Lab # 07



Fall 2024

**CSE-310L Control Systems Lab**

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Registration No.: 21PWCSE2028

Section: C

“On my honor, as a student of the University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work”

Submitted to:

Dr. Muniba Ashfaq

(1 Dec 2024)

Department of Computer systems engineering

University of Engineering and Technology, Peshawar

**Objectives:**

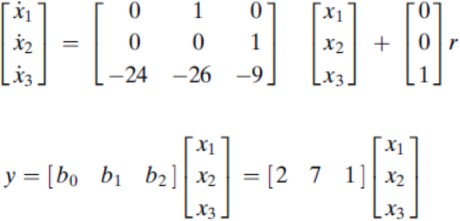
The objective of this lab is to:

* model the system in time domain.

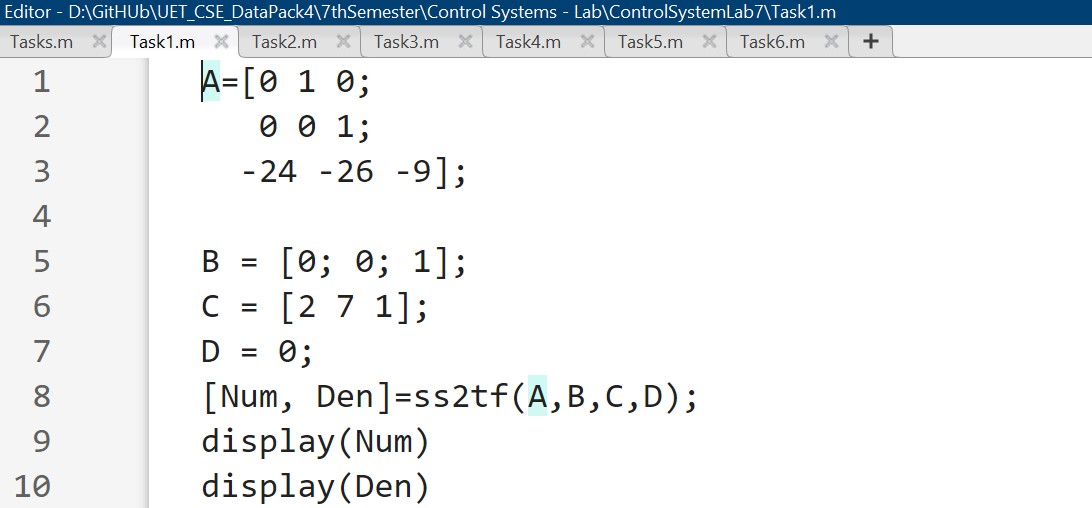
# State Space Representation:

State Space representation is one of the unified method for modeling, analyzing and designing a wide range of systems.

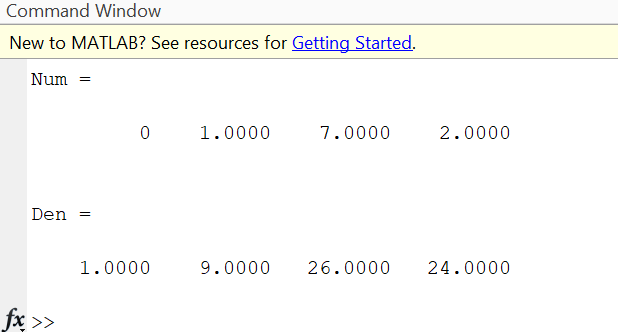
* 1. **Use the MATLAB code to form an LTI state space representation from the transfer function. The matrix A, B and C are shown below.**



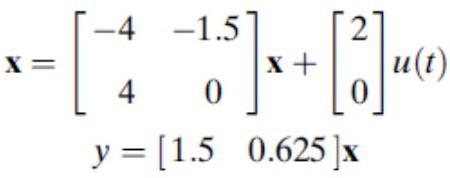
Code:



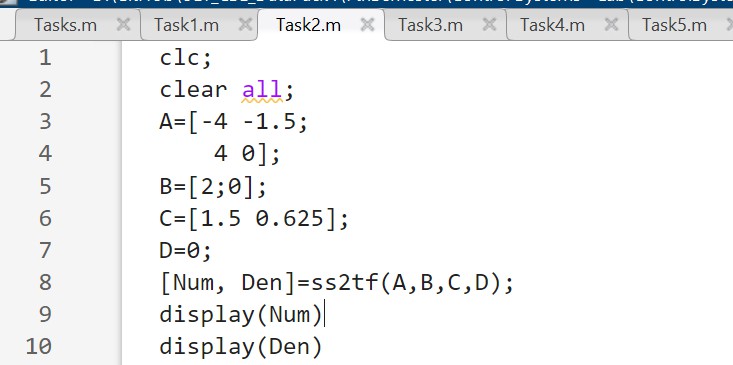
Output:



