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BHU/20/04/05/0010
COMPUTER SCIENCE
100 LVL

1a Evaluate the determinant of the Matrix

$$A = \begin{pmatrix} t+2 & 0 & 1 \\ 5 & t+3 & 1 \\ 6 & -6 & t+4 \end{pmatrix}$$

b Suppose the matrix $\begin{pmatrix} 4 & x+2 \\ 2x-3 & x+1 \end{pmatrix}$ is symetric, Find x

c Let $A = \begin{pmatrix} 1 & 2 \\ 4 & -3 \end{pmatrix}$, Evaluate $f(A)$, where $f(x) = 2x^3 - 4x^2 + 5x + 3$

e

2a Solve by Matrix Inverse method the system of equations

$$x_1 + 2x_2 - x_3 = 3$$

$$2x_1 + 5x_2 - 4x_3 = 5$$

$$3x_1 + 4x_2 + 2x_3 = 12$$

b Given that matrix

b $A = \begin{pmatrix} 1 & -1 & 2 \\ 0 & 3 & 4 \end{pmatrix}$ $B = \begin{pmatrix} 4 & 0 & -3 \\ -1 & -2 & 3 \end{pmatrix}$ $C = \begin{pmatrix} 2 \\ -1 \\ 3 \end{pmatrix}$ Find (i) AB (ii) BC (iii) $B^T C$

c Solve the following systems of equations by row reducing the Augmented Matrix

$$2x + y - 2z = 8$$

$$3x + 2y - 4z = 15$$

$$5x + 4y - z = 1$$

SOLUTION

1a $A = \begin{pmatrix} t+2 & 0 & 1 \\ 5 & t+3 & 1 \\ 6 & -6 & t+4 \end{pmatrix}$

Form Ⓒ Subtract 6 from a_{11}, a_{22}, a_{33}

$$A = \begin{pmatrix} 2 & 0 & 1 \\ 5 & 3 & 1 \\ 6 & -6 & 4 \end{pmatrix}$$

of 1st row: