



| * | |
|---------------------------------------|--|
| | So, the first two component give the |
| | System of equations |
| | 3 C, +4 C, 20 |
| | 6C1+7C2=0 |
| | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | [67,0] |
| | ~ 3410 |
| 7 | 1 0 -1 1 0 1 1 2 d o o o o o o o o o o o o o o o o o o |
| · · · · · · · · · · · · · · · · · · · | it means G & C2 are zero too. So, |
| | these columns (2nd, 3rd g yth) and independent too. |
| * | How since V is the echelon form of A, the choices are similar to U |
| | and the man and the original to the contract of the contract o |
| 3 | The state of the s |
| (a) | According to the question, |
| 4. | warrante and the second of the |
| | 2 1 5 6 0 1 1 1 1 1 1 1 1 1 |
| | 2 3 1 6 0 |
| 10 | |
| | C1+2e2+3e3=0 |
| | 34 + 6 + 26 -0 |
| | 3c, + c2 + 2 c3 = 0 2e, + 3e, + c3 = 0 |
| | |



Here, C=C=C==0, Hence, the given vectors are independent.

by Let

| - | | | | - | | - | |
|---|----|----|-----|---|----------------|----|----|
| | 1 | 2 | -3 | | C | | [a |
| | -3 | 1 | 2 | | c ₂ | 11 | 0 |
| | 2 | -3 | . 1 | | C3 | 70 | 0 |

 $c_1 + 2c_2 - 3c_3 = 0$ $-3c_1 + c_2 + 2c_3 = 0$ $2c_1 - 3c_2 + c_3 = 0$

Here, $C_1 = C_2 = C_3 = 1$, Hence the given vectors are dependent.

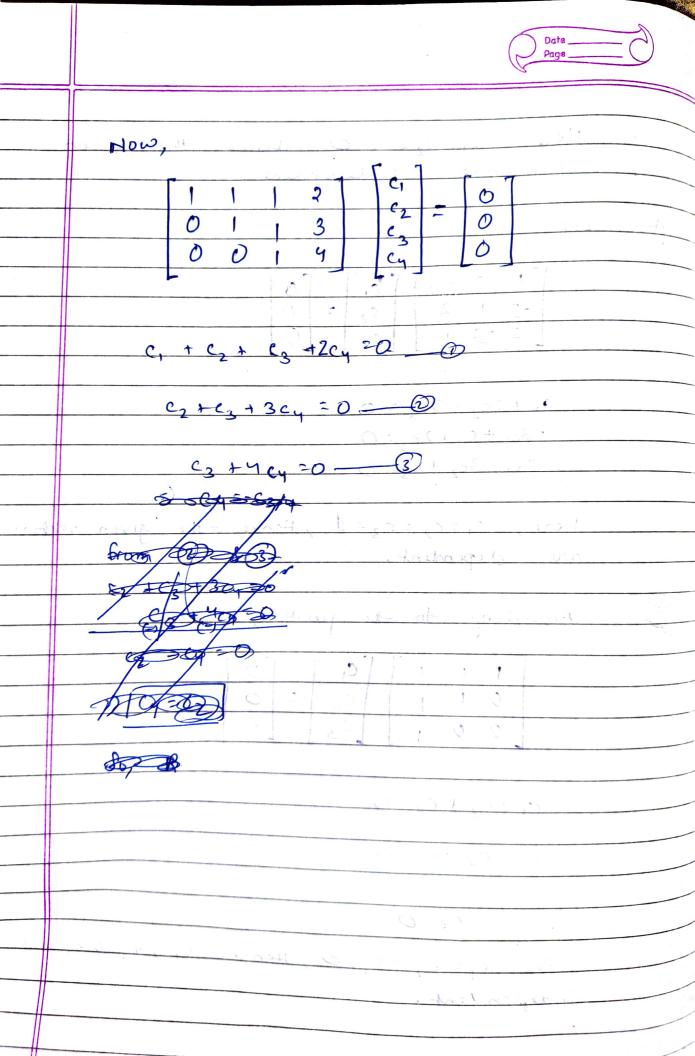
According to the question,

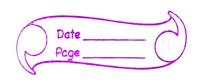
| 1 | 1 | 1 | 'C1 - | | 0 | Ī |
|---|---|---|-------|---|---|---|
| 0 | 1 | 1 | C2 | - | 0 | |
| 0 | 0 | 1 | c3 | | 0 | |

Cy+C2+C3=0

c3 =0

So, C,= C,=C3=D, Hence V, , V2 & V3 are independent.





(3)

According to the question,

C, V, + C2 V2 + C3 V3 20, where, C1, C2, C3 \$0

By substitution we get,

((w2-w3)+ (2(12-12)+(3(12-12)=0

2) (C1+ (3) 10, + (e, - (3) 10) + (-c, -(2) 10) = 0

So, hore, C1= C3, C2=-C3 and C3 ER, as W1, W2 and w3 one LI.

Now if we take &=1, 0 =

भावनीकु विश्व ।

 $1(v_1) - 1(v_2) + 1(v_3) = 0$

Hence, V, , V2 & V3 are linearly dependent.



(a)

(b)

dim (R3) = 3

V1 is a multiple of V2.

