

Számítógéppel irányított rendszerek elmélete

pótzárthelyi dolgozat

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elméleti kérdések (25 pont)

- Define the Laplace transformation of $f : \mathbb{R} \rightarrow \mathbb{R}$. (2p)
 - What do we mean by the matrix exponential function of the rectangular matrix $A \in \mathbb{R}^{n \times n}$, namely e^{At} . (3p)
- How can we compute an LTI system's response for the step input function? (5p)
- What is the controllability matrix of an LTI system (A, B, C) ? (2p)
 - The eigenvalues of matrix A are the following: -1 and 2 . Give the eigenvalues of matrix $A^4 + 5A$? (3p)
- Describe the problem formulation of the pole placement controller (what is the task, what data we know, what is to be computed)! What is to be satisfied to be applicable? What type of feedback is resulted? (5p)
- Describe the problem formulation of the observability for discrete-time LTI systems! (What data are given, what do we need to compute?) What is the sufficient and necessary condition for observability? (5p)