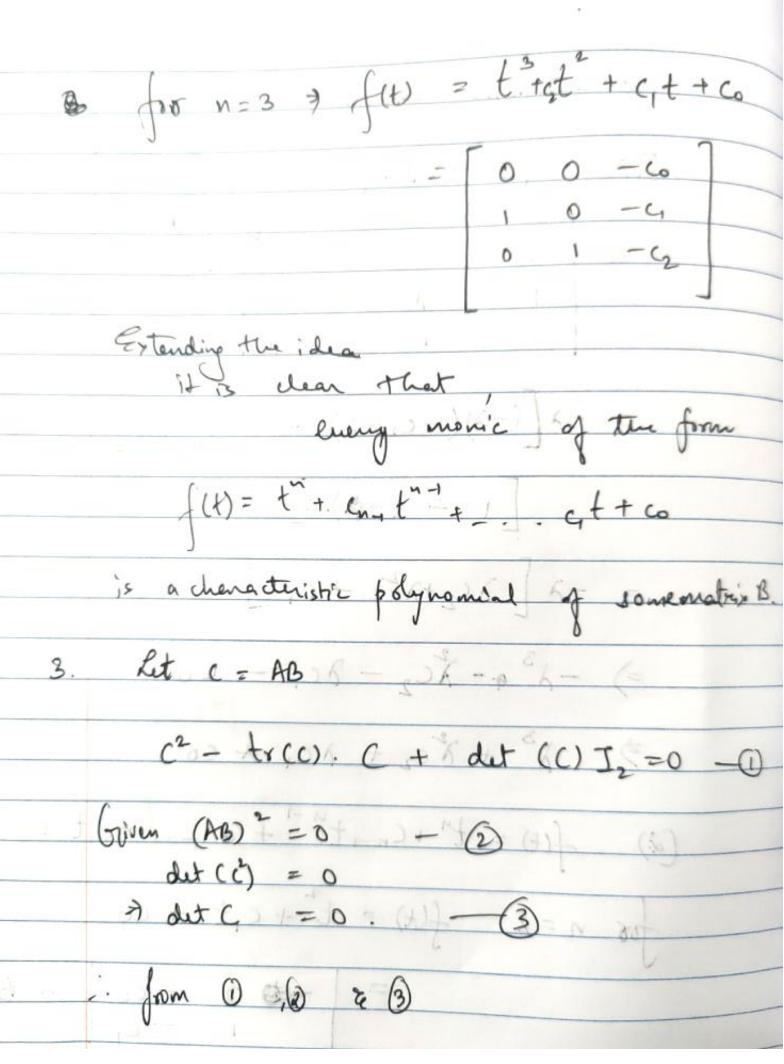


Characteristic eq " of BA 7. (x-x,)". (x-x2)"2. (x-xp)"0 from (3) & (4)  $k + n, + n_2 + \dots n_p = m - 0$   $x + n, + n_2 + \dots n_p = n - 0$ (D-6) (N-k) = n-m  $\frac{1}{2}$   $\frac{1}$ 2. (1.) Cheracteristic folynomial of B is  $|R(\lambda)| = |G - \lambda I|$   $|C - C_1 - \lambda I|$   $|C - C_1 - \lambda I|$   $|C - C_1 - \lambda I|$ = 1 = x(-q-x) - (-w).1  $= \lambda c_1 + \lambda^2 + c_0$   $= \lambda^2 + \lambda c_1 + c_0$ 

