December 29th

EEE 441

17/ENG04/036

Electrical Electronics Engineering

1. Briefly explain the root locus technique

In Control theory the root locus is a graphical method for examining how the roots of a system changes with variation of a certain system, Parameter commonly a gain with a feedback.

Construction of a root locus

1. locate the open loop poles and zeros in the 's' plane
2. find the number of root locus branches
3. Identify and draw the real axis root locus branches
4. find the Centroid and the angle of asymptotes
5. find the intersection points of root locus branches with an imaginary axis

2/ Describe the use of Routh Hurwitz to find the Stability of a closed loop system when

c) entire rowis zero on the routh table

Ans If first element of a row is zero division by zero would be required to form the next row there are two sign changes due to the large negative number in the first Column Therefore the System is unstable and two roots of the equation lie in the right half of the S-plane of K will result in an unstable system

d) to determine the Poles on the Jw axis

Ans the routh Hurwitz ~~criterion~~ the Jw axis Shows the cut along the axis to get the frequency from the transfer function