



IIT ROORKEE



NPTEL ONLINE
CERTIFICATION COURSE

APPLICATION OF MATLAB IN AUTOMATIC CONTROL

STEADY STATE ERROR, ROOT LOCUS

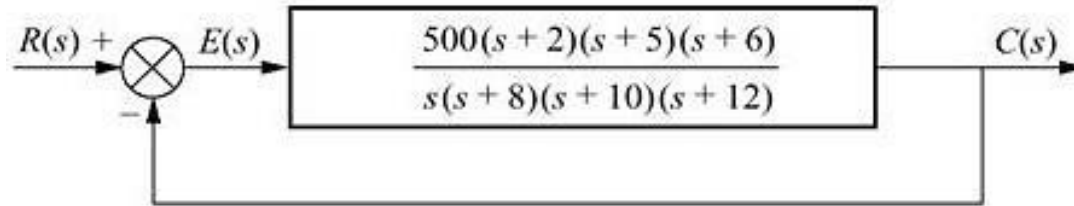
DR ANIL KUMAR

DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING



PROBLEM

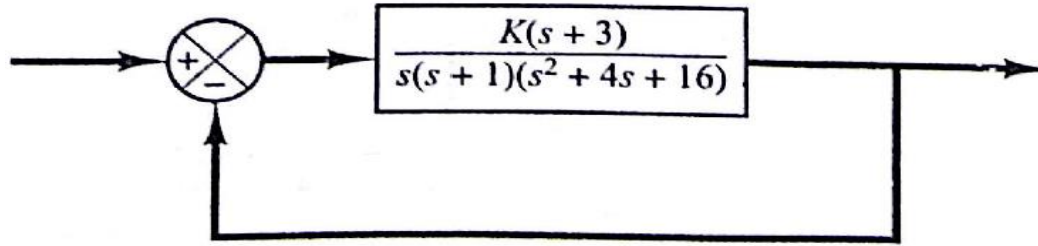
1. For the given system find the static error constants and find the expected error for the standard step, ramp and parabolic inputs using MATLAB.



Ref : Norman S. Nise, Control Systems Engineering, Wiley, 2013

PROBLEM

2. Find the root locus of the given system using the MATLAB.



Ref : Katsuhiko Ogata, Modern Control Engineering, Prentice Hall, 2010

PROBLEM

3. Draw the root locus for the negative feedback system whose open-loop transfer function $G(s)H(s)$ is given as

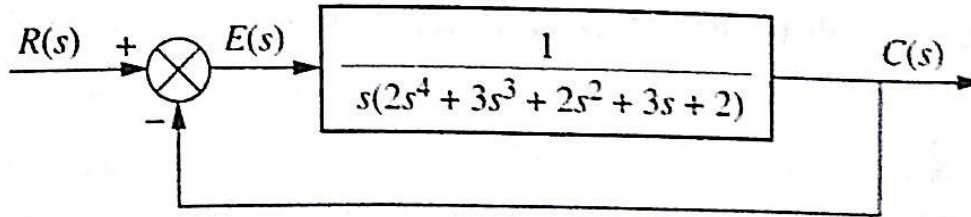
$$G(s)H(s) = \frac{K}{s(s+0.5)(s^2+0.6s+10)}$$

Ref : Katsuhiko Ogata, Modern Control Engineering, Prentice Hall, 2010



PROBLEM

4. Find the poles for the system shown using MATLAB. Is the system stable?



Ref : Norman S. Nise, Control Systems Engineering, Wiley, 2013

REFERENCE BOOKS

- Norman S. Nise, Control Systems Engineering, Wiley, 2013
- Katsuhiko Ogata, Modern Control Engineering, Prentice Hall, 2010.

