

# Spring 2021 Chapter 4 Part 2

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1. If the determinant of a square matrix  $[A]$  is zero, then the following are (is) true

- ☐  $[A]$  does not have an inverse
- ☐  $[A]$  has an inverse
- ☐  $[A]$  is singular
- ☐ if  $[A][X]=[C]$  is a set of simultaneous linear equations, then  $[X]$  is unique
- ☐ if  $[A][X]=[C]$  is a set of simultaneous linear equations, then  $[X]$  is not unique

2. LU decomposition method for solving a set of equations of form uses the following step

- ☐  $[L][X]=[Z]$  followed by  $[U][Z]=[C]$
- ☐  $[L][Z]=[C]$  followed by  $[U][X]=[Z]$
- ☐  $[U][Z]=[C]$  followed by  $[L][X]=[Z]$
- ☐  $[U][X]=[Z]$  followed by  $[L][Z]=[C]$

3. Given the decomposition of a square matrix  $[A]=[L][U]$ , where  $[L]$  has ones in the diagonal, the determinant of  $[A]$  is

- ☐ Product of diagonal elements of  $[A]$

- ☐ Product of diagonal elements of [U]
- ☐ Sum of the diagonal elements of [A]
- ☐ Sum of diagonal elements of [U]

4. LU decomposition method is computationally more efficient than Naïve Gauss elimination for solving

- ☐ a single set of simultaneous linear equations
- ☐ multiple sets of simultaneous linear equations with different coefficient matrices and same right hand side vectors.
- ☐ multiple sets of simultaneous linear equations with same coefficient matrix and different right hand side vectors

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