

بسم الله الرحمن الرحيم

King Fahd University of Petroleum and Minerals  
Department of Electrical Engineering

EE 542

Semester I 2006/2007

Analog Integrated Circuit Design

Major (1)

ATTEMP ALL QUESTIONS  
TIME ALLOWED TWO and HALF HOURS

Q1. Assuming a nonideal operational amplifier with gain-frequency characteristic expressed by  $A = \frac{B}{s}$ , obtain an expression for the input impedance of the circuit shown in Fig. 1. Identify the resulting input impedance if  $R_1 R_3 = R_2 R_4$ .

Q2. Obtain expressions for the transfer functions of the circuit shown in Fig. 2. Assume that the operational amplifier is nonideal with gain-frequency characteristic expressed by  $A = \frac{B}{s}$ . Discuss the merits and demerits of this circuit.

Q3. Find the frequency and the condition of oscillation of the circuit shown in Fig. 3. Discuss the merits and demerits of the circuit.

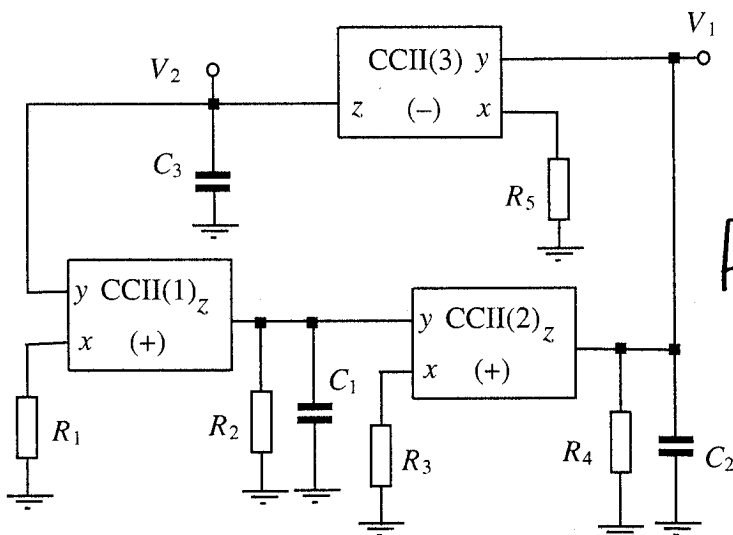
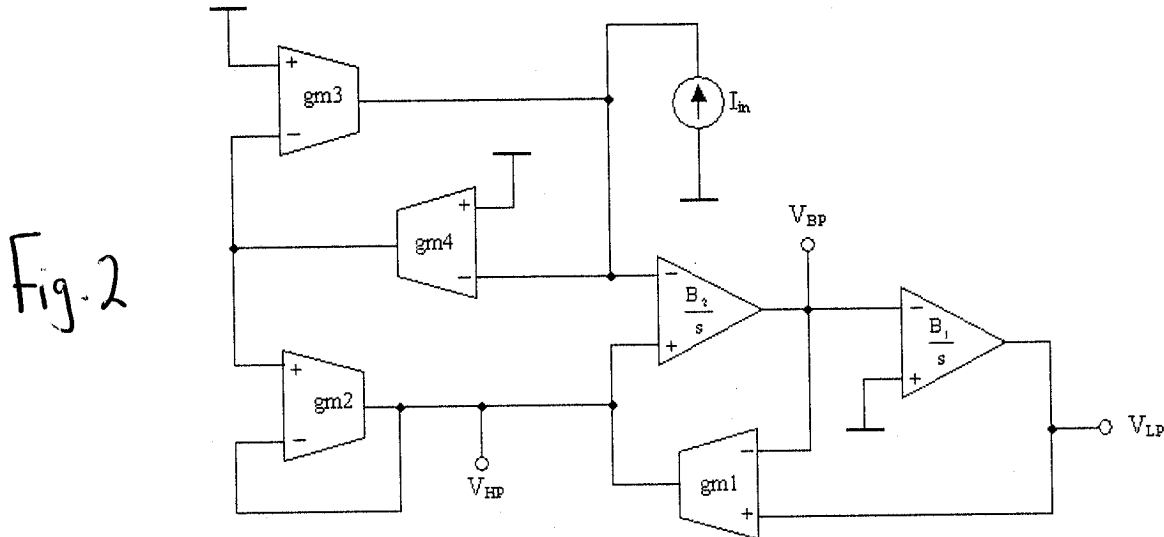


Fig-3

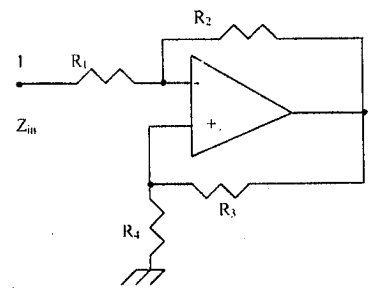


Fig-1