



Course: Computer-Controlled Systems (CSE422)

Sheet No.: 5

Date: 18/3/2018

Due: 23/3/2018

Time: 2 Hours

Problems:

1. How to determine stability of discrete transfer functions with Jury's test?
2. Determine the stability of the following transfer functions:
 - a) $Q(z) = z^3 + 2.1z^2 + 1.44z + 0.32$
 - b) $Q(z) = z^3 + 1.2z^2 - 0.4z + 0.3$
 - c) $Q(z) = z^4 - z^3 + 0.04z^2 + 0.15z - 0.07$
 - d) $Q(z) = 1.1z^3 - 0.08z^2 - 0.5z - 0.1$

Homework:

3. Determine the range of K that makes the following closed-loop system stable:

$$1 + KG(z) = 1 + \frac{(0.368z + 0.264)K}{z^2 - 1.368z + 0.368}$$