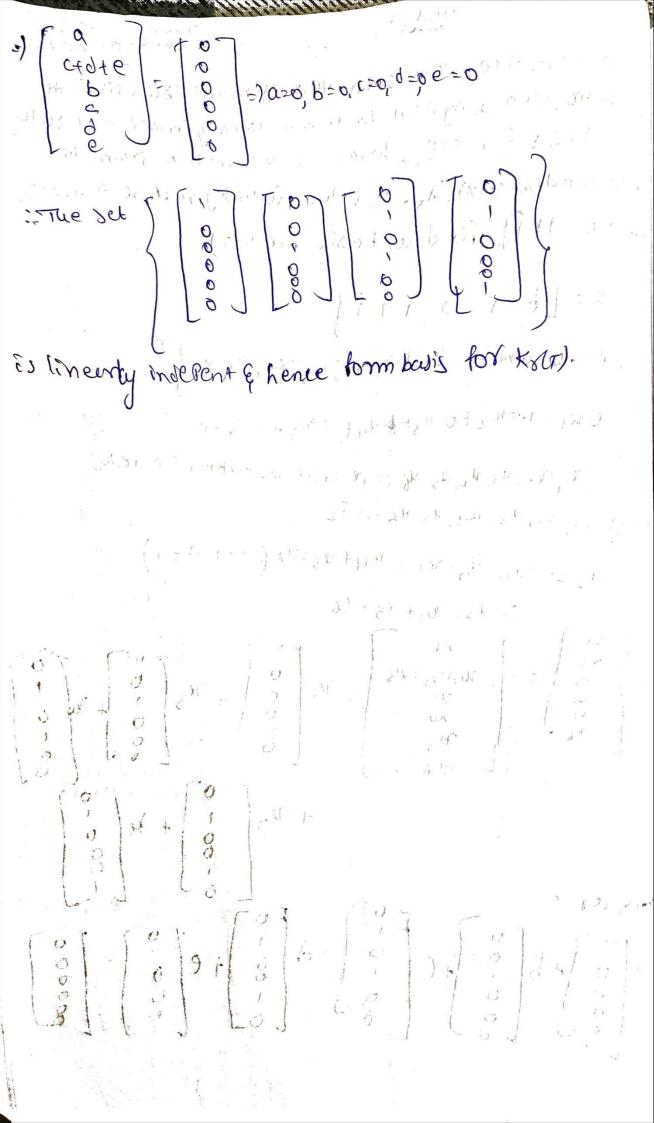
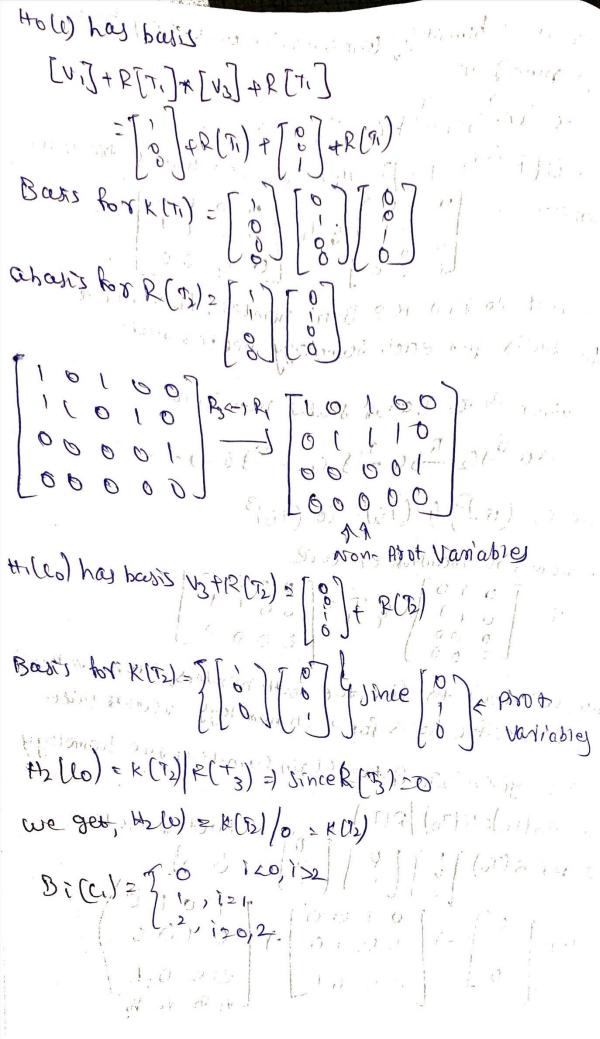
- 1873 A



1) Prove that the bount rollmans in A Mountre represent tation T(N) = Ax) are linearly independent, so they are a basis for RG) for the following matrix A Over Fz, 0 1 1 0 0 tind a basis for \$(4). L0000 A= [00000] [ TO Check the Pirot columns are independent Lord not, First we have to find pinot columns for A. The matrix A is in echelon form then the pirot column is a column of A teat contains a pirot position Hence pirot whom is = } [ i ] [ i ] [ i ] Hence bousd of range REDIS REI) = \[ \left[ \frac{1}{8} \right] \left[ \fra The court of the second control of the 1000 10 1000 midness from 11 20 (0 10 1) 200 1.

8) a) Juppose wis the regreene inside V= 183 compose a basis for the guot itent space viw b) Let V= JPan de +2e23 in v form part las. com Pute a hay Postre autient steer who 9 airen wis tue rey-Plane inside V=R3 Enough to, 1,0) is a basil forward Cheersly, we Know that {(1,0,0), (0,1,0), (0,0,1)} is a bast for R3 the restor (0,0,1) is independent of the first for =) 3(0,0,1)+w} is a basis for R3 S) Caven U= Spain de+2029 To find abasis for whis =- U= Spande, +2e2 g = span {[1,3,0]} A180 W = SPan Z(1,0,0), (0,1,0)} Henre basis for www is given by & SPam & (1,0,0), (0,1,0) & + 0 & . Here (1,2,0) is a linearly combination (1,0,0) (0,1,0).

by perform a homology comportation with only tures vertor ¿ pures non-jero: where by (F2)3 4 = (1F2/3. The non- 3ero linear transfor--mation core = [0 | 0] & TI = [0 | 0 | 0]gov want to find the Betti numbers, then find a speific basis for each homology vector spaceso!:- liven turce vector stales non-zero. where Cz = (152)3 4=(152)4 Co=(152)3 rue non-zero transformer are Now, we want to find the Betti numbers, then we should find a Specific basis for each homology vertor space. Por the given Tz.T. & the Chain complex, the homology of co = Holeo)=K(To) |R(T)) Pirot variables Bass bar K (129) £ 9 [ 6] [ 6] ? 



5) Show that the Chain complex --->0 -> 1R2[1:1] 1R3[1-1] 1R1->0 ->--is a cy clic. 50: There is a useful charaterization in Brown, This will neil. set (n= 3/8 for n > 0 & Cn=0 for n20; for n 26 let on send x (mod8) to unc(mod8). , we have to I how that c is a Chain complex 2-8 modules & compute 143 homology modules. Athere is category Cn(mod-R) of alhain complex of (right) R-moduled, the object are chain complexed. Amorphism v= c-30 is a Chain complex map. + bat is family of R-module homorphism. union-In commuting with in the sense that Un-10n = dn-1 ch that is such that following diagram --- But tout toud ---... 2 R2 [i] R3 [ini] R1 ----ès a lyllic