Major Assignment Spring 2020

LINEAR ALGEBRA

Total Marks:20

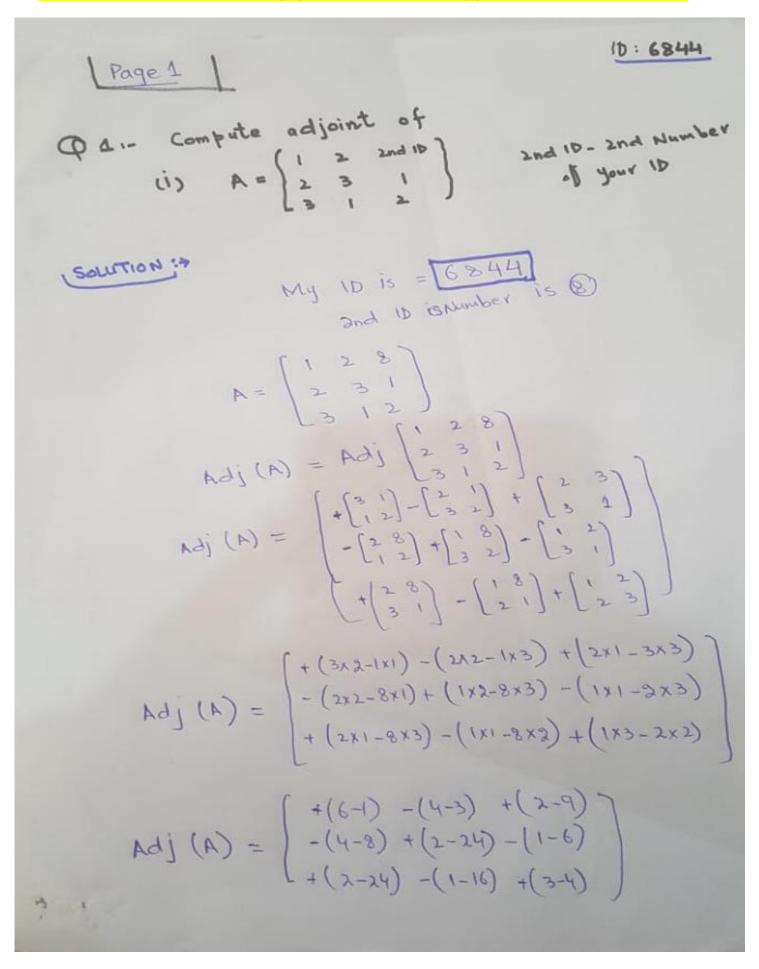
Submitted to:

