Module 7 - Midterm Exam Part 1 - Short Answers

- Due Oct 12 at 7am
- Points 20
- Questions 5
- Available Oct 11 at 6am - Oct 12 at 7am
- Time Limit 40 Minutes

Instructions

Multiple choice questions. 40 minutes. Exam cannot be interrupted.

Please answer each question. This is a single attempt test.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	30 minutes	20 out of 20

Score for this quiz: 20 out of 20
Submitted Oct 11 at 3:07pm
This attempt took 30 minutes.
Correct answer

Question 1
4 / 4 pts

Consider the matrices

$$A = \begin{bmatrix} 4 & 2 \\ -2 & 8 \end{bmatrix}$$

and

$$B = \begin{bmatrix} -1 & 6 \\ -1 & 4 \end{bmatrix}$$

Check the correct answer.

- Both *A* and *B* are diagonalizable.
- Both *A* and *B* are non-diagonalizable.
- Only *A* is diagonalizable.
- Only *B* is diagonalizable.

Correct answer

Question 2

4 / 4 pts

The Inverse Laplace Transform of the function F(s) = (1/s^3) * e^(-s) is

- (1/2) * t^2 * u(t-1)
- (1/2) * (t-1)^2 * u(t-2)
- (1/6) * (t-1)^3 * u(t-1)
- (1/2) * (t+1)^2 * u(t-1)
- (1/2) * (t-1)^2 * u(t-1)

We use the second Translation Theorem.

Correct answer

Question 3

4 / 4 pts

Which value of k makes the vectors [-3, k] and [1, -2] linearly dependent? View these as column vectors.

- k = 0
- k = 1
- k = -4
- k = 6
- k = -5

Correct answer

Question 4

4 / 4 pts

The value of k such the functions f(x)=x-1 and g(x)=x+k are orthogonal on the interval [0,1] is

- k = 0
- k = -1
- k = -3
- k = 3/2
- k = -1/3

We integrate f*g from 0 to 1, set the answer equal to zero and solve for k.

Correct answer

Question 5

4 / 4 pts

The matrix

$$\begin{bmatrix} 0 & -6 & 7 \\ 6 & 0 & -3 \\ -7 & 3 & 0 \end{bmatrix}$$

is

- skew-symmetric
- orthogonal
- symmetric
- skew-symmetric and symmetric
- none of the other choices

Quiz Score: 20 out of 20