Gautam Buddha University

Department of Applied Mathematics

MA102 : Engineering Mathematics-II

Quiz-1, Form: $\boxed{\text{A}}$

Name: _____

Student Number: _____

TA: _____

Date: _____

Note: Write the answer only on the given space. Rough work can be done on the back side of the given quiz sheet. More than one answers (Overwriting) will carry no marks.

1. For a non-singular matrix $\mathbf{A}$, the relation between $\det(\mathbf{A}^{-1})$ and $\det(\mathbf{A})$ is _____

2. The formula $(AB + c)^t = A^t B^t + C^t$ hold in general. (True/False)_____

3. Suppose $\mathbf{A}$ is skew symmetric matrix of order n. For what values of n, $\det(\mathbf{A}) = 0$. _____

4. For a consistent linear system $\mathbf{A}\mathbf{x} = B$, if $\text{rank}\,\mathbf{A} < $ numbers of unknowns. How many solution(s) the system has? _____

5. Product of two non-singular matrices need not be non-singular. (True/False)_____

6. Suppose $\mathbf{A}$ is skew symmetric. Then all the diagonal entries are zero. (True/False)_____

7. For any $k \in \mathbb{R}$, the linear system $\mathbf{A}\mathbf{x} = k\mathbf{x}$ is always consistent. (True/False)_____

8. The inverse of a non-singular symmetric matrix $\mathbf{A}$ is not symmetric. (True/False)_____

9. Suppose $\mathbf{A}$ are $\mathbf{B}$ are two row-equivalent. Their singularities will change together. (True/False)_____

10. Write the normal form of a matrix $\mathbf{A}$ of order 3×5 with $\text{rank}\mathbf{A} = 3$ _____

Notations: $\mathbf{A} = $ stands for matrix, $\mathbb{R} = $ the set of all real numbers, $\mathbf{x} = $ denotes a column matrix, $A^t = $ transpose of matrix A.

Answer Key for Exam $\boxed{\text{A}}$

1. det(A)=det(A).

2. True.

3. Even.

4. infinte.

5. True.

6. True.

7. True.

8. True.

9. True.

10. Normal Form.

Gautam Buddha University

Department of Applied Mathematics
MA102 : Engineering Mathematics-II
Quiz-1, Form: B

Name: _____

Student Number: _____

TA: _____

Date: _____

Note: Write the answer only on the given space. Rough work can be done on the back side of the given quiz sheet. More than one answers (Overwriting) will carry no marks.

1. For any $k \in \mathbb{R}$, the linear system $\mathbf{A}\mathbf{x} = k\mathbf{x}$ is always consistent. (True/False)_____

2. Write the normal form of a matrix $\mathbf{A}$ of order 3×5 with rank$\mathbf{A} = 3$ _____

3. The formula $(AB + c)^t = A^t B^t + C^t$ hold in general. (True/False)_____

4. Suppose $\mathbf{A}$ is skew symmetric. Then all the diagonal entries are zero. (True/False)_____

5. Suppose $\mathbf{A}$ is skew symmetric matrix of order n. For what values of n, $\det(\mathbf{A}) = 0$. _____

6. Suppose $\mathbf{A}$ are $\mathbf{B}$ are two row-equivalent. Their singularities will change together. (True/False)_____

7. Product of two non-singular matrices need not be non-singular. (True/False)_____

8. For a non-singular matrix $\mathbf{A}$, the relation between $\det(\mathbf{A}^{-1})$ and $\det(\mathbf{A})$ is _____

9. The inverse of a non-singular symmetric matrix $\mathbf{A}$ is not symmetric. (True/False)_____

10. For a consistent linear system $\mathbf{A}\mathbf{x} = B$, if rank $\mathbf{A} <$ numbers of unknowns. How many solution(s) the system has? _____

Notations: A = stands for matrix, $\mathbb{R}$ = the set of all real numbers, $\mathbf{x}$ = denotes a column matrix, A^t = transpose of matrix A.

1

Answer Key for Exam B

1. True.

2. Normal Form.

3. True.

4. True.

5. Even.

6. True.

7. True.

8. det(A)=det(A).

9. True.

10. infinte.

Gautam Buddha University

Department of Applied Mathematics

MA102 : Engineering Mathematics-II

Quiz-1, Form: $\boxed{\text{C}}$

Name: _____

Student Number: _____

TA: _____

Date: _____

Note: Write the answer only on the given space. Rough work can be done on the back side of the given quiz sheet. More than one answers (Overwriting) will carry no marks.

1. The formula $(AB + c)^t = A^t B^t + C^t$ hold in general. (True/False)_____

2. The inverse of a non-singular symmetric matrix $\mathbf{A}$ is not symmetric. (True/False)_____

3. Product of two non-singular matrices need not be non-singular. (True/False)_____

4. For a consistent linear system $\mathbf{A}\mathbf{x} = B$, if rank $\mathbf{A}$ < numbers of unknowns. How many solution(s) the system has? _____

5. Write the normal form of a matrix $\mathbf{A}$ of order 3×5 with rank$\mathbf{A} = 3$ _____

6. Suppose $\mathbf{A}$ is skew symmetric. Then all the diagonal entries are zero. (True/False)_____

7. For any $k \in \mathbb{R}$, the linear system $\mathbf{A}\mathbf{x} = k\mathbf{x}$ is always consistent. (True/False)_____

8. Suppose $\mathbf{A}$ are $\mathbf{B}$ are two row-equivalent. Their singularities will change together. (True/False)_____

9. Suppose $\mathbf{A}$ is skew symmetric matrix of order n. For what values of n, $\det(\mathbf{A}) = 0$. _____

10. For a non-singular matrix $\mathbf{A}$, the relation between $\det(\mathbf{A}^{-1})$ and $\det(\mathbf{A})$ is _____

Notations: $\mathbf{A}$ = stands for matrix, $\mathbb{R}$ = the set of all real numbers, $\mathbf{x}$ = denotes a column matrix, A^t = transpose of matrix A.

Answer Key for Exam $\boxed{\text{C}}$

1. True.

2. True.

3. True.

4. infinte.

5. Normal Form.

6. True.

7. True.

8. True.

9. Even.

10. det(A)=det(A).