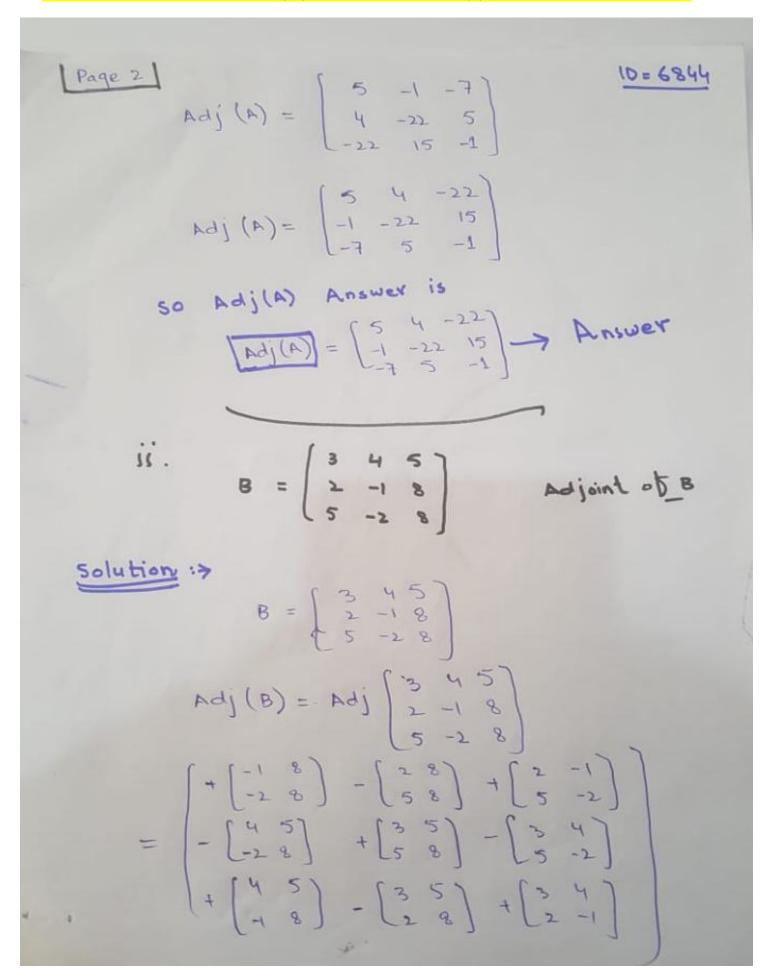
Sir. Muhammad Shakeel

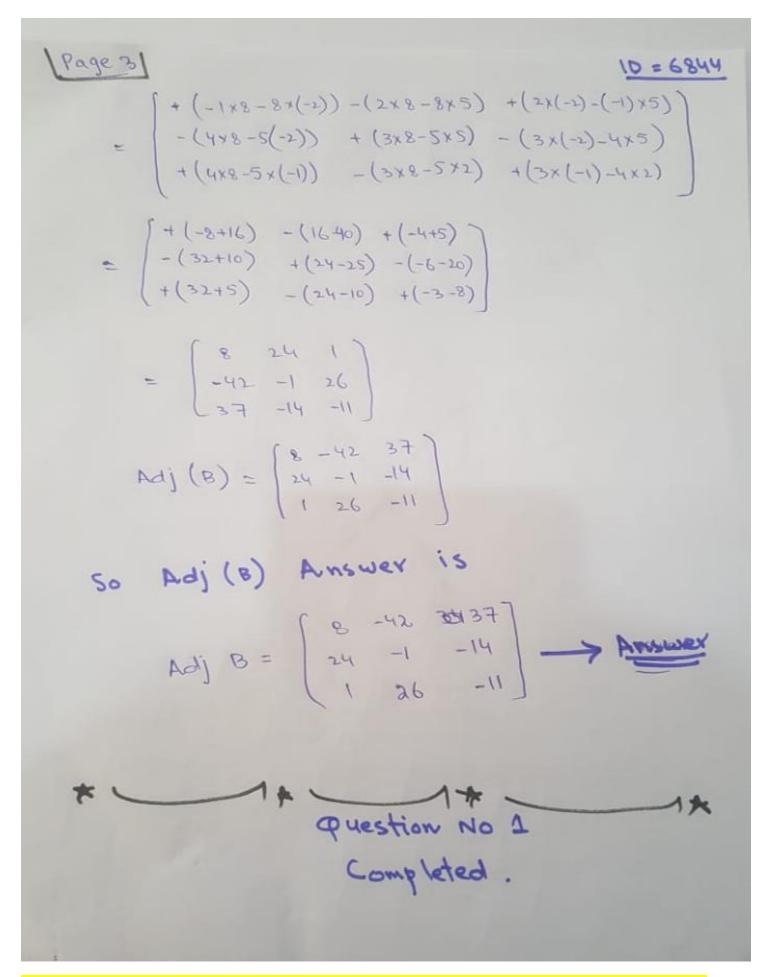
Submitted by:

Muhammad Islam ID = 6844BS (SE) Section B (8th semester)









