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Practice Questions
Chapter No. 13 to 15

MCQs

What is the maximum possible number of pivots in a 3×5 matrix ?

(a) 1
(b) 2
(c) 3
(d) 4

Which of the following is true for the partitioned matrices $P=[X \quad Y]$ and $Q=[L \quad M]$, where sub-matrices X and Y have the same sizes as L and M respectively ?

(a) $P+Q=[XL \quad YM]$

(b) $P+Q=\begin{bmatrix} X+L \\ Y+M \end{bmatrix}$

(c) $P+Q=[X+L \quad Y+M]$

(d) $P+Q=\begin{bmatrix} XL \\ YM \end{bmatrix}$

Short

Question No. 1. Show that the following system of linear equations has unique solution **:**

$$2x_1 + 3x_2 = 4$$
$$4x_1 + 7x_2 = 8$$

Question No. 2. If a matrix A is decomposed into $L = \begin{bmatrix} 3 & 0 \\ 2 & -4 \end{bmatrix}$ and $U = \begin{bmatrix} 1 & -2 \\ 0 & 1 \end{bmatrix}$ by LU factorization , then find A **.**

Answer $A = \begin{bmatrix} 3 & -6 \\ 2 & -8 \end{bmatrix}$

Long

Question No. 3. If $A = \left[\begin{array}{cc|cc|c} 4 & 7 & 0 & 0 & 0 \\ 1 & 2 & 0 & 0 & 0 \\ \hline 0 & 0 & 3 & 4 & 0 \\ 0 & 0 & 2 & 3 & 0 \\ \hline 0 & 0 & 0 & 0 & 2 \end{array}\right]$ is a block diagonal matrix , then find A^{-1} **.**

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