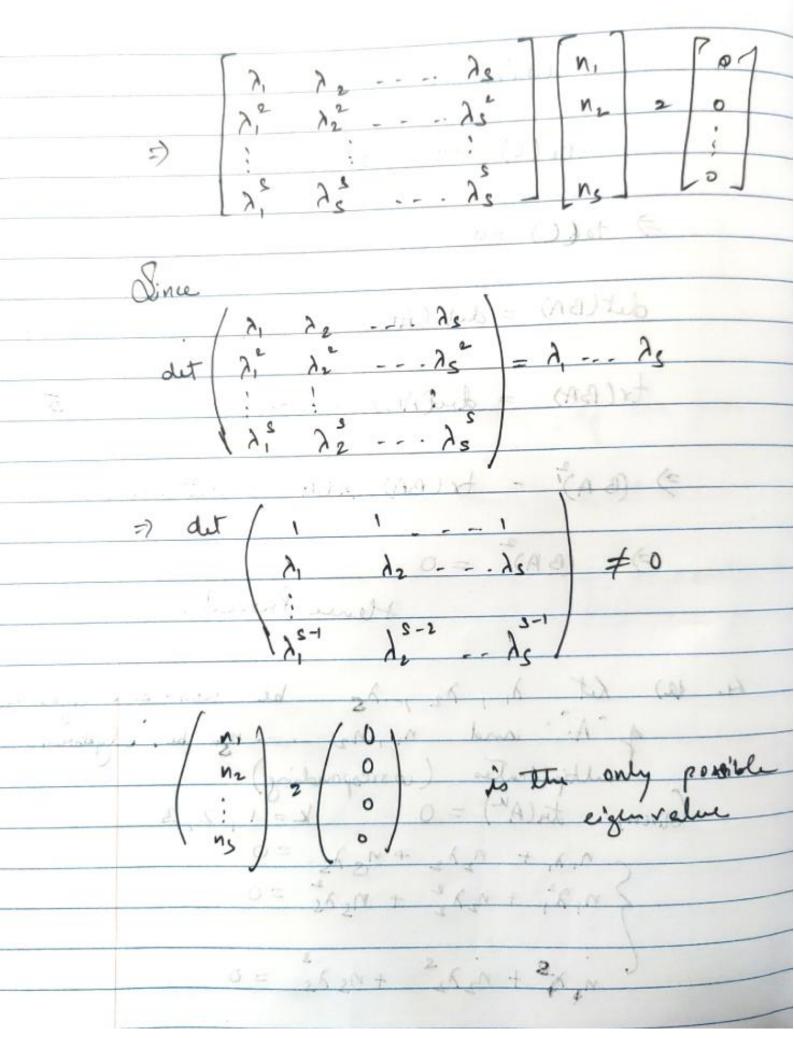
Characteristic equation of C is P(x)= (- >I) [00 -co = ->[(-2)(-c2-2) - 1. (-4)] + (-6)  $\left[ (-), 0 \right]$ = -2 [ 1c2+22 + c, ] - co =) -13 q-2c2-2c14- Cold => 13 + 2° c2 + 1 C1 + C0. (2) f(t) = tn + cn-, tn-1 + ... + c, t + co for n = 2 f(t) = t2 + c, t + co 2 -6 0 - co = B<sub>2</sub>



tr(0. c = 0. · tr(c) =0 or c=0 => to(() =0. det (BA) = det (AB) = det (C) = 0 - 4 tr(BA) = du(AB) = tn(C) = 0 - 5 =) (BA) - tr(BA) xBA + det(BA) I = 0 =) (BA) = 0. Henre Proved. (a) Let  $\lambda_1$ ,  $\lambda_2$ ,  $\lambda_3$  be non-zero eigenvalues

of A. and  $\lambda_1$ ,  $\lambda_2$  - . My be algebraic

multiplicates (corresponding) Given,  $tn(A^{K}) = 0$  K = 1, 2, 3  $\begin{cases} n_1 \lambda_1 + n_2 \lambda_2 + n_3 \lambda_5 = 0 \\ n_1 \lambda_1^2 + n_2 \lambda_2^2 + n_3 \lambda_5 = 0 \end{cases}$  $\frac{1}{n_1 \lambda^2 + n_2 \lambda_2^2 + n_5 \lambda_5^2} = 0$ 



(b) Let 
$$f(t) = t^{-1}$$
 Ce  $f(\lambda) = 0$ 

$$= \frac{1}{2} + \frac{1}{2} = 0$$

All eyen values are  $\lambda_1 = 0$ 

A annhailates  $f(t)$ 

$$= \frac{1}{2} + \frac{1}{2} = 0$$

$$= \frac{1}{2$$

$$= \frac{3}{3} + \frac{14}{3} + \frac{2}{49} + \frac{36}{36} = 0$$

$$= \frac{3}{3} - \frac{14}{4} + \frac{49}{3} - \frac{36}{36} = 0$$

$$= \frac{3}{3} - \frac{14}{4} + \frac{49}{3} + \frac{36}{36} = 0$$

$$= \frac{3}{3} - \frac{14}{4} + \frac{49}{3} + \frac{36}{36} = 0$$

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$$= \frac{3}{3} - \frac{14}{4} + \frac{49}{3} + \frac{43}{36} + \frac{43}{36} = 0$$

$$= \frac{3}{3} - \frac{14}{4} + \frac{43}{3} + \frac{43}{36} + \frac{43}{36} = 0$$

$$= \frac{3}{3} - \frac{14}{4} + \frac{43}{3} = 0$$

$$= \frac{3}{3} - \frac{14}{4} + \frac{43}{3} + \frac{43}{3$$

(F-XX-P) - PXZ-

3×2 = 3×1 = ×2

M = PNP-1 O There are 8 different M that M2 = A. Herent = N.N = ON .. 0 0 8 + ] = 14 .A