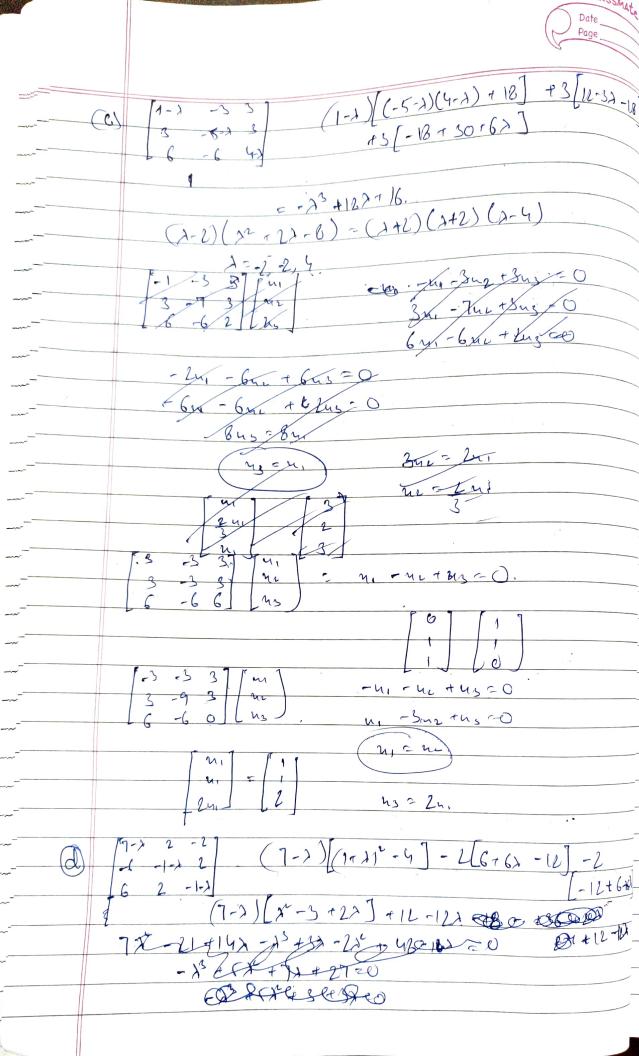


- 2° + 22° + 85° - 162 - 122 + 24 =0 @ [x-2] [-x2+8x-12] [a-2][a-2][a-6] 2=2,2,6 MI + 45 ~ he W1 + U2 = 342 42143 = 3u, 4, = 215 EDDW.

(1-2)3=0



classmate 72 -21+142 -25+31-22 +12-127 +12-127 =0 +23 +12 48 +1Bx +390 23-12 +72 =0 (2-1)(2-1)(2-3)=0 46 = 03 3m, + 2m; = us : 3n, + h = 2m Zu, = Lu, (n, = no) 02 @ Ax = XX 1x = xA'x 1x = A x AV- XX (A-KI)x - Tecto (18-KB) x Characteristic polynomial equ of d -> 17-231=0 AT-2371-0 => 1AT-231 -> characteristic polynomial of

.. Both show same eigen nation. Copy we down about only some for d= AT or when A is symmetric.

(C) Ax-1x Pes non songelar, hence P'enists, Bre-multiplying P on both sedes.

