Answers to ES205 Examination III, 1997-1998

Problem 1
1a) 2 to 2000 rad/s
1b) infinity
1c) < 60 rad/s
1d) \( yss = 31.6 \sin(1000t-120^\circ) \)
1e) The approximation for first order terms is better than that for second order terms.
1f) not available - just sketch the asymptote for the new term and then add to the original frequency response plot.
1g) -180°
1h) \( t \approx 2 \text{ s} \)
1i) 5.56cos(2t-.588)
1j) filename, start time, end time

Problem 2
Answer not available - be sure to factor the equation first.

Problem 3
Done as HW. \( C \approx 0.63 \mu \text{F} \), \( L \approx 0.04 \text{ H} \)

Problem 4
Done as HW. One possible answer is \( k = 467 \text{ N-m} \), \( c = 48.2 \text{ N-s/m} \)