EIE3123 DYNAMIC ELECTRONIC SYSTEMS: QUIZ 2

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1.

The root locus graph of the uncompensated system.

Chart

Description automatically generatedGraphical user interface, text, application, table

Description automatically generated

The gain = 1.29 and the settling time of the system is less than 1.5s.

To achieve zero steady-state error for a step input, the compensator’s transfer function should be:

Gc(s) =(s+0.1)/s

The compensated gain = 1.28

Diagram

Description automatically generated with medium confidence

Then, the closed loop function = KGc(s)G(s)/1 + KGc(s)G(s)

= (4.8s + 0.48)/(0.15s3 + 1.02252 + 4.95s + 0.48)

A picture containing graphical user interface

Description automatically generated Graphical user interface, text, application, table

Description automatically generated

2.

The root locus graph of the uncompensated system.