LA-ASSIGNMENT 04

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CLASS: (Sec: B) ROUNO: 2014-0/83

EXERCISE 5.2

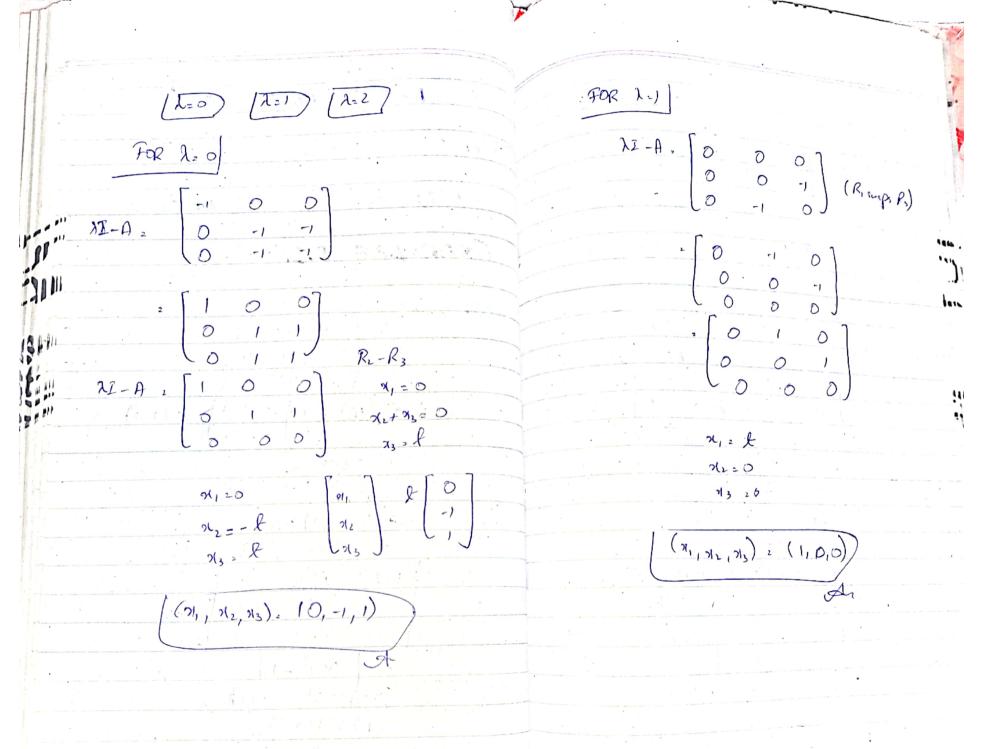
88:

$$\begin{bmatrix}
 \lambda - 1 & 0 & 0 \\
 0 & \lambda - 1 & -1 & 2 \\
 0 & -1 & \lambda - 1
 \end{bmatrix} = 0$$

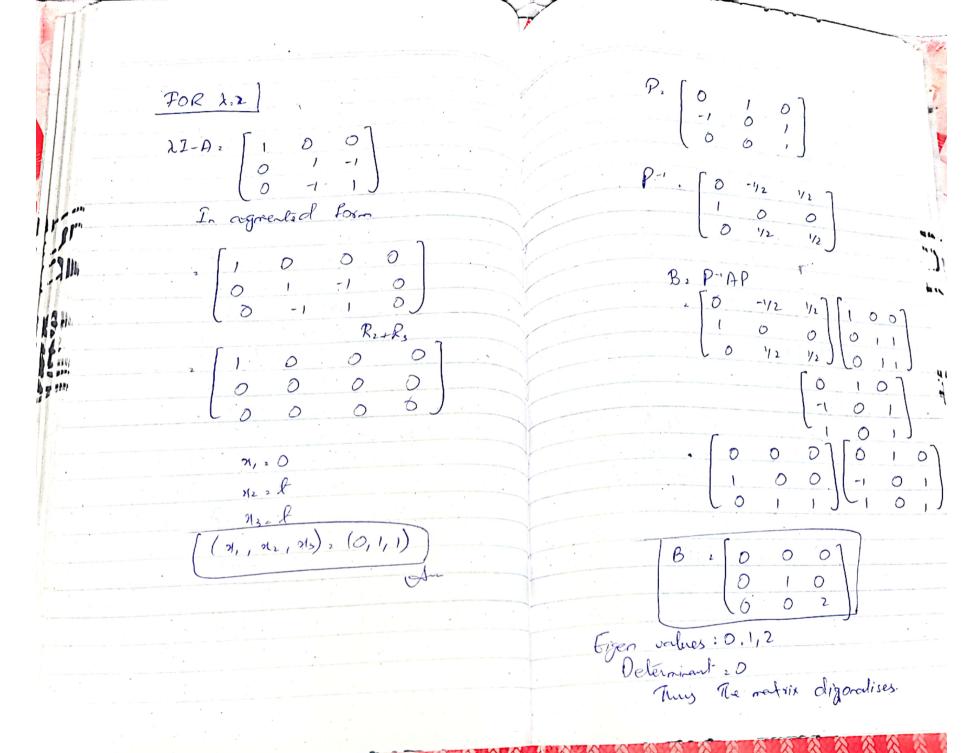
$$(\lambda - 1) \left[(\lambda - 1)^{2} - 1 \right] = 0$$

