1) (a) Determine the value of the transfer function of the circuit below at very high and very low frequencies from physical arguments.
(b) Determine the value of the step response of the circuit below at times just after 0, $t = 0^+$, and at very large times, $t = \infty$.
(c) Write a set of equations that would determine the transfer function of this circuit.
(d) Use symbolic Matlab to determine the transfer function of the circuit below. Use (a) to check your solution.
(e) Use numeric Matlab to plot the magnitude and phase of the transfer function. Use (a) to check your solution. Discuss your results.
(f) Use numeric Matlab to plot the step response of this circuit. Use (b) to check your solution. Discuss your results.
2) Repeat (1) for the circuit below.

\[ \text{in(t)} \quad \text{out(t)} \]

3) a) A&S 14.70.
   
   b) For the circuit in a), if possible, discuss how to construct a high pass filter by interchanging capacitors and resistors.
   
   c) Repeat for a bandpass filter.
   
   d) Repeat for a bandreject filter.

4) A&S 15.3a), 15.7a), 15.9b), 15.9d), 15.14. Also use symbolic matlab to determine the Laplace Transform.