Set x= py we get p' + py ->ppy (p'AP) y = 1 y

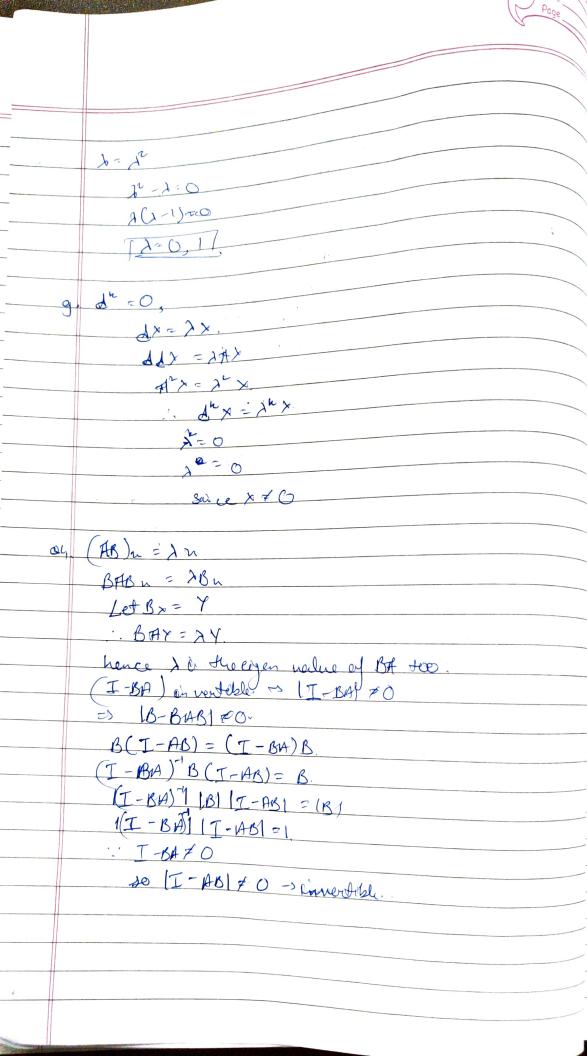
Mence proved Let Ax = XX.

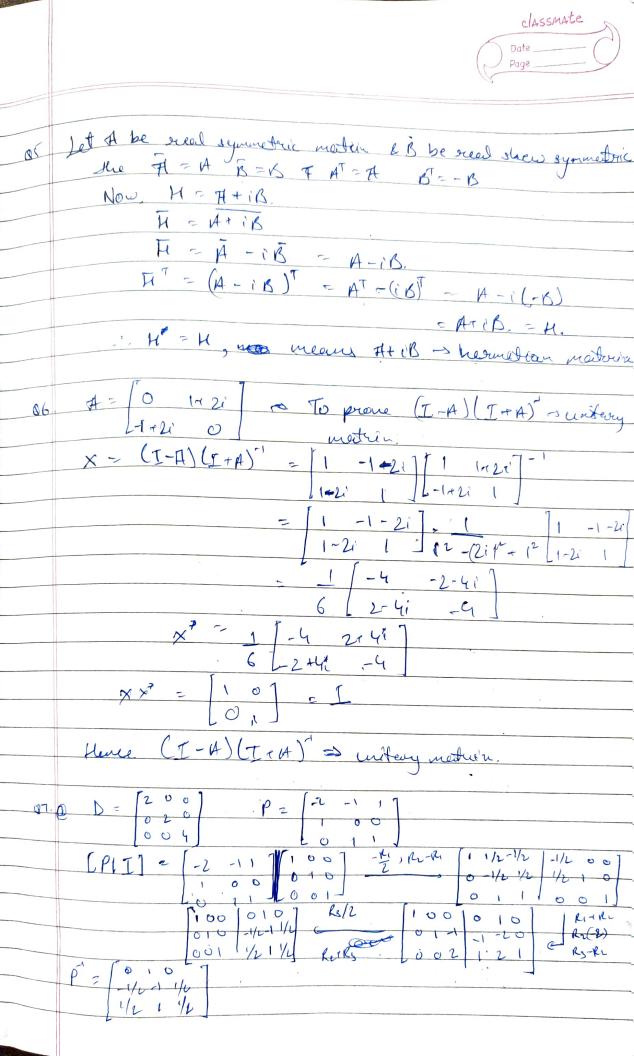
 $x'A = (A'x)'' = (-Ax)' = (-\lambda x)'' = -\lambda' \lambda''$ $x'Ax = -\lambda' x'x$ XXX = -XXX 0= x* ("K+K)