$$(\lambda - 1) (\lambda^{2} - 2\lambda + \Delta \lambda) = 0$$

$$\lambda (\lambda - 1) (\lambda^{-2}) = 0$$



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a) (7-1)(7+3)(7-5),0

For dimensions:

For Size

$$\lambda = 3$$

6)

 $\lambda^{2}(\lambda-1)(\lambda-2)^{3}=0$

Dimension

$$(\lambda-1) \rightarrow Olim (1)$$

 $(\lambda-2)^3 \rightarrow Olim (1, 2,3)$

For size

2 6x6 matrix

Olef (A), 3 (4),12

def (12-A),0

(x-3) (x-2) 60

Converting in augmented form

$$\begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & -1 & 1 & 0 \end{bmatrix}$$

FOR 2:2)

$$72-A$$
 . $\begin{bmatrix} -1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & -1 & 0 \end{bmatrix}$ (Convertige in augmented form)

Since the geometric multiplicity multiplicity of her is a while algebraic

 $\begin{array}{c} \mathbf{Q20} \\ \mathbf{A}_{2} \\ \begin{bmatrix} 1 & -2 & 8 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \\ \end{bmatrix} \\ \begin{array}{c} \mathbf{P}_{2} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ 0 & 1 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{A}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{2} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ 0 & 1 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{A}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ 0 & 1 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{A}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ 0 & 1 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{A}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{A}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \begin{bmatrix} 1 & -4 & 1 \\ 0 & 0 \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{4} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{4} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{3} \\ \end{array} \\ \begin{array}{c} \mathbf{P}_{4} \\ \end{array} \\ \begin{array}{$

B. P-AP

(1 -4 1) (1 -2 8) (1 -4 1)

(1 0 0) x (0 -1 0) x (1 00)

(1 0 1) (0 0 0)

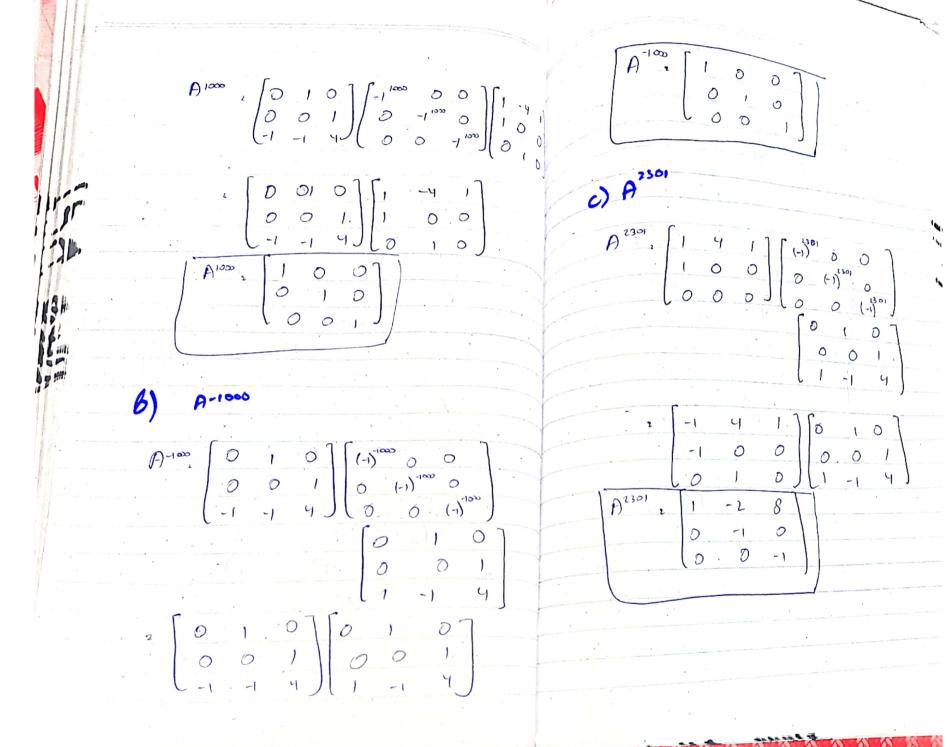
(2 0 0 0)

