Assignment 4
Due on 2020-02-20, 23:59 GMT.

The due date for submitting this assignment has passed. As our records show you have a substantive back log of assignments.

For a subsistent system, which of the following statements are definitely true?

4 points

1. The real part of the eigenvalues of the state space system is negative.
2. The characteristic equation of a system is a polynomial of order n, and it has n real roots.
3. The real part of the eigenvalues of the state space system is non-zero.
4. The characteristic equation of a system is a polynomial of order n, and it has n complex roots.

No progress is correct.

True or False?

The characteristic equation of a system is a polynomial of order n, and it has n complex roots.

2 points

True

The matrix G is positive definite.

2 points

The matrix G is positive definite.

The matrix G is positive semi-definite.

The matrix G is not defined.

The matrix G is not positive semi-definite.

No progress is correct.

Consider the system $\dot{x} = Ax$ with $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, which of the following statements is definitely true for this system?

2 points

1. The system is stable.
2. The matrix A is a symmetric matrix.
3. The rank of the matrix $A$ is 2.
4. The system is not controllable.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a nilpotent matrix.
3. The system is not observable.
4. The matrix A is not diagonal.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} 2 & 0 \\ 0 & 3 \end{bmatrix}$ and $x(0) = [1, 2]^T$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a diagonal matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} -1 & 2 \\ -2 & 3 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a stable matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} -1 & 2 \\ -2 & 3 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a diagonal matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} -1 & 2 \\ -2 & 3 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a stable matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} -1 & 2 \\ -2 & 3 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a diagonal matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} -1 & 2 \\ -2 & 3 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a stable matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.

Consider the system $\dot{x} = Ax$, where $A = \begin{bmatrix} -1 & 2 \\ -2 & 3 \end{bmatrix}$.

2 points

Which of the following statements are true for this system?

1. The system is stable.
2. The matrix A is a diagonal matrix.
3. The system is observable.
4. The matrix A is not nilpotent.

No progress is correct.