

Answers to ES205 Examination III, 1997-1998

Problem 1

1a) 2 to 2000 rad/s

1b) infinity

1c) < 60 rad/s

1d) $y_{ss} = 31.6 \sin(1000t - 120^\circ)$

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) $t \approx 2$ s

1i) $5.56 \cos(2t - .588)$

1j) filename, start time, end time

Problem 2

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

Problem 3

Done as HW. $C \approx 0.63 \mu\text{F}$, $L \approx 0.04$ H

Problem 4

Done as HW. One possible answer is $k = 467$ N-m, $c = 48.2$ N-s/m