eExam Question Bank

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Question Type	Question	A	B	C	D	Answer
FBQ	______ theorem states that "Every square matrix satisfies its characteristics polynomial".	Cayley-Hamilton				
FBQ	$$\begin{bmatrix} 0 & -1 & 3 \\ -1 & 2 & 5 \\ 3 & 5 & -4 \end{bmatrix}$$ is a ______ matrix	symmetric				
MCQ	\[If \;T (\alpha _1 u_1 + \alpha _2 u_2) =\alpha _1 T (u_1) + \alpha _2 T(u_2)\; for \;\alpha _1, \alpha _2 \in F\;and \;u_1 ,u_2 \in U\] then the linear tansformation \[T : U\rightarrow F\; is \; known\; as\; ………..\]	finite-dimensional	isomorphic	linear transformation	linear functional	D
MCQ	A linear transformation T on a finite-dimensional vector space V is ………… if and only if there exists a basis of V consisting of eigenvector of T.	finite-dimensional	linear transformation	diagonalizable	transformative	C
MCQ	A matrix is a …………..	square array of numbers arranged in rows and columns.	circular array of numbers arranged in rows and columns.	triangular array of numbers arranged in rows and columns.	rectangular array of numbers arranged in rows and columns.	D
FBQ	A matrix whose determinant is zero is called ______ matrix	singular				
FBQ	A square matrix A such that \[a_{ij}= 0 \forall i > j \;is\; called\] ______	upper triangular				
FBQ	A square matrix that is equal to the negative of the transpose of its conjugate is known as ______	skew - Hermitian	skew Hermitian			
MCQ	A square matrix that is the same as the transpose of its conjugate is known as	Singular matrix	Non-singular matrix	Hermitian	skew - Hermitian	C
MCQ	A square matrix whose tranpose is equal to the negative of the matrix itself is known as	skew-symmetric	asymmetric	symmetric	negative square	A
FBQ	A square matrix whose tranpose is equal to the negative of the matrix itself is known as ______	skew-symmetric				
MCQ	An m x n matrix A is called a row reduced echelon matrix if	the non-zero rows come before the rows	In each non-zero row, the first non-zero entry is one	the first non-zero entry in every non-zero row (after the first row) is to the right of the first non-zero entry in the preceding row	all of the options	D

MCQ	Every matrix can be reduced to a row-reduced echelon matrix by a …………….. of elementary row operations.	finite sequence	infinite sequence	sequence	series	A
FBQ	Every vector space is isomorphic to its [ ] dual.	second	2nd			
MCQ	Given that U and V are vector spaces over a field F. \[Let\;T : U\rightarrow V\] be a linear transformation, then the set $$[x\in U]T(x) = 0$$ is called the ………	transformation	space	kernel of T	range of T	C
MCQ	Let U and V be finite- dimensional vector spaces over F and \[T : U\rightarrow V\] be a linear transformation , then rank(T) + nullity(T) = …….	dim(U)	ker(U)	Field(U)	zero	A
MCQ	Let U and V be vector spaces over a field F and $$T : U\rightarrow V$$ be a linear transformation, then Range of T is a subspace of	T	U	V	all of the above	C
MCQ	Let U and V be vector spaces over a field F and dim U = n. Let \[T : U\rightarrow V\] be a linear operator, then rank (T) + nullity (T) = ………..	n	U	V	nU	A
MCQ	Let U and V be vector spaces over a field F. A linear transformation \[T : U\rightarrow V\] that is one - to-one is called …………..	surjective	injective	subjective	objective	B
MCQ	Let U and V be vector spaces over a field F. Let \[T : U\rightarrow V\] be a one-one and onto linear transformation, then T is called ……… between U and V	monomorphism	isomorphism	dual	kernel	B
MCQ	Let U, V be vector spaces over a field F of dimensions m and n respectively, then L (U, V) is a vector space of dimension ……………	mn	m+n	m	n	A
FBQ	The [ ] of a matrix is determined by the number of its rows and columns	dimension	order			
FBQ	The determinant of $\begin{bmatrix}1 & -1 & 2\\-2 & -3 & 2\\3 & 0 & 4\end{bmatrix}$ is [ ]	-8	minus eight			
FBQ	The determinant of $\begin{bmatrix}1 & 2 & 0\\0 & 1 & 0\\7 & -4 & 3\end{bmatrix} \quad is$ [ ]	3	three			
MCQ	The determinant of \[\begin{bmatrix}1&2&3\\4&5&6\\7&8&9\end{bmatrix}\; is ……....\]	0	1	2	3	A
MCQ	The determinant of \[\begin{bmatrix}2&3\\5&6\\1&1\end{bmatrix}\;\;is\; ……..\]	zero	1	-1	No determinant	D
MCQ	The determinant of \[\begin{bmatrix}x&-2&1\\x&5&2x\\1&-2&3\end{bmatrix}\;\;is\; ……..\]	\[-2x^3 + x^2 + 24x+15\]	\[x^2-15x+5\]	\[4x^2+15x-5\]	\[15x-2\]	C
FBQ	The determinant rank of an m x n matrix A is equal to the [ ] of A.	rank				

	FBQ	The determinant rank of the determinant of $\begin{bmatrix}1&4\\2&5\\3&6\end{bmatrix}\; is$	2	two			
	MCQ	The dimension of the matrix \ [\begin{bmatrix}1&2&5\\3&2&8\\1&0&-5\\-2&1&0\end{bmatrix}\;is ……..\]	4 by 3	3 by 4	3 by 3	12	A
	FBQ	The dimension of the range of T is the same as the ____ of T	rank				
	FBQ	The dimesion of the kernel of T is the same as the ____ of T	nullity				
	FBQ	The space L (U,F) is the ____ of U given that U is a vector space over F	dual				
	MCQ	The ……….. of a row-reduced echelon matrix is equal to the number of its non-zero rows	row	rank	column	kernel	B
	MCQ	………. is a square matrix A such that\; \[a_{ij}= 0 \; \forall \; i > j \]	lower traingular	upper traingular	strictly lower traingular	strictly upper traingular	B

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