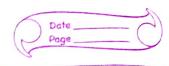
(c) V, is a multiple of (0,0,0,0)

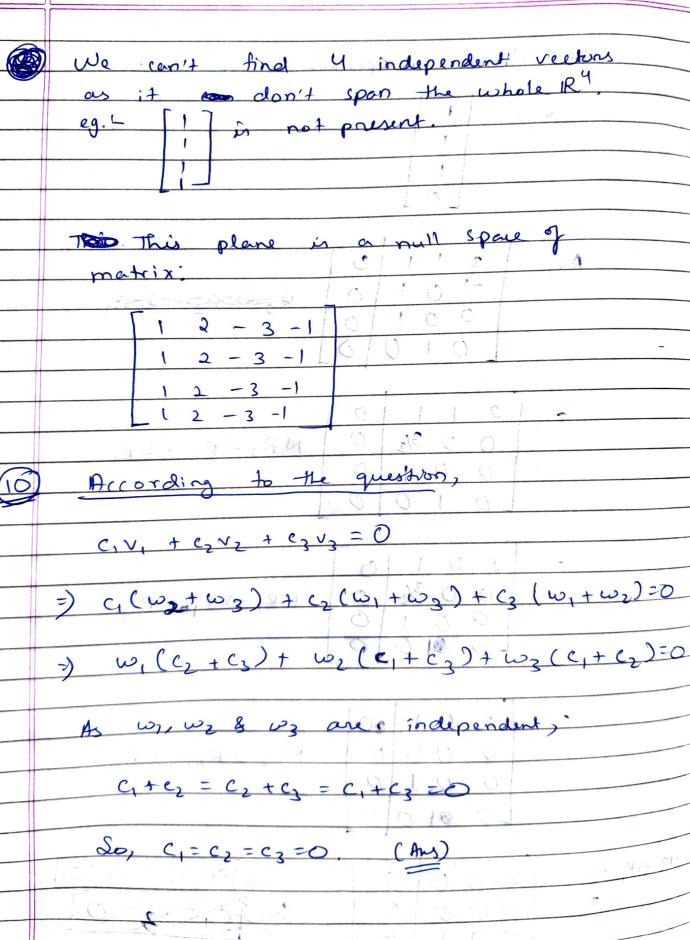
| | | R |
|----|------|------------|
| 6 | Date | |
| () | Page | (<i>)</i> |
| 6 | | |

| 9 | Two independent vectors on the plane 1 + 2y - 3z-t=0 con be, |
|-----------------|---|
| | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| - C) - A. P. | = A = 52 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| . 10 | Su, $2e = 0$ $C_2 = 0$ |
| | So, [4=62=0] Lo, Here two are independent. |
| | These two are in dependent. |



| The thind independent vector can be |
|--|
| V ₃ = [1,] |
| |
| [0] |
| 0010 |
| 010011 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| 0100 |
| - 2016 003/20 NR, -> R, |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| NR, > R, -R ₃ 2000 So, [c ₁ =c ₂ =c ₃ =0] = 000 0 So, [c ₁ =c ₂ =c ₃ =0] = 001 0 So, [c ₁ =c ₂ =c ₃ =0] So, Hey are independent |
| LO 10 O So, they are independent |







13) Acording to the question:

 $C_{1} + C_{2} \neq = 0$ $C_{1} + C_{2} = 0$ $C_{2} + C_{3} = 0$ $C_{3} + C_{4} = 0$

Sb, C1=C2=C3=Cy=D, hence the vectors are

Now,

C1 + C2 = 0 -0

C, +4 20 - 0

(2+63=6-3)

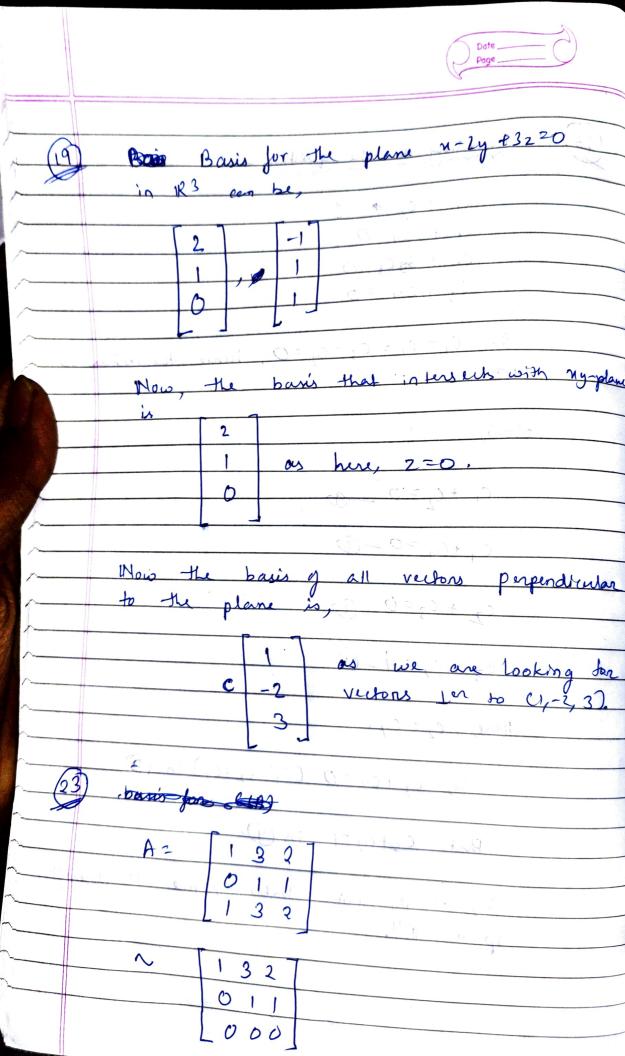
C3 + C4 = 1-G2

Here, C2 = Cy,

So, (3+Cy=0 (: (2=Cy) in 3)

But Cz+Cy=1 in (9).

so, it is not solvable, hence it doesn't span RY.



| ~ | (M) 0 -1 |
|---|----------|
| | 0(1) |
| | 000 |

$$C(A^{T}) = \begin{bmatrix} 1 & 0 \\ 3 & 1 \end{bmatrix}$$

$$N(A) = \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} -1 \\ 0 \\ 1 \end{bmatrix}$$

for d=2 and all values of c medrix

