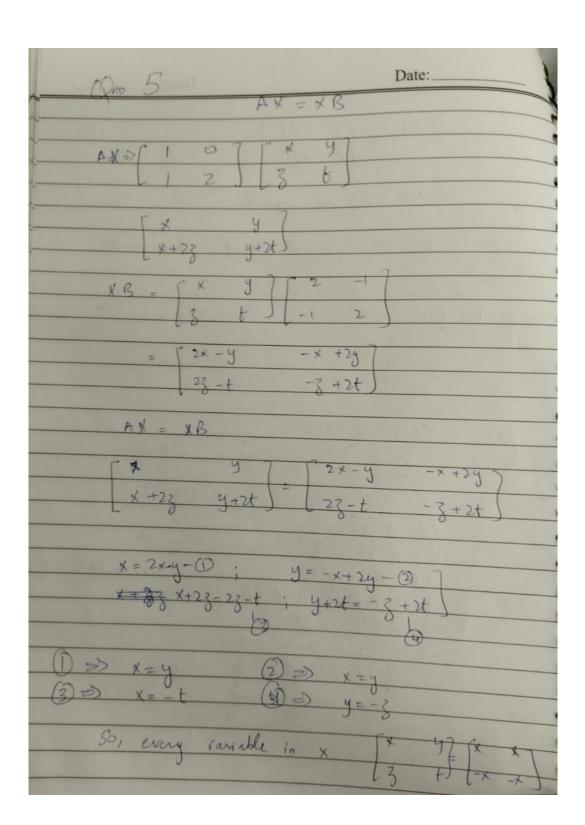
Q3 a) (A+A <sup>T</sup> ) is say tric
(NATA) O SATURE
-> (A)T= A symetric
$(A + A^{T})^{T} = (A^{T} + (A^{T})^{T}) \cdot (A + B)^{T}$ $A^{T} * + B^{T}$
$(A^{T})^{T} = A$
$(A^{T})^{T} = A$ $(A^{T} + A) = (A + A^{T}) \cdot (A + B) = (B + A)$
$(n+n) = (n+n) \cdot (n+s) \cdot (n+s)$
Hence
Hence (A+AT) T= (A+AT)
$(\Lambda - \Delta T)^T$ $(\Lambda T - (\Lambda T)^T)$
$(A-A^{T})^{T} = (A^{T} = (A^{T})^{T})$ $(A+B)^{T} = A^{T} + B$
$(A - A^{\tau})^{T} = (A^{T} - A) \qquad (A^{T})^{T} = A$
$(A - A^{T})^{T} = -(A - A^{T})$
Hence AT = - A it is skew synchric
Synchtic
IN AAT : DATA
b) AAT is & ATA are symmetre
$(AA^{T})^{T} = (A^{T})^{T} (A^{T})^{T} - (AR)^{T} = ($
A AT
$(A^{\tau})^{\tau} = A$

Date.
$(A^{T}A)^{T} = (A^{T}(A^{T})^{T})$ $= (A^{T}A)$
$= (A^T A)$
Hence they are syntac
$\Lambda^2 = \Lambda$
C) A2 = A, A Exist then A = I
$A^{-1}A^{2} = A^{-1}A$
$(A^{-1}A)A - (A^{-1}A)$
$\frac{(A'A)A = (A'A)}{IA = I}$
A = I
$d) \qquad (A^{-1})^{\top} = (A^{\top})^{-1}$
we know
J = J
/A A-1) T
$(A A^{-1})^{T} = \overline{I}$ $(A A^{-1})^{T} = \overline{I}^{T}$ $(A^{-1})^{T}A^{T} = \overline{I}$ $\overline{I}^{T} = \overline{I} \otimes (AR)^{T} = R^{T}$
CA-NTAT -
$(A^{-1})^{A}A^{T} = I$ $I = I \times (AR)^{T} = R^{T}$
$(A^{-1})^{\top}A^{\top}(A^{\top})^{-1} = T \cdot (A^{\top})^{-1}$
$(A') \cdot I = (A^{T})^{-1}$
(A-1) = (AT)-1
$   \left( A^{-1} \right)^{-1} = \left( A^{\tau} \right)^{-1} $



> × [1 1] (-1 -1)
Hence proved!
Q6
$A^{t} = -A$ then $aii = 0$ $A^{t} + A = 0 \leftarrow Zeno matrix$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
Compain co-ext ts
2011=0, 2022=0, 2033=0 Alene diogonale de Az O

