

FALL SEMESTER 2020-21 MAT3004

APPLIED LINEAR ALGEBRA

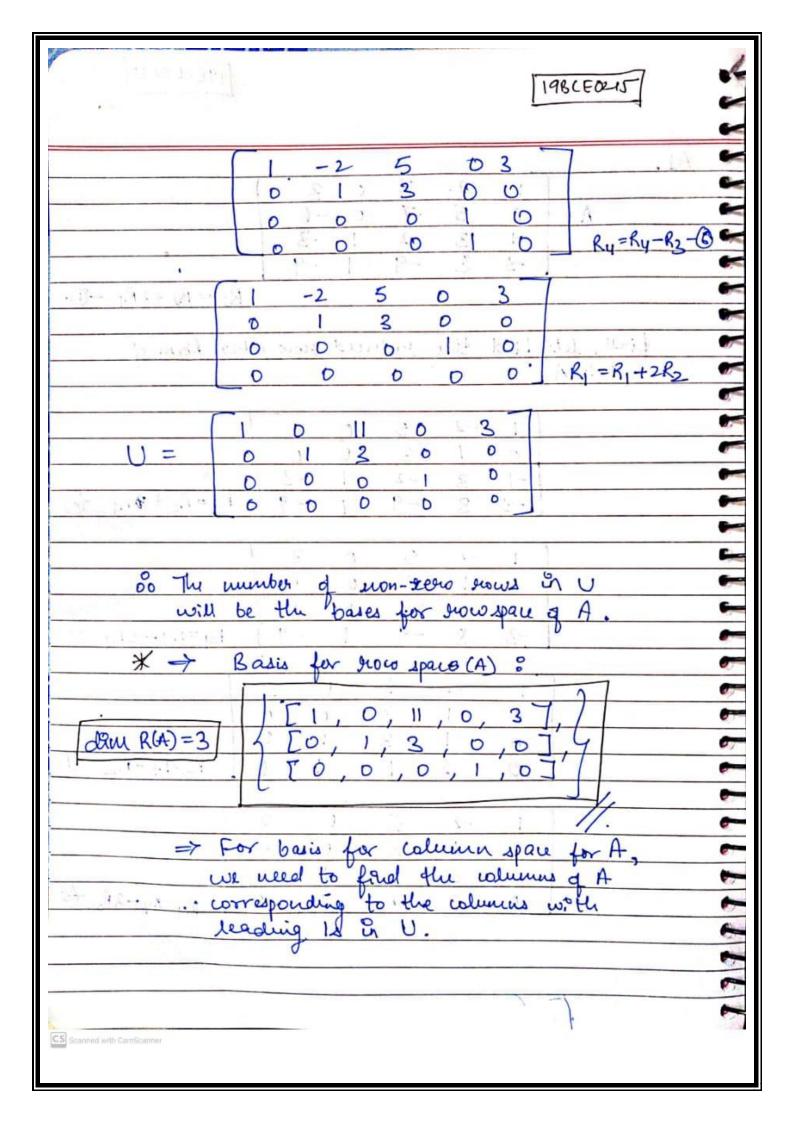
DIGITAL ASSIGNMENT-2

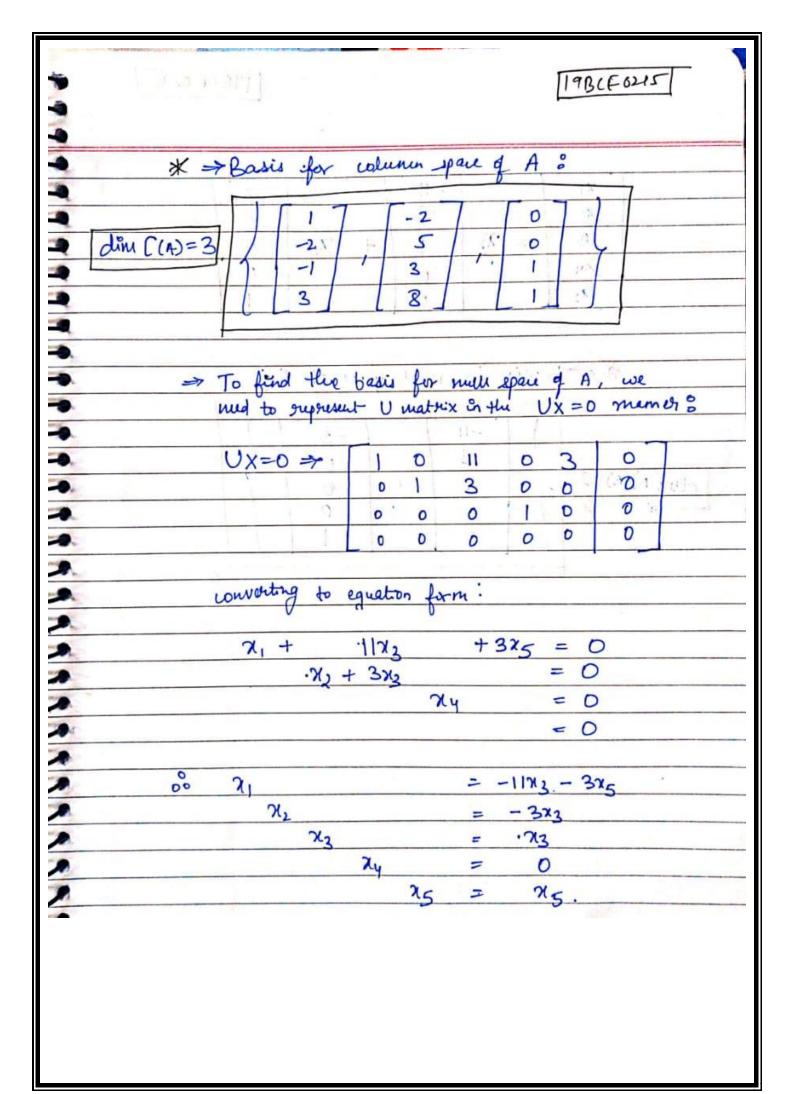
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REG NO: 19BCE0215

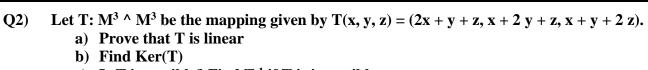
TEACHER: PADMA R.

