

Mock Final Examination

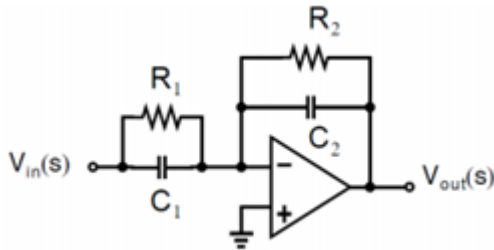
ECE 580

December 1, 2021

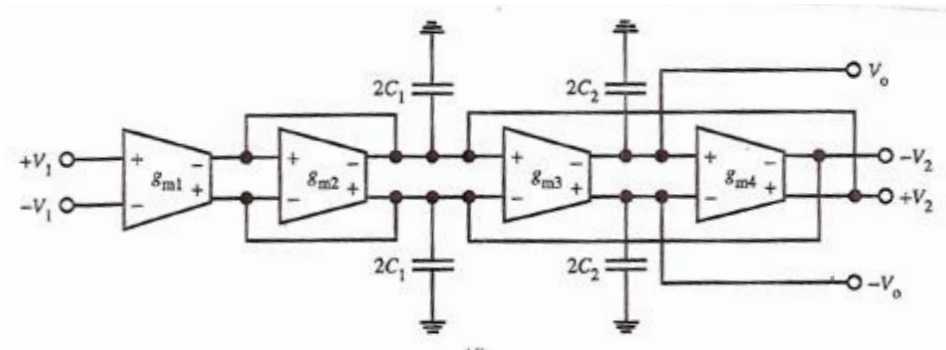
1. Find the transfer function for the bilinear filter stage shown below:

(a) For ideal opamp;

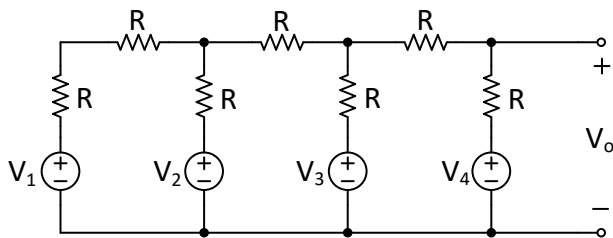
(b) For a finite-gain and bandwidth opamp with the gain function $A(s) = A_o / (1 + sA_o/w_u)$.



2. Find the voltage gains V_o/V_1 and V_2/V_1 of the Gm-C biquad shown.



3. In the circuit shown, $V_1 = V_2 = 1V$ and $V_3 = V_4 = 2V$. How much is V_o ?



Hints: Use inter-reciprocity; Analyze \hat{N} from output to input.