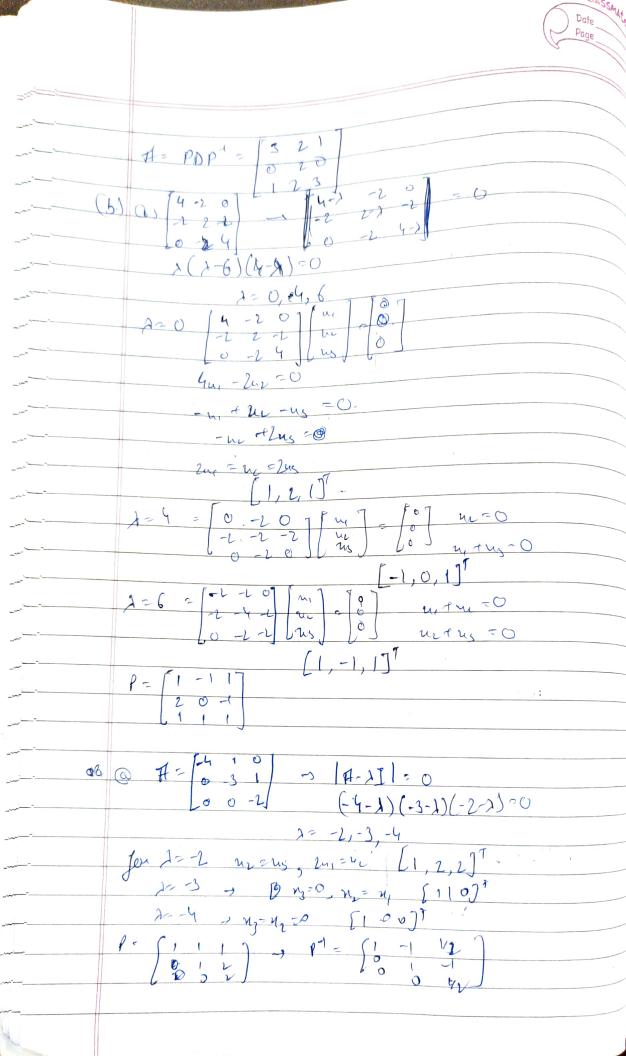
. '. somethe beered, a should o on presely Let Ax = 1x X'AX= A'XX $x^* \lambda x = \lambda^* x^* x$

> $\lambda = \lambda^*$. , I should be purely real,

@ let d'be a symmétric moderin with distincts régennalues à d u. and coorresponding eigen vector in by. 8 AY= WY (AY) - (LY) T MAL - XCO MY YT A-WYT y'Ax= uyTx xyTx=uyTx (1-4) yt x = =0 - xxx=0 @ dd = 1 $\overline{X}^{T} \overline{A}^{T} = \overline{\lambda}^{T} \overline{X}^{T}$ XTX = INT XTX matrin = 1 1A1 - 1-A1 = (-1) AT N > 000 IAI = - 1A1 2 1A1 = D = 1A1 - hence 1000 skew symmetric materin of odd order have O determinent AL =A, Ax = XX ARX JAX 5 FX = SX AX = XX .. AX SX







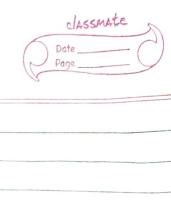
Classmate

Date _____
Page Simplarly ATO = 40 50 - 400 - 300 + 12 0 300 200 - 300 Eigen Value $\stackrel{>}{\rightarrow} -2.44$. $P = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 1 \end{bmatrix}$ $D = \begin{bmatrix} -2 & 0 & 0 \\ 0 & 4 & 0 \end{bmatrix}$ $D = \begin{bmatrix} 0 & 4 & 0 \\ 0 & 0 & 4 \end{bmatrix}$ DUsing Cayley - Hamilton Theorem 0 1 3 3 1 Eqn = 2 3 -72 - 72 = 7 = 0 Egn = AP - 17A+624-40I=0 A = 1 [N - 17H + 62I]

141 66 547 ... A= -0.20 -0.50 3 22 70 31 76 94 A3-11A2+6A-1=0 A - 1 - M2 - MA T 6] On tolary, we got,

A' = [10 2 0 - 1]

E 1 0] 3 267: ; equation = 30 in On puttay the above velyes it the equation AT = 343 - 84 + 114. A= [4 2-1] Gine A=3,3,5 (878)
A > diagonalizable Q11 A > diagonalizatel 5+6= Har & 49 SONO IS YAB



for dagonalizable AM = (M. Janob - 32 -80 -2200

1 = Yits ~5.

Given, June of all rows = 1 :. Ax= xU A'AX=A'X

> $X = H^{-1} \times$ 1, Ax= 4"x, (A - A") x = 0

Jun of all entress of At 5

His a relightent motion. Its eigen values = 0,0, (I + A) has cêjen nalues soi, = = 1,1,1.

Q16

broduct of all eigen values = 1. 12 M IIAN = 1 40 I'm I + A of investible