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Question No 2:7

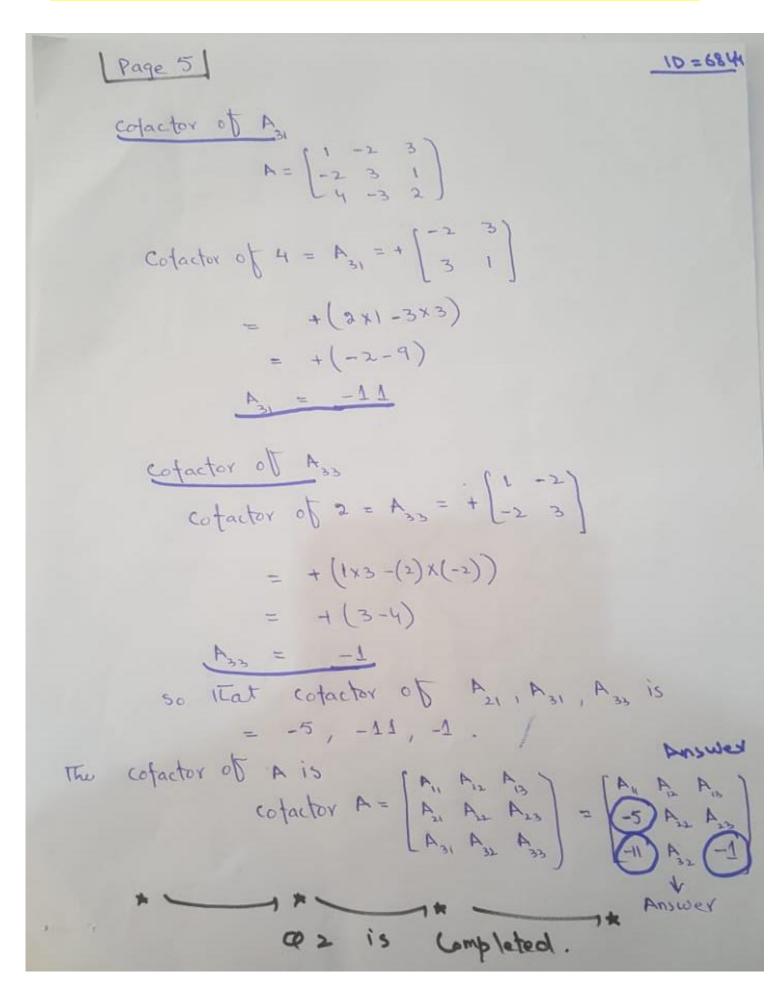
Find The cofactors of Azi, Azi, Azz it $A = \begin{bmatrix} 1 & -2 & 3 \\ -2 & 3 & 1 \end{bmatrix}$

SOLUTION :> cofactor (A) = cofactor -2 3 1

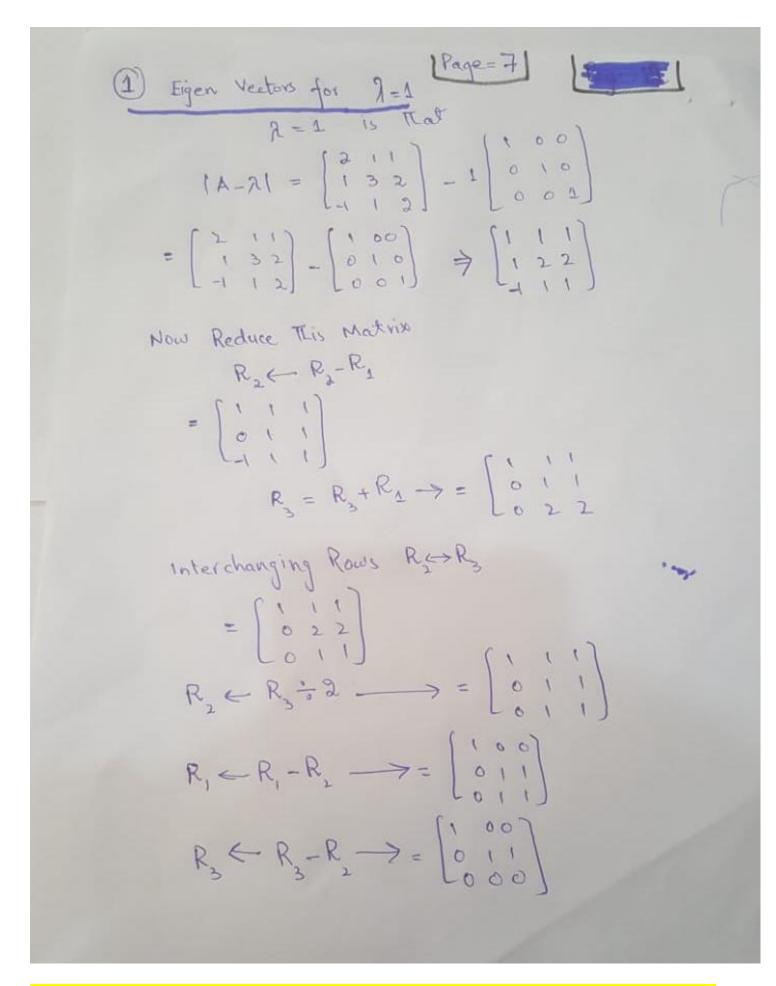
We find That Azi Azi Azz

Cofactor of Azi cotactor of $= A_{21} = \begin{bmatrix} -2 & 3 \\ -3 & 2 \end{bmatrix}$

