# Extra Credit A – Chebyshev Filter

You can receive extra credit the first ¼ of the semester by building a simple filter called a Chebyshev filter. If you would like to learn more about designing Chebyshev and Butterworth filters, go to the following website: http://www-users.cs.york.ac.uk/~fisher/lcfilter/

The circuit below is a 9th order Chebyshev-type filter. It has nine components (five inductors and four capacitors). If we choose these components fairly arbitrarily, we get a filter with several resonances (four peaks and four valleys), as shown in the AC sweep. [In this filter, R1 is internal impedance of the function generator, L1=L2=L3=L4=L5=1mH, C1=C2=C3=C4=0.1uF, and R2=50 ohms.]
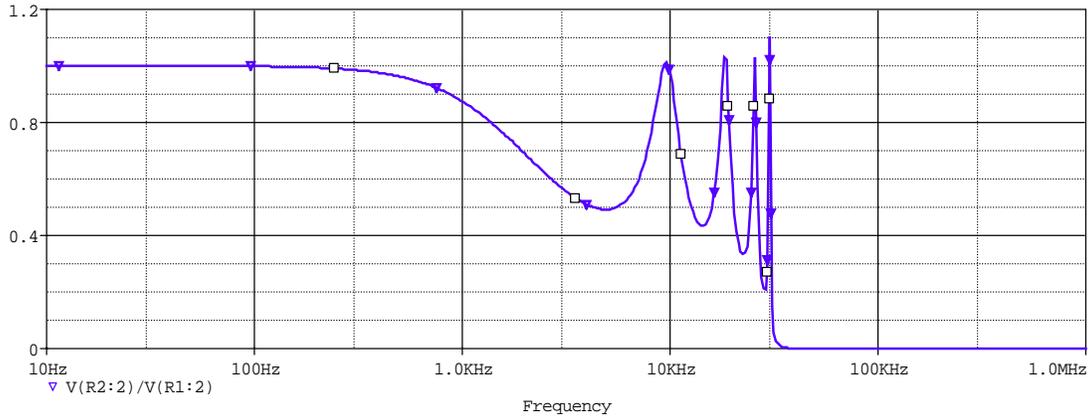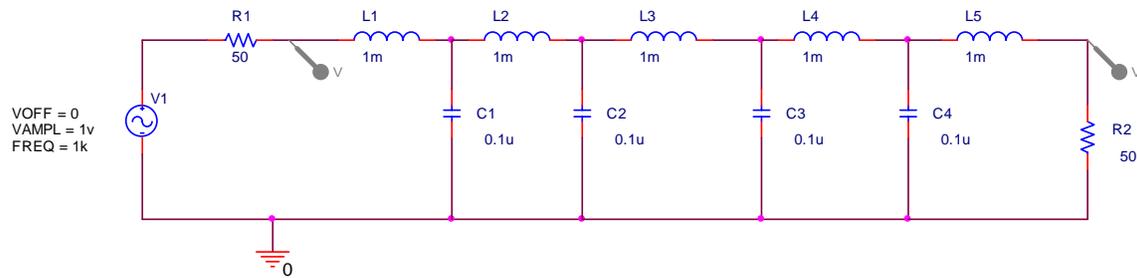
Build the circuit. Demonstrate to the staff member that it has four peaks and four valleys at roughly the same frequencies shown on the AC sweep above.

Name of student:_____

Section _____   Group _____

Apply Towards (circle one):   quiz1   proj1   exp1   exp2   exp3

Protoboard returned _____

Staff Signature _____