

Please remember that homeworks are due at 12:00 noon Friday February 24.
Please put your homework in the appropriate box (EE42 or EE100) in 240 Cory Hall.
Print your name(s) in upper right corner of your paper and indicate whether you're
enrolled in EE42 or EE100.

1. (*Reading Assignment*) Chapter 5.1-5.6, 6.1: Hambley 3rd edition.
2. Problem 5.4: Hambley 3rd edition
3. Problem 5.10: Hambley 3rd edition
4. Problem 5.12: Hambley 3rd edition
5. Problem 5.19: Hambley 3rd edition
6. Problem 5.21: Hambley 3rd edition
7. Problem 5.23: Hambley 3rd edition
8. Problem 5.30: Hambley 3rd edition
9. Problem 5.31: Hambley 3rd edition
10. Problem 5.36: Hambley 3rd edition
11. Problem 5.45: Hambley 3rd edition
12. a) Find the impedance Z of the combination of elements shown in the figure below
- b) Find the magnitude of the impedance $|Z|$
- c) For what frequency ω is $|Z|$ a maximum, assuming $(R \cdot C)^2 \ll L \cdot C$
- d) Sketch $|Z|$ versus $\omega = \sqrt{L \cdot C}$ using log-log axes

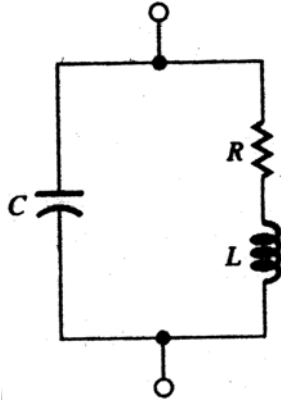
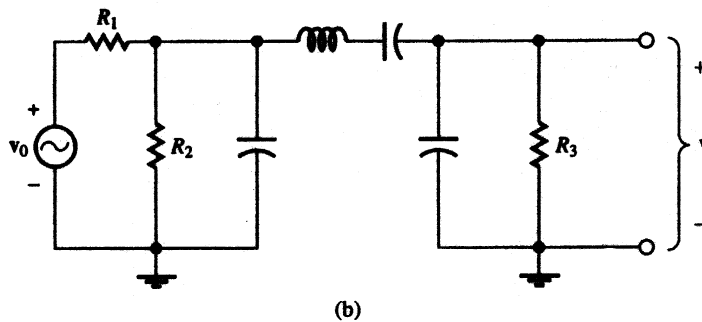
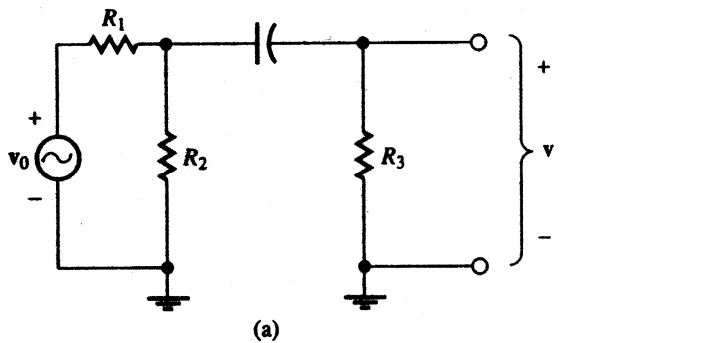


Figure for Problem 12

13. If the circuit of Figure a) is actually constructed, there will be additional parasitic (unintended) circuit elements, such as the inductances of the wires and capacitances arising from proximity. The resulting circuit is likely to look like that of Figure b).

a) Find v in the limits $\omega \rightarrow 0$ and $\omega \rightarrow \infty$.

b) In which limits do the parasitics seem to have the greatest effect?



Figures for Problem 13