 $A_{11} = \frac{1}{3} - (-2 \times 2 - 3 \times (-3))$



The eigen values of The Matrix A are given by / 2 = 1,2,4)



$$R_{3} \leftarrow R_{3} + R_{1}$$

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

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

$$\Rightarrow R_{2} \leftarrow R_{2} + 2 \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

$$\Rightarrow R_{3} \leftarrow R_{1} - R_{2} \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

$$\Rightarrow R_{4} \leftarrow R_{1} - R_{2} \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

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$$\Rightarrow R_{4} \leftarrow R_{1} - R_{2} \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

$$\Rightarrow R_{1} \leftarrow R_{2} + R_{2} \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

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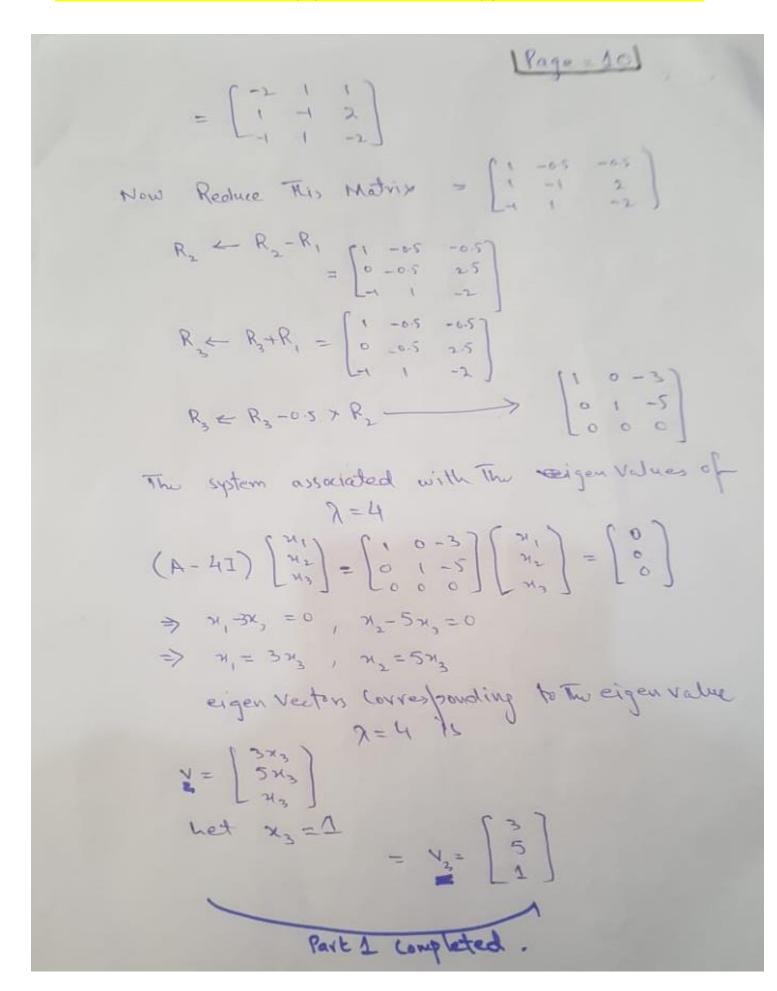
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$$\Rightarrow R_{1} \leftarrow R_{2} + R_{2} \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

$$\Rightarrow R_{2} \leftarrow R_{3} + R_{2} \Rightarrow \begin{bmatrix} 0 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

$$\Rightarrow R_{1} \leftarrow R_{2} + R_$$



Solution

First we find Eigen Values of

 $= \left| \begin{array}{cccc} (1-2) & 0 & 0 \\ 0 & (1-2) & 0 \end{array} \right| = 0$

= (1-3)((1-3)x(1-3)-0x0)-0(0x(4-3)-0x0)+0(0x0-(1-3)=0 = (1-3)((1-3)x(1-3)-0x0)-0(0-0)+0(0-0)=0

 $= (1-3)(1-23+3^2)-0(0)+0(0)=0$

 $= (1-37+33^2-3^3)-0+0=0$

 $= (-3^3 + 33^2 - 37 + 1) = 0$

 $= -(\lambda-1)(\lambda-1)(\lambda-1) = 0$

= $(\lambda - 1) = 0$ or $(\lambda - 1) = 0$ or $(\lambda - 1) = 0$

The eigen values of the matrix (I) are given by (7-1) 50