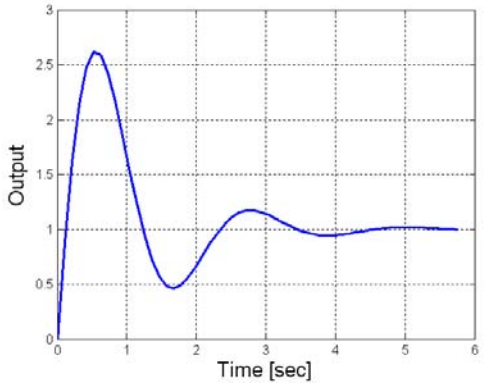
ESE 406/505 & MEAM 513 – 2013-Feb-13 – Quiz – Name:_____

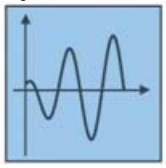
- Choose only one answer for each question.
- A correct answer is worth 2 points.
- No answer is worth 0 points.
- An incorrect answer is worth -1 point. Random guessing will lower your score, on average.

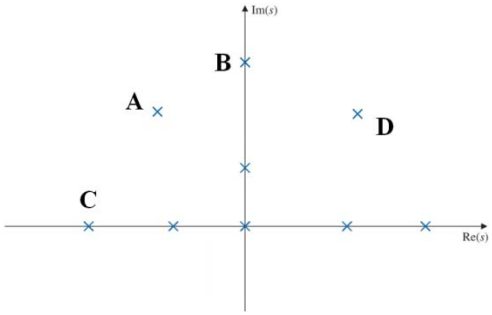
1. Which of the following is the BEST ESTIMATE of the transfer function whose step response is shown at right?



   A. $\frac{9}{s^2+9}$.
   B. $\frac{9}{s^2+6s+9}$
   C. $\frac{9s}{s^2+2s+9}$
   D. $\frac{9s+9}{s^2+2s+9}$

2. In the space below, write the letter of the pole location shown at right that most closely matches the transient response shown below.





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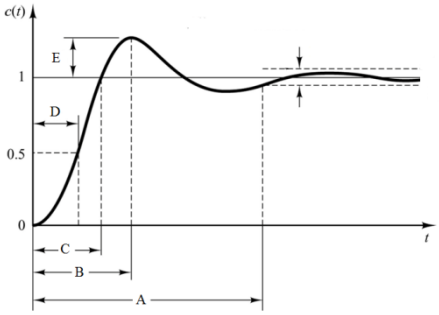
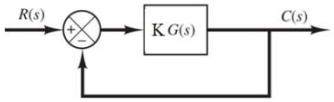
3. In the space below, write the letter of the feature in the figure at right that MOST ACCURATELY represents the Settling Time

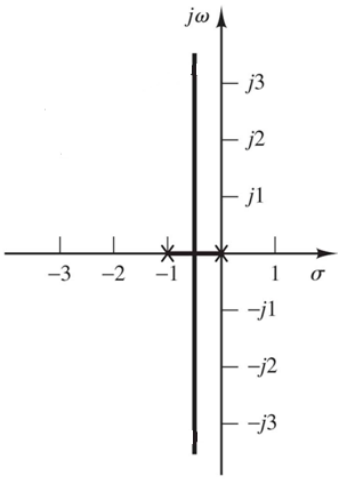


   _____

4. Which of the following is the MOST ACCURATE description of a root locus plot for the system shown below?
   A. It shows the variation of steady error as the gain K changes.
   B. It shows the variation of rise time as the gain K changes.
   C. It shows the variation of the closed-loop pole locations as the gain K changes.
   D. None of the above is reasonably accurate.



5. The figure at right shows a root locus for the block diagram shown above. Which of the following is the most reasonable guess for the transfer function G(s)?



   A. $G(s) = 6s(s+1)$.
   B. $G(s) = \frac{6}{s(s+1)}$
   C. $G(s) = \frac{s}{s+6}$
   D. $G(s) = \frac{s+1}{6s}$