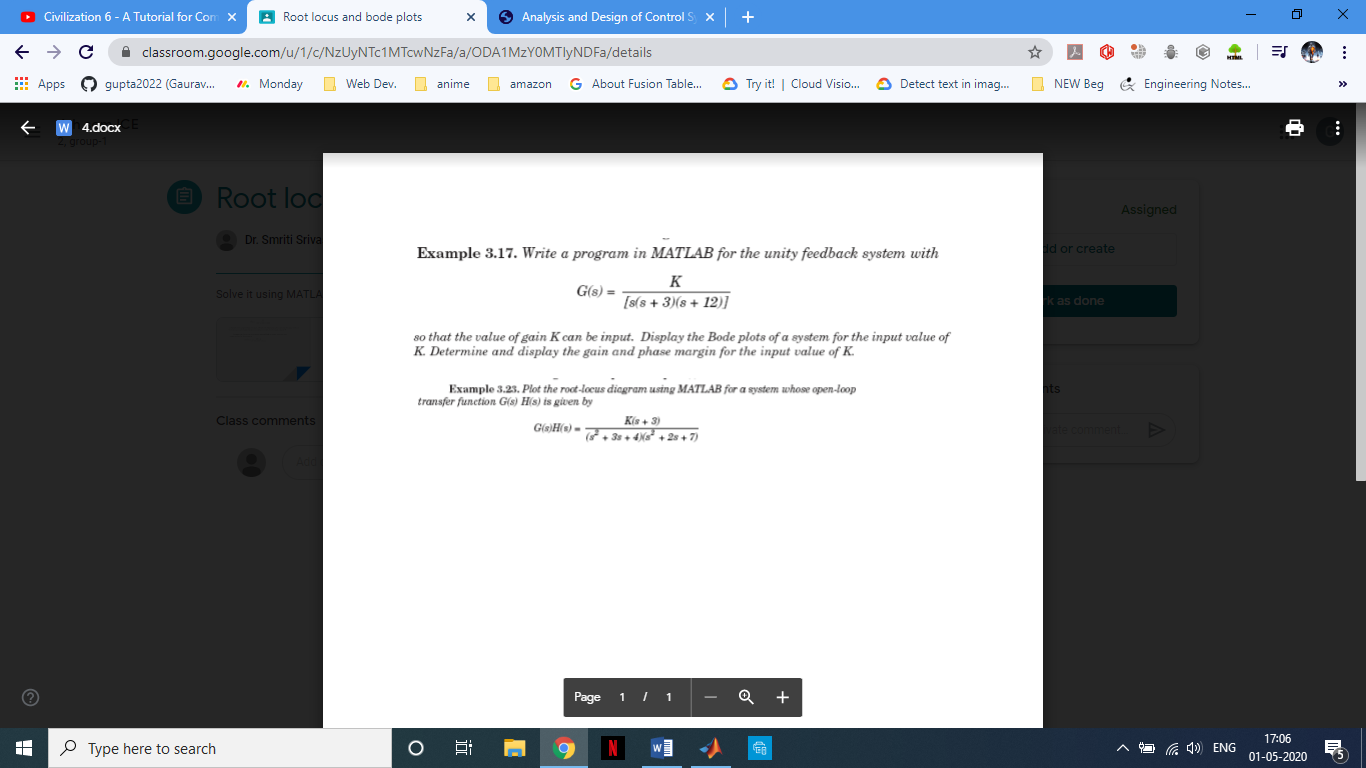
Manan Madan

2018UIC3087



Solution

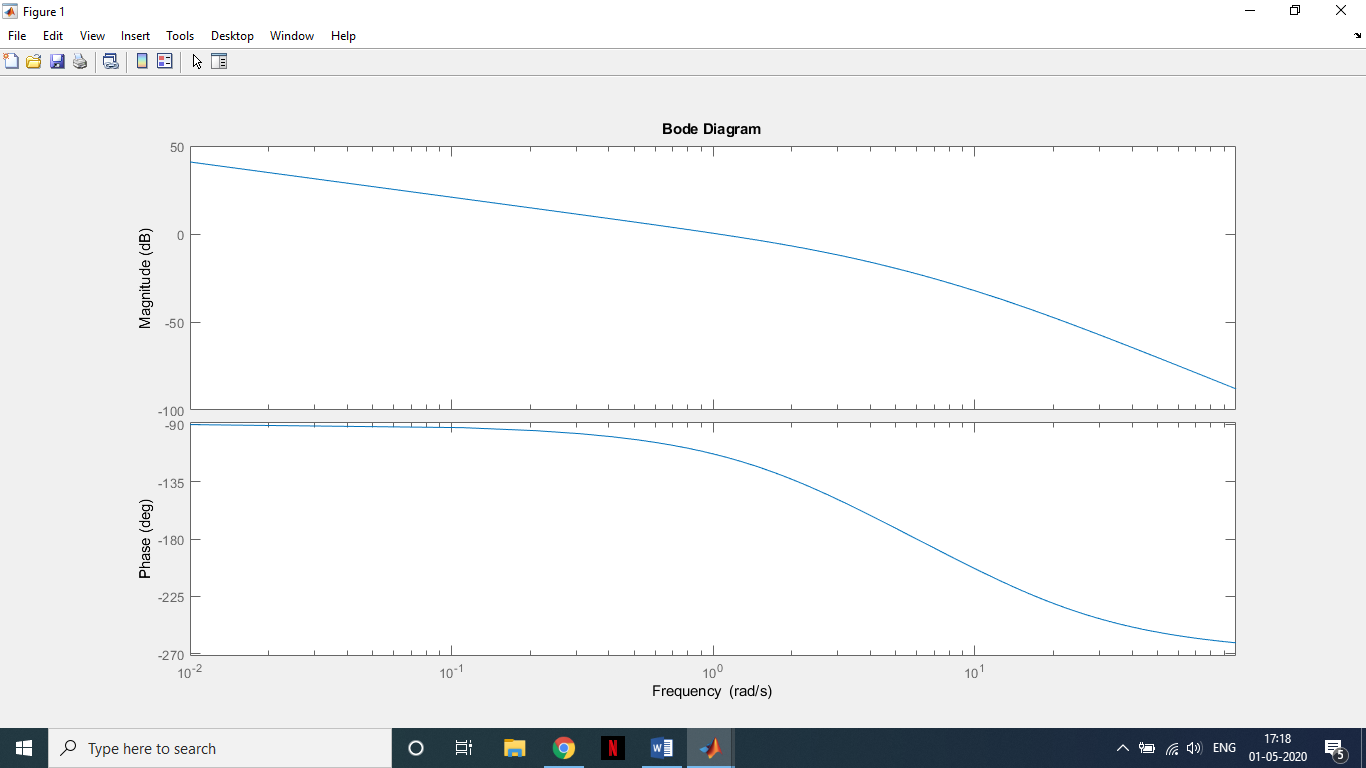
G =

1

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s^3 + 15 s^2 + 36 s

Bode Plot :



Gain K = 40

Frequency(180 degree) = 6.01

Magnitude = 0.0738277

Magnitude(dB) = – 22.6356

Phase = – 180.076  **Gain margin(dB) = 22.6356**

Gain K = 40

Frequency(0 dB) = 1.11

Magnitude = 0.93481

Magnitude(dB) = – 0.585534

Phase = – 115.589, **Phase margin(dB) = 64.4107**

