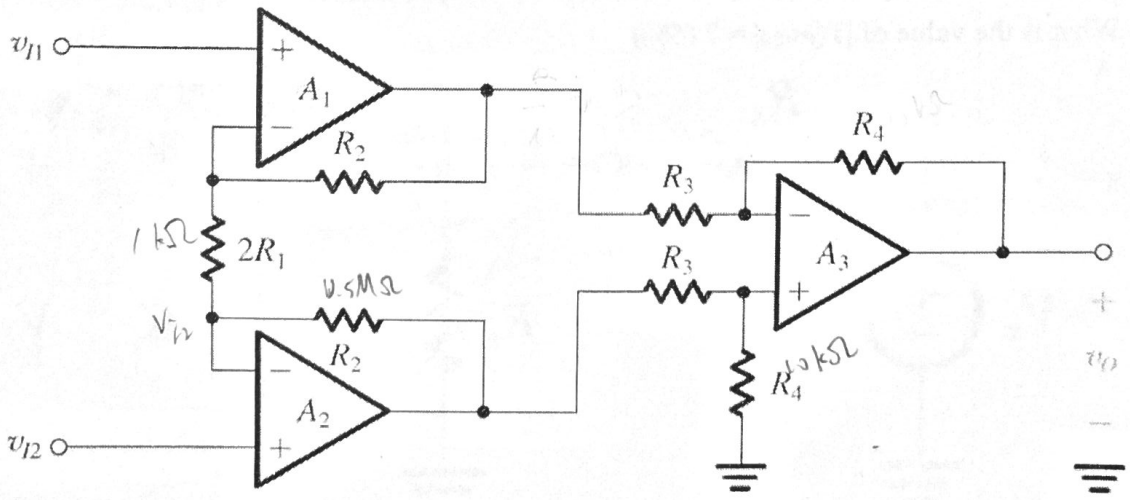

Fig.2

下頁還有題目