Quizzes of TTK4225 - Systems Theory, Autumn 2020

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Question 103

The following definition of simple stability is correct:

$\boldsymbol{y}_{\text{eq}}$ is simply stable if $\forall \varepsilon > 0 \; \exists \delta > 0$ s.t. if $\|\boldsymbol{y}_0 - \boldsymbol{y}_{\text{eq}}\| \leq \varepsilon$ then $\|\boldsymbol{y}(t) - \boldsymbol{y}_{\text{eq}}\| \leq \delta \quad \forall t \geq 0$

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

Question 104

The origin is always an equilibrium for a LTI system of the type $\dot{\boldsymbol{y}} = A\boldsymbol{y} + B\boldsymbol{u}$.

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

Question 105

The origin is always an equilibrium for a generic system of the type $\dot{\boldsymbol{y}} = \boldsymbol{f}(\boldsymbol{y}, \boldsymbol{u})$.

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

Question 106

A system with periodic orbits may exhibit single equilibria.

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

Question 107

The step-response of a system with transfer function $H(s) = \dfrac{1+2s}{2s}$ contains always both positive and negative values

1. true
2. false
3. I do not know

Question 108

A strictly proper linear time-invariant system can never have a step-response that starts in 0

1. true
2. false
3. I do not know

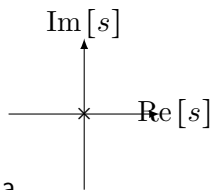
Question 109

A strictly proper linear time-invariant system will always have a step-response that starts in 0

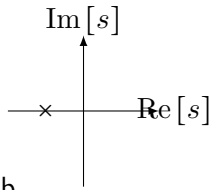
1. true
2. false
3. I do not know

Question 110

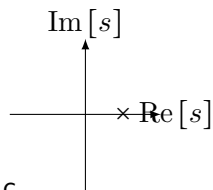
Which of the pole zeros plots



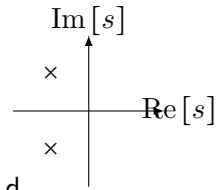
a



b

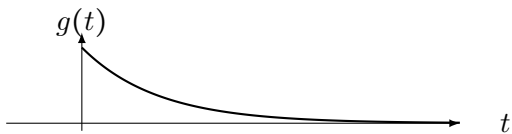


c



d

corresponds to the following impulse response?



1. a
2. b