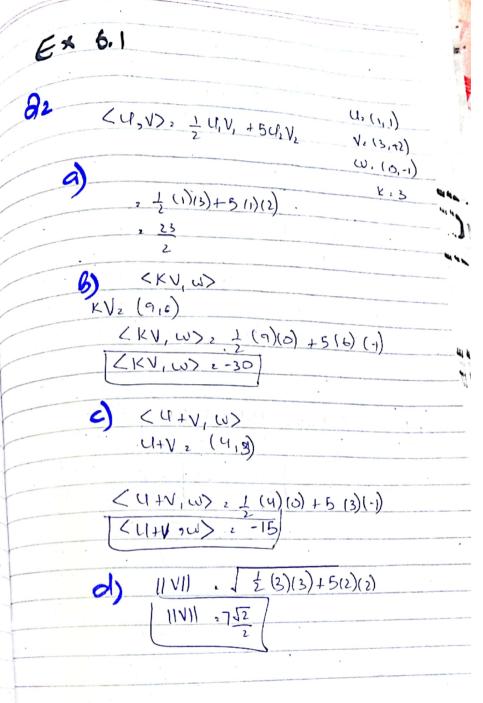
(3 0 0 0)

tr(B):-1

tr(A): tr(B)

Thus P digonalizes A





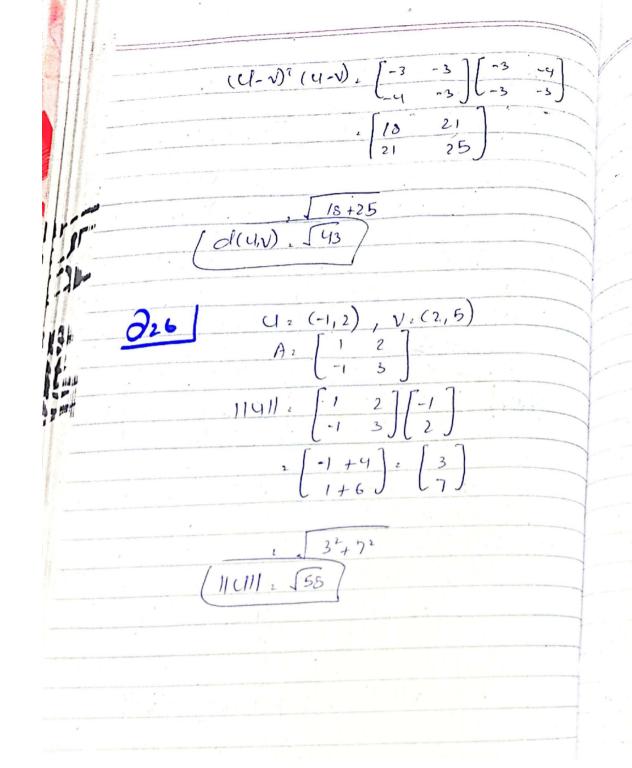
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$$\frac{3}{4}$$
 || $\frac{1}{4}$ || $\frac{1$

