CMPE 650

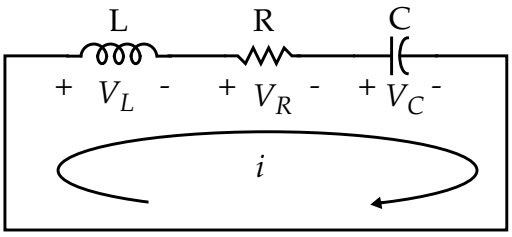
Name:

This exam has 10 questions

You must show all of your work -- partial credit may be given to partially correct answers, while answers with no justification may not receive full points. Use the back of the exam sheets if you need extra space.

WARNING: KEEP YOUR EYES ON YOUR OWN PAPER. CHEATING OF ANY SORT WILL CAUSE YOU TO FAIL THIS COURSE.

1) (10pts) Write the characteristic polynomial for the following circuit:

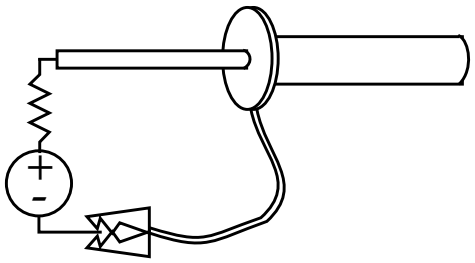


Briefly explain the significance of the discriminant component of the roots of this polynomial.

2) (10pts) Briefly explain the significance of F_{knee}.

3) (10 pts) Briefly explain the problems associated with ground bounce.

4) (10 pts) What characteristics of the following signal measurement strategy make it less than ideal?



5) (10 pts) When is the *Q* of a circuit important and what type of information does it provide?

6) (10 pts) Are the signals propagating along a microstrip faster than those propagating along a stripline? Why or why not?

7) (10 pts) Give the assumptions used for the following model of characteristic impedance?

$$Z_0 = \frac{V}{I} = \sqrt{\frac{L/\text{in.}}{C/\text{in.}}}$$

8) (10 pts) Name and briefl yexplain the other elements that must be included in a model of a "real" transmission line.

9) (10 pts) Name several popular ground plane configurations and briefl y describe the most important function of a ground plane.

10) (10 pts) What is the purpose of a chassis GND plane?