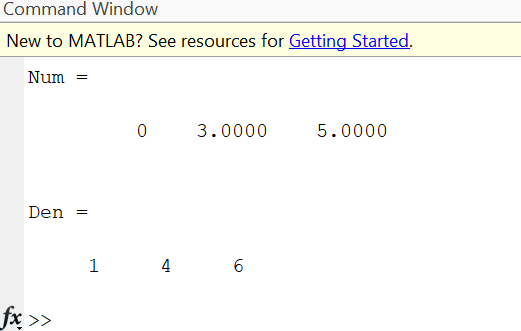
* 1. **Use the MATLAB to convert the state space representation to the transfer function for the following**



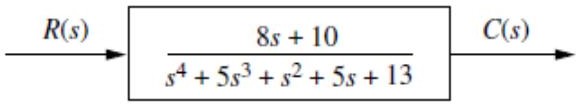
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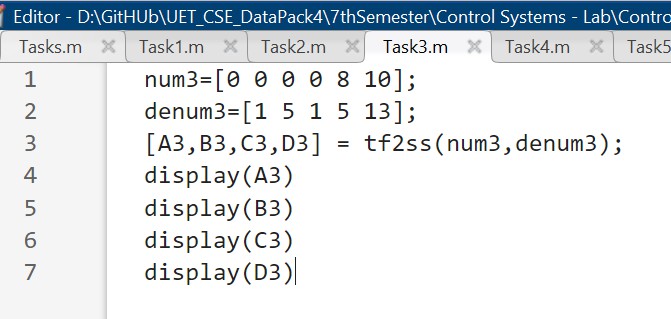
Output:



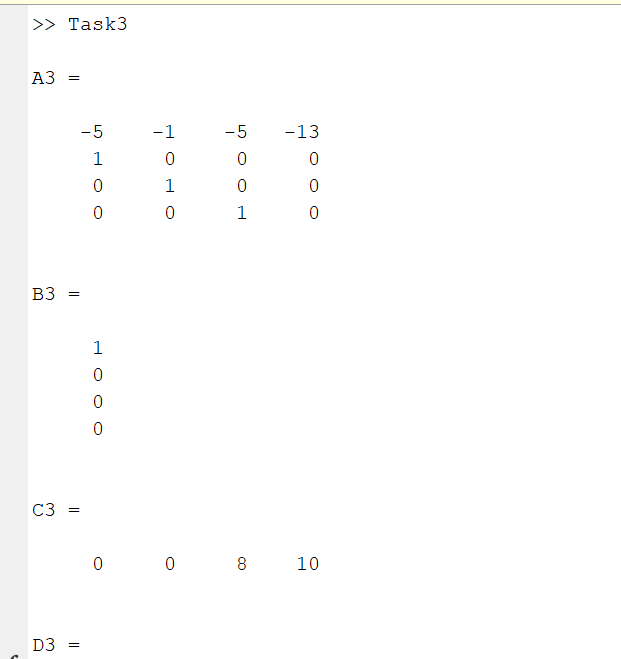
* 1. **Write the MATLAB code for the conversion of transfer function to the state space representation of the following system**



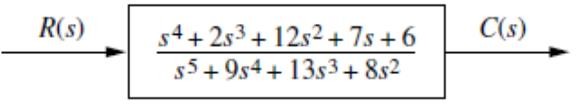
Code:



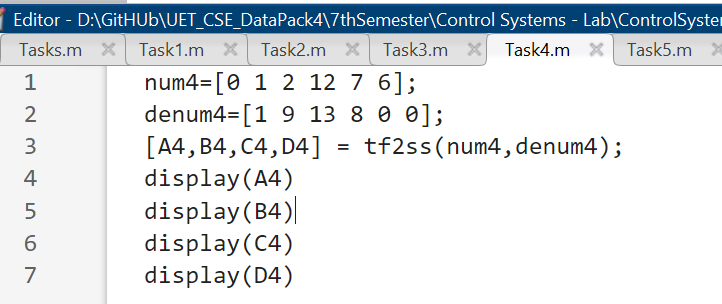
Output:



