

GEORGIA INSTITUTE OF TECHNOLOGY
School of Electrical and Computer Engineering

ECE 2040
Circuit Analysis

Quiz #4

Wednesday, April 18, 2001

Name: _____

GENERAL INSTRUCTIONS

1. This is a *closed book, closed notes* exam. You may use one 8.5in \times 11.0in handwritten sheet of notes. You may also use a calculator, if you choose.
2. Please do all of your work on the exam itself. You may use the backs of the pages, if necessary.
3. Please be as neat and well organized as possible.
4. Clearly indicate your answers.

<i>Problem</i>	<i>Max</i>	<i>Score</i>
1	40	
2	30	
3	30	
Total	100	

Problem Q4.1:

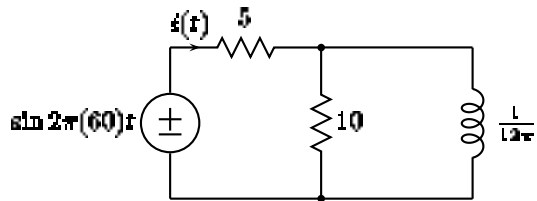


Figure 1: Figure for Problem Q4.1.

- (a) Redraw the circuit in the complex amplitude domain.
- (b) Determine the complex amplitude I of the current $i(t)$.
- (c) Determine the current $i(t)$ generated by the voltage source.
- (d) Determine the average power supplied by the voltage source.

Problem Q4.2:

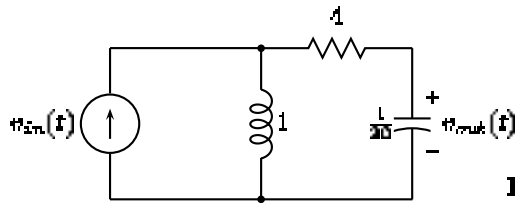


Figure 2: Circuit for Problem Q4.2.

- (a) Find the system function of the circuit in Figure 2. The circuit is at initial rest.
- (b) Find and sketch the impulse response.
- (c) Sketch the response of the circuit to the input sketched in Figure 3.

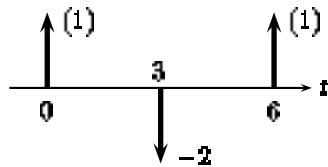


Figure 3: Waveform for Problem Q4.4.

Problem Q4.3: Compute the current $i(t)$ for the circuit in Figure 4. The solution will require several steps. To receive partial credit, you must clearly indicate your reasoning for each of these.

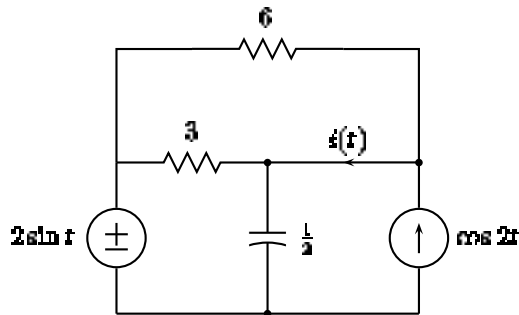


Figure 4: Circuit for Problem Q4.3.