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State Finished
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Time taken 14 mins 58 secs
Marks 18.00/22.00
Grade **8.18** out of 10.00 (**82**%)

Question **1**
Correct
Mark 2.00 out of 2.00

One of the following is not a linear transformation.

Select one:

- a. $L : P_2 \longrightarrow P_3; L(p(x)) = xp(x) + 1.$ ✔
- b. $L : \mathbb{R}^2 \longrightarrow \mathbb{R}^3; L((x, y)^T) = (x, y, 0)^T.$
- c. $L : P_2 \longrightarrow \mathbb{R}^2; L(ax + b) = (0, a + b)^T.$
- d. $L : P_2 \longrightarrow \mathbb{R}; L(p(x)) = 0.$

The correct answer is: $L : P_2 \longrightarrow P_3; L(p(x)) = xp(x) + 1.$

Question **2**
Incorrect
Mark 0.00 out of 2.00

The matrix $\begin{bmatrix} 0 & 0 & 0 \\ 1 & 1 & 0 \\ 7 & -4 & -1 \end{bmatrix}$ is diagonalizable

Select one:

- a. False ✖
- b. True

The correct answer is: True

Question **3**
Correct
Mark 2.00 out of 2.00

let $L : R^4 \to R^2$ be given by $L((x_1, x_2, x_3, x_4)^T = (x_1 + x_2 + x_3, x_3 + x_4)^T$, then dim(ker$(L)$) equals

Select one:

- a. 4
- b. 2 ✔
- c. 1
- d. 3

The correct answer is: 2

Question **4**
Correct
Mark 2.00 out of 2.00

If $\lambda = 0$ is an eigenvalue of an $n \times n$ matrix A, then A is singular.

Select one:

- a. True ✔
- b. False

The correct answer is: True

Question **5**

Correct

Mark 2.00 out of 2.00

If A is a 3×3 matrix and $\lambda_1 = 1$ and $\lambda_2 = 1 + i$ are eigenvalues of A, then the third eigenvalue of A is

Select one:

- a. $1 - i$ ✔
- b. -1
- c. 0
- d. $-1 + i$

The correct answer is: $1 - i$

Question **6**

Correct

Mark 2.00 out of 2.00

If the characteristic polynomial of a 3×3 matrix is $(2 - \lambda)^3$, then the trace of A is 6.

Select one:

- a. False
- b. True ✔

The correct answer is: True

Question **7**

Correct

Mark 2.00 out of 2.00

If A is an $n \times n$ diagonalizable matrix, then

Select one:

- a. A is singular
- b. A has n distinct eigenvalues
- c. A has n linearly independent eigenvectors ✔

The correct answer is: A has n linearly independent eigenvectors

Question **8**

Incorrect

Mark 0.00 out of 2.00

One of the following is a linear operator on P_3

Select one:

- a. $L(p(x)) = p(x)$
- b. $L(p(x)) = p(x) + 1$
- c. $L(p(x)) = p(x) - x$
- d. $L(p(x)) = p'(x) + x$ ✖

The correct answer is: $L(p(x)) = p(x)$

Question **9**

Correct

Mark 2.00 out of 2.00

If $L : V \to W$ is a linear transformation, then $L(2v) = 2L(v)$ for every vector $\in V$.

Select one:

- a. False
- b. True ✔

The correct answer is: True

Question **10**

Correct

Mark 2.00 out of 2.00

If a 3×3 matrix A is diagonalizable, then A has 3 distinct eigenvalues.

Select one:

- a. True
- b. False ✔

The correct answer is: False

Question **11**

Correct

Mark 2.00 out of 2.00

let $L : R^4 \to R^2$ be given by $L((x_1, x_2, x_3, x_4)^T = (x_1 + x_2 + x_3, x_3 + x_4)^T$,then dim(range(L)) equals

Select one:

- a. 2 ✔
- b. 4
- c. 1
- d. 3

The correct answer is: 2

◄ Quiz 2

Jump to...

Section 2.2 and part of 2.3 ►