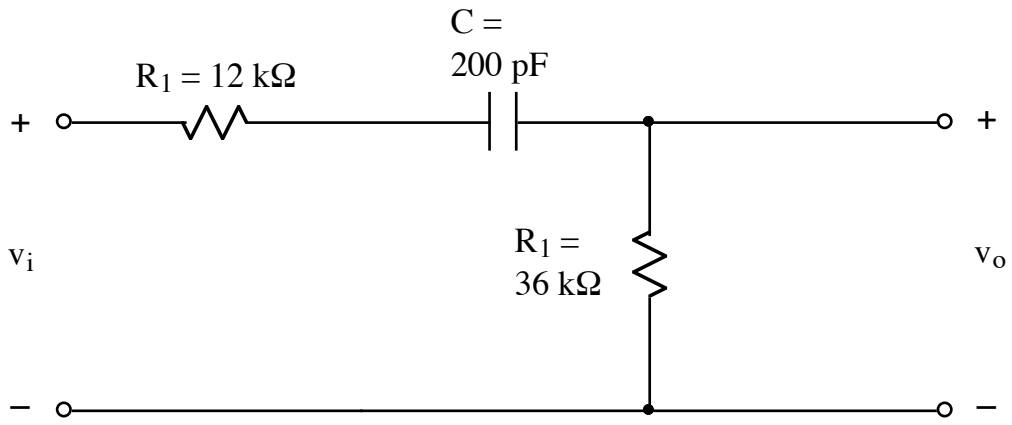
HOMEWORK #3

1.

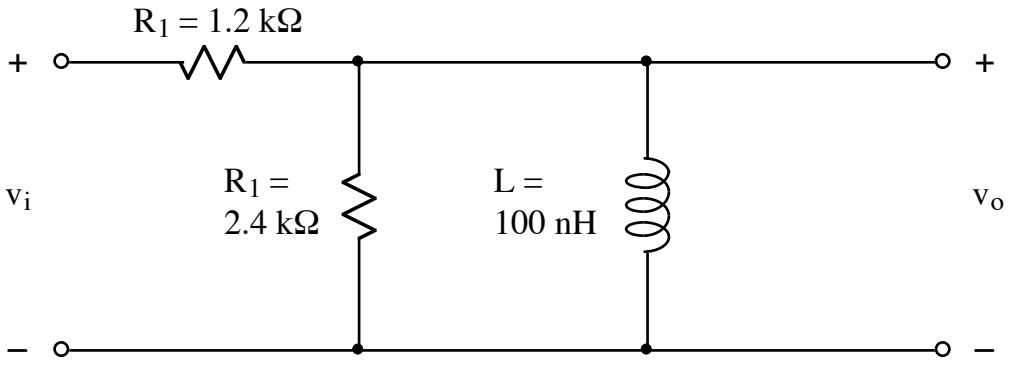


a) Determine the transfer function V_o/V_i. **Hint:** Reverse the order of R_1 and C, and suppose the output were tapped from the point between C and R_1. Then use a voltage divider.

b) Plot $|V_o/V_i|$ versus ω.

c) Find the cutoff frequency, ω_c.

2.

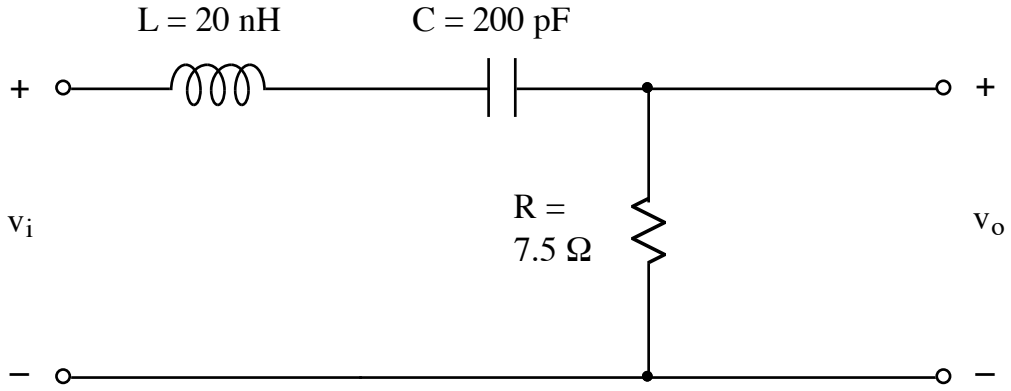


a) Determine the transfer function V_o/V_i. **Hint:** Use a Thevenin equivalent to reduce the two R's to a single R.

b) Plot $|V_o/V_i|$ versus ω.

c) Find the cutoff frequency, ω_c.

3.



For the band-pass filter shown above, calculate the following quantities:

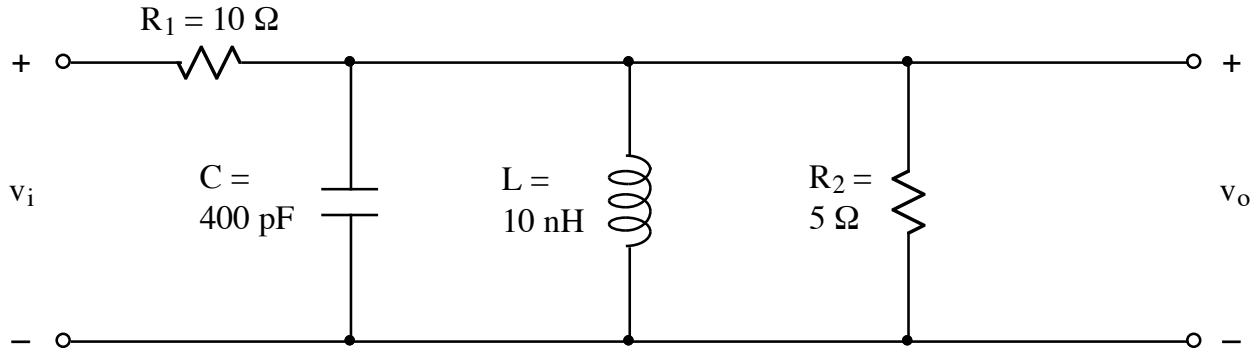
a) ω_o

b) f_o

c) ω_{C1} and ω_{C2}

d) β and Q

4.



For the band-pass filter shown above, calculate the following quantities:
Hint: Use a Thevenin equivalent for the R's.

a) ω_o

b) ω_{C1} and ω_{C2}

c) β

d) Q