Quizzes of TTK4225 - Systems Theory, Autumn 2020

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Question 117

Why is that a LTI system whose transfer function has some poles on the imaginary axis cannot be BIBO stable?

Question 118

Why is that a LTI system does not admit isolated equilibria?

Question 119

Why is that a simply stable LTI system is not BIBO?

Question 120

Why does BIBO stability for LTI systems corresponds to absolute integrability of the impulse response?

Question 121

Nonlinear systems should be linearized around ...

1. all the equilibria
2. both asymptotically and simply stable equilibria
3. only asymptotically stable equilibria
4. only simply stable equilibria
5. I do not know

Question 122

Nonlinear systems cannot be linearized around points that are not corresponding to equilibria

1. true
2. false
3. it depends on the system
4. I do not know

Question 123

Write the nonlinear input-output system

$$\dddot{y} = \cos\left(\ddot{y}u\right) + y\tan\left(\dot{u}\right)$$

through a state-space representation

Question 124

Linearize the nonlinear input-output system

$$\dddot{y} = \cos\left(\ddot{y}u\right) + y\tan\left(\dot{u}\right)$$

and rewrite its linearized form as a state-space representation