215	P2 X+X3 & 9:1+X2	= ;: :
	X2-2; X,2-1; X220; X3=1	
	$P(-2)_{2}-10$ $q_{2}(-2)_{2}$ 5	
•	P(0),0 P(1),2	41 4
	2 -1 O(5) +1-2) (2) + O(1) +2 (2)	41 4
	2 -50	41
Q 22	$Cl_{2}\begin{bmatrix}1&2\\-3&5\end{bmatrix};V_{2}\begin{bmatrix}4&6\\0&8\end{bmatrix}$	-
	$11 \text{ UII}_{2} \sqrt{(1)^{2} + (2)^{2} + (-3)^{2} + (6)^{2}}$	

11
$$U11$$
, $\sqrt{(1)^{2}+(2)^{2}+(-3)^{2}+(5)^{2}}$

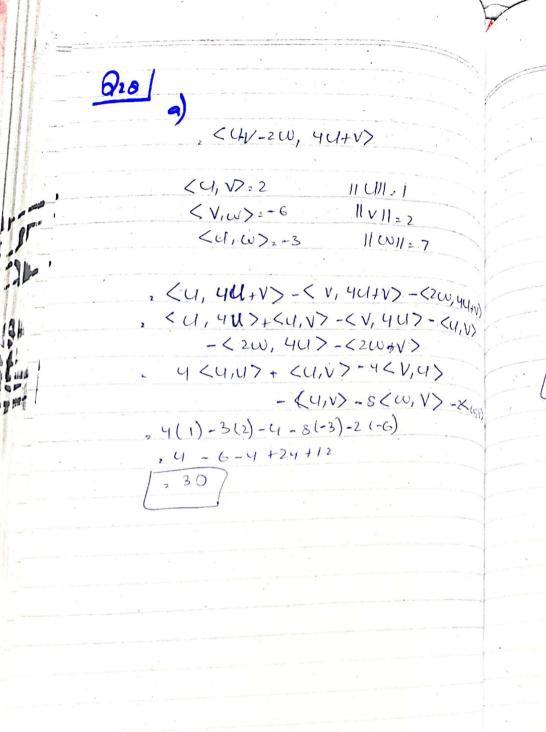
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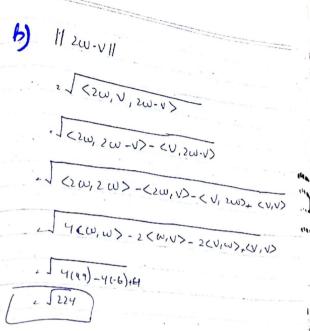


$$d(u,v) = || (u,v)|$$

$$(1-v) \cdot (-3, -3)$$

$$= \left[\frac{1}{3} \right] \left[\frac{2}{-3} \right] \cdot \left[\frac{1}{1} \right] \left[\frac{2}{-3} \right] \cdot \left[\frac{1}{1} \right] \left[\frac{2}{-3} \right] \cdot \left[\frac{1}{1} \right] \cdot \left[\frac{2}{-3} \right] \cdot \left[$$





a)
$$(l_{2}(-1,0) V_{2}(3,8)$$

 $Cos\theta_{2} < U, V > (-1)(3) + (0)(8)$
 $\overline{||U||||V||}$
 $\overline{||Cos\theta_{2}||(-3)||}$

$$(39. (4)(1) + (0)(1) + 8 (-3)$$

 $\sqrt{51.510}$
 $(39. -20)$
 9.60

$$P = x - x^{2}; \quad q_{1} = 7 + 3x + 3x^{2}$$

$$Cos\theta = \frac{\langle p, q_{2} \rangle}{||p|| \, ||q||} = \frac{\langle p, q_{2} \rangle}{\sqrt{2} \cdot \sqrt{67}}$$

$$Cos\theta = \frac{\langle p, q_{2} \rangle}{\sqrt{2} \cdot \sqrt{67}} = \frac{\langle p, q_{2} \rangle}{\sqrt{2} \cdot \sqrt{67}}$$

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U. (U, U, U); V: (0,0,0) 1<4,7720 or Hagard U2 (-4, 6, -10,1); V2 (2,1,-2,9) <U, N> = -410) + 6.(1) + (-10) (-2) + 1(9) <u, >> 2 27 not ostlogoral U2 (a,b,c) ; V2 (-c,0,9) SUN> - - (19) + 0+a(c) (UN) O orthogonal.