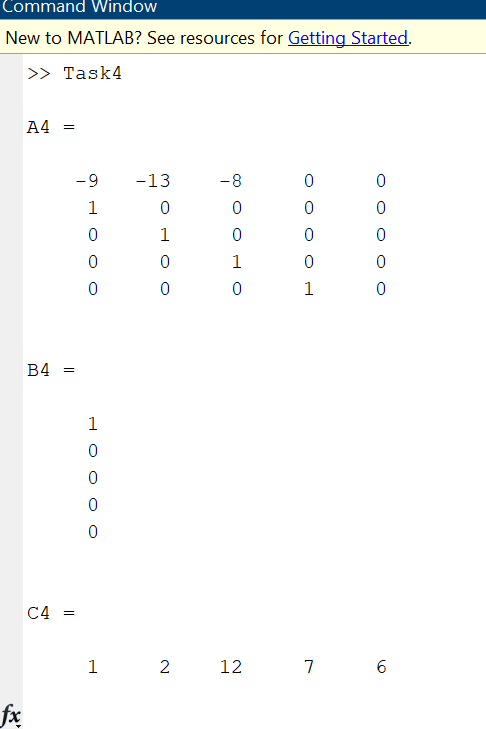
* 1. **Write the MATLAB code for the conversion of transfer function to the state space representation of the following system**



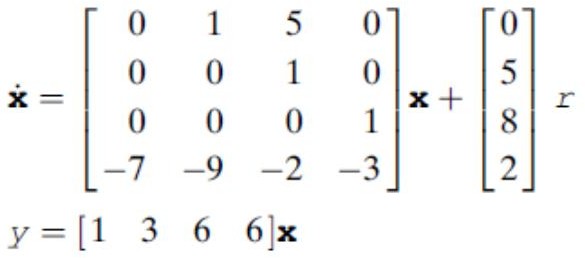
Code:



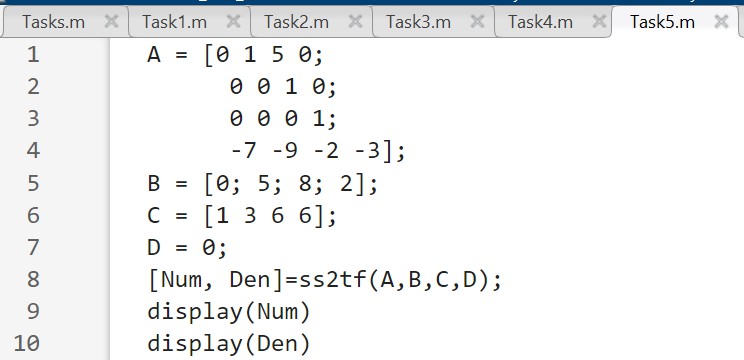
Output:



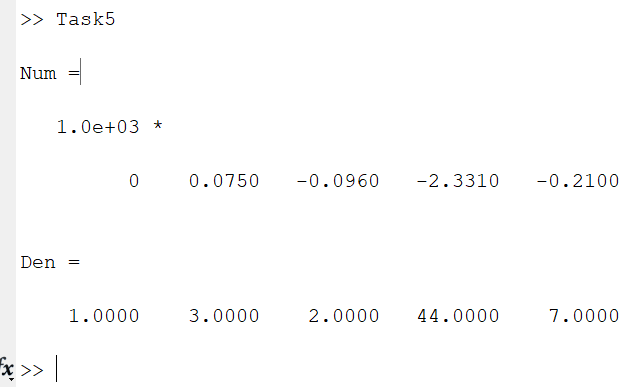
* 1. **Write the MATLAB code for the conversion of state space representation to the transfer function for the following**



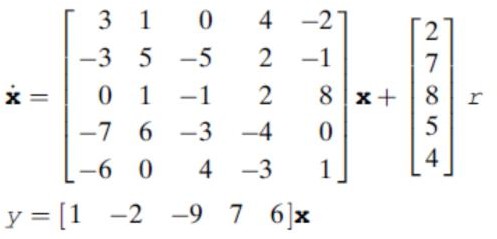
Code:



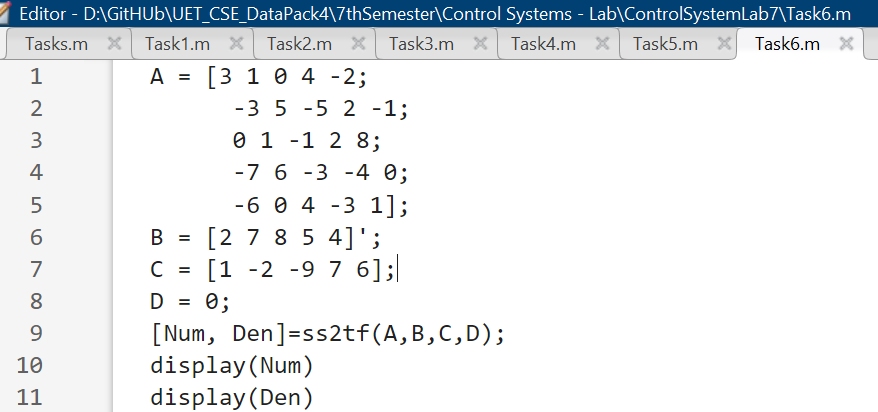
Output:



* 1. **Write the MATLAB code for the conversion of state space representation to the transfer function for the following**



Code:



Output:

