Name: _____ (please print)

Signature: _____

ECE 3355
Quiz 2 (on-line)
February 25, 2021

Quiz duration: 20 minutes

1. This quiz is open book, open notes. You may not, however, consult another person, verbally or online, for help. You may not submit your quiz to any site online in an effort to get help on the quiz.
2. Show all work necessary to complete the problem on these pages. A solution without the work shown will receive no credit.
3. Show units in intermediate and final results, and in figures.
4. If your work is sloppy or difficult to follow, points will be subtracted.

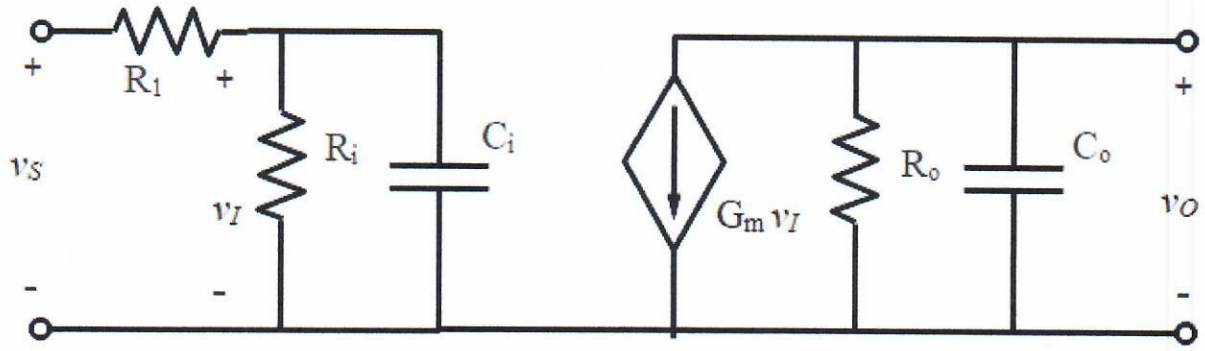
Instructions for an on-line quiz

- You will have 20 minutes to take the quiz, and 10 minutes to scan and upload it. Blackboard will stop accepting your work at 11:20 am.
- Please turn on your video, but do not focus it on the work you are doing.
- When you upload, make it a single .pdf document, and be sure it is legible and complete before uploading!
- I will be available for questions. If you need to ask a question, please use the "raise your hand" option on Zoom.

_____/25

Room for Extra Work

Find the transfer function $T(\omega) = \mathbf{V_O/V_S}$ for the circuit shown below. No parameter values are given, so your answer will be in algebraic form.



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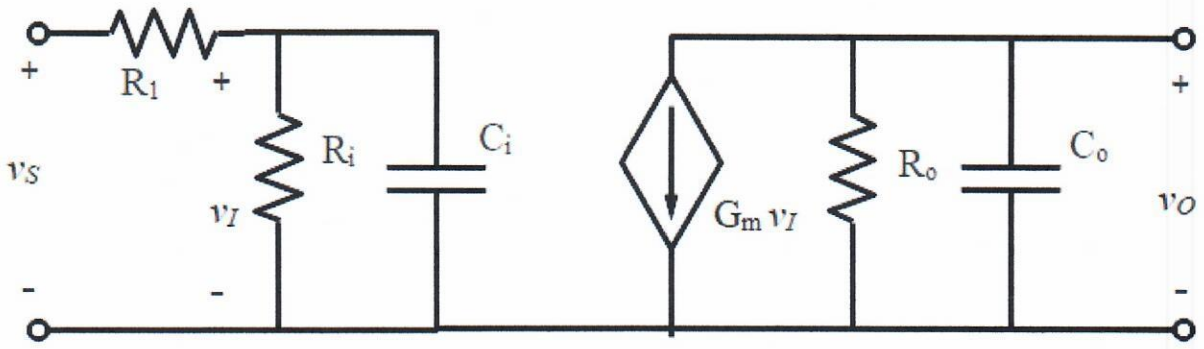

it will be helpful to have an expression for the impedance of R in parallel with C:

$$R \,/\!/\, \tfrac{1}{j\omega C} = \frac{R \cdot \frac{1}{j\omega C}}{R + \frac{1}{j\omega C}} = \frac{R}{1 + j\omega CR}$$

Then...

$$\bar{V}_o = -G_m \bar{V}_I \frac{R_o}{1 + j\omega C_o R_o}$$

$$\bar{V}_I = \bar{V}_s \frac{\frac{R_i}{1 + j\omega C_i R_i}}{\frac{R_i}{1 + j\omega C_i R_i} + R_1} = \bar{V}_s \frac{R_i}{R_i + R_1 + j\omega C_i R_i R_1}$$

$$\frac{\bar{V}_o}{\bar{V}_s} = -G_m \frac{R_o}{1 + j\omega C_o R_o} \frac{R_i}{R_i + R_1 + j\omega C_i R_i R_1}$$