II) **Q1**) Find bases and dimensions for the Row space, Column space, Null space of the matrix: 5 1 -2 0 3 -2 5 7 0 -6 -2 3 -2 $\mathbf{A}=$ 1 -3 -3 -9 -9 1 19BLE0245 A1. 5 -2 0 -6 -7 0 -3 -2 -1 -9 R2 = R2 + 2R1 -1. the judiced now echlor form of mators A. 3 -2 5 0 3 0 0 -3 3 R2= R3+ &R1 8 3 5 0 メンション・ハイ ノノノノノノリリリリ . .3 ... 0 0 0 0 3 D. Ry=Ry+3R, -3 8 -3 -2 3 1 0 0 D 3 1 0 Ra=R3-R2-4 6 D 2 -2 3 D 110 0 0 1 0 0 0 Ry=Ry-2R2 5 1.6. 10000 D ... 2 ed goods 11





	The state of the					19BLE0215				
	3	1		P. W. As	1135	14	144-4			
	וא			-11			-3			
	7/L	3		-3	1	1	O			
	213	12	23	1	+	75	0	5-1450 mbg		
	Жч	1	1	0	7	1-	. 0			
	25	1		D		12				
					-					
The state of	* →₽	1	111		T also	THE STATE	4 ė	- v =		
	* →₽	1	-11	nul,	T also	3	1)	- v =		
- Markey	* →B	1	-11 -3	nul ;	1 120	3	1)			
	X →2 A)=2	1	-11 -3	nul,	1 120	3	1)	V = 1		
- MARKET	* →B		-11 -3 1	nul ;	1 120	3	1)	V=		
- MARKET	X →2 A)=2	1	-11 -3	nul ;	1 120	3	1)			



- c) Is T invertible? Find T⁻¹ if T is invertible.

	19B(E0215)
• A2.	
•	a) To prove & T(n,y,z) = (2n+y+z, n+2y+z, n+y+2z)
•	is linear.
•	
•	(E) To show T(x+y+z) = T(x)+T(y)+T(z) ER3
•	
•	Take any (x, y, Z), (x2, y2, Z2), (x3, y3, Z3) ER3
•	
-	LHS:
•	= T ((x, y, z) + (x2, y2, 122) + (x3, y3, 123))
•	
•	= T ((x1+42+23), (1+42+43), (21+22+23))
0.	= $\left(2(x_1+x_2+x_3)+(y_1+y_2+y_3)+(z_1+z_2+z_3)\right)$
	$(\lambda_1+\lambda_2+\lambda_3)+2(y_1+y_2+y_3)+(x_1+x_2+x_3)$
	$(n_1+n_2+n_3)+(y_1+y_2+y_3)+2(z_1+z_2+z_3)$
	= (271+21+21)+(272+24)+(273+43+23),
	$(x_1+2y_1+z_1)+(x_2+2y_2+z_2)+(x_3+2y_3+z_3),$
	(n1+y1+221) + (n2+y2+222) + (n3+y3+223)
*	
	= T(x1, y1, Z1) + T(x2, y2, Z2) + T(x3, y3, Z3)
	= RHS
2	00 L'HS - RHS Henr proved!
2	
9.	(%) $T(cx) = cT(n)$
2	
9.	LHS
9	
_	T(((x1, y1, z1)) = T((x1, y1, (z1))

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$$= T \left(2 ((x_1) + ($$

Since both condition proporties are true

b) find Ker (T)

Kernel of T is a set of all vectors

$$T \begin{bmatrix} x \\ y \\ z \end{bmatrix} = 0.3$$

The state of the s				719BCE0215
equatous?		, A		
eguatous:	1		3	
7-14-	+4+7	Z = 0	19	
2 +	24+	Z = 0		1
214	u+2	7 = 0		
~	7.		1	
find Indund	12	10	17	
ynu - Ale	1	2	1	J
N 1-1-14	-	1	2 P	S1=R1/2 -D
		-		1
find reduced	Linux el	ellon f	orn :	[51]
- The results	7-4-2		1	
-0.	1	1/2	1/2	
-0.	1	2	l	
•	1	8-21	12	R2 = R2 - R1 -0
	1)	50 1	la I A.	1
•	51.	11/2	. 1/2	3
	0	3/1	1/2	2 1 10 10
	_ 1_		121	R3 = R3 - R1 3
		, it.	1 5 9	
	1	1/2	1/2	
1	0	3/2	1/2	1212
The sail of the sail	10.	.1/2	13/2	R2 = R1×(2/3) -(9)
7 .				1
9 .	ı	1/2	1/2	
	0	1	1/3	0 0 0
1. 10 . 18:	O	1/2	3/2	$R_3 = R_3 + R_2 - 5$
•				
100		1/2	1/2	
1	0		1/3	1200
	0	0	413	1 Ry = 13 Ry -6
2				
NOTE OF THE PARTY				

