

Quiz # 3(a)

Name & Roll Number: _____

Section: _____

Date: _____

Maximum Marks 10

1. Solve the system $Ax = 0$ where

[8]

$$A = \begin{bmatrix} 1 & -1 & 1 & 0 \\ -1 & 1 & 0 & 1 \\ 1 & 0 & 1 & -1 \\ 0 & 1 & -1 & 1 \end{bmatrix}$$

2. Given $A = \begin{bmatrix} 2 & -6 & 3 \\ 4 & -12 & 6 \\ -2 & 6 & -3 \end{bmatrix}$, find one nontrivial solution of $Ax = 0$ by inspection. [Hint:

Think of the equation $Ax=0$ written as a vector equation $\begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \end{bmatrix}$ [1]

3. Construct a 4×4 nonzero matrix A such that the vector $\begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \end{bmatrix}$ is a solution of $Ax=0$. [1]

Quiz # 3(b)

Name & Roll Number: _____

Section: _____

Date: _____

Maximum Marks 10

1. Solve the system $Ax = 0$ where

[8]

$$A = \begin{bmatrix} -1 & 3 & 2 \\ 1 & 2 & 3 \\ 2 & 2 & 1 \\ 1 & 4 & 1 \end{bmatrix}$$

2. Given $A = \begin{bmatrix} 1 & 2 & 1 \\ 0 & 0 & 0 \\ 3 & 6 & 3 \end{bmatrix}$, find one nontrivial solution of $Ax = 0$ by inspection. [Hint: Think of the equation $Ax=0$ written as a vector equation]

[1]

3. Construct a 4×4 nonzero matrix A such that the vector $\begin{bmatrix} 2 \\ 2 \\ 2 \\ 2 \end{bmatrix}$ is a solution of $Ax=0$.

[1]

Quiz # 3(c)

Name & Roll Number: _____

Section: _____

Date: _____

Maximum Marks 10

1. Solve the system $Ax = 0$ where

[8]

$$A = \begin{bmatrix} -2 & 4 & 3 & 5 \\ 3 & -1 & 1 & 0 \\ 7 & 5 & 3 & 2 \end{bmatrix}$$

2. Given $A = \begin{bmatrix} -1 & -2 & -1 \\ 0 & 0 & 0 \\ 3 & 6 & 3 \end{bmatrix}$, find one nontrivial solution of $Ax = 0$ by inspection. [Hint: Think of the equation $Ax=0$ written as a vector equation]

[1]

3. Construct a 4×4 nonzero matrix A such that the vector

$$\begin{bmatrix} -2 \\ -2 \\ -2 \\ -2 \end{bmatrix}$$

is a solution of $Ax=0$.

[1]

Quiz # 3(d)

Name & Roll Number: _____

Section: _____

Date: _____

Maximum Marks 10

1. Solve the system $Ax = 0$ where

[8]

$$A = \begin{bmatrix} 2 & 3 & 1 \\ 2 & 1 & -5 \\ 1 & 2 & 2 \end{bmatrix}$$

2. Given $A = \begin{bmatrix} -2 & -4 & -2 \\ 0 & 0 & 0 \\ 6 & 12 & 6 \end{bmatrix}$, find one nontrivial solution of $Ax = 0$ by inspection. [Hint: Think of the equation $Ax = 0$ written as a vector equation]

[1]

3. Construct a 4×4 nonzero matrix A such that the vector $\begin{bmatrix} -1 \\ -1 \\ -1 \\ -1 \end{bmatrix}$ is a solution of $Ax=0$.

[1]