

. TYPES of MATRICES :-

(1) Column Matorix: A matorix is said to be a column matorix if it has only one column.

THINK A = [aij] mx1

- (2) Row Maruix: A matorix is said to be a now marorix if it has A = [01] 1 xm FAT L only one diow.
- MATRIX] (3.) Square Matrix: A matrix in which no of nows = no of columns.
- (4) Diagonal Matrix: Diagonal matrix is a square matrix where all nondiagonal elements are 700. B = [aij] nxn
- (5) Scalar Maturix: A diagonal maturix is said to be a scalar maturix

if its diagonal elements are equal
$$B = [b_{ij}]_{n \times n} = \begin{cases} b_{ij} = k & \text{if } i = j \\ b_{ij} = 0 & \text{if } i \neq j \end{cases}$$

Every Scarae Maturix is a diagonal maturix.

Diagonal maturix is a square maturix.

Diagonal maturix is a square maturix are zero.

B = $\begin{bmatrix} b_{ij} \\ \end{bmatrix} m \times m$ bij = 0; if i + j

tits diagonal maturix is said to be a scalar maturix diagonal elements are equal.

B = $\begin{bmatrix} b_{ij} \\ \end{bmatrix} m \times m$ bij = 0; if i + j

bij = 0; if i + j

what Maturix is a diagonal maturix.

square maturix is said to be identity maturix are 1 and mon-diagonal

in if i = j

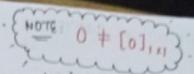
if i = j

if i = j

if i = j (6) Identity Maturix: A square maturix is said to be identity maturix if all the diagonal elements are 1. and non-diagonal elements are O.

- Q. =1 [4] 1x1 Diagonal Maturix, Scalar Maturix
- Q. = [1] 1x1 -> Identity Maturix.
- (7) Zero Matorix: A marorix is said to be zero matorix if all the elements cue reio 0 0 0

@ . [0] - Zeto/Null Marville . { Note: 0 + [0]. - Diagonal Maturix X



(8) Lower Angular Maturix: Maturix in which the elements below the diagonal are non-zero & the elements above the diagonal are zeno, is called lower Angular Maturix.

$$B = bij$$
 where $bij \neq 0$; $i > j$

$$bij = 0$$
; $i < j$

(9) Upper Angular Maturix: Maturix in which the elements above the diagonal are non-zero & the elements below the diagonal are reto, is called Upper Angular Matolin.

EQUALITY of MATRICES :-

100

1111111111111111111

Two matrices A and B are said to be equal ti)if they are of same ouder Li) if they are of same order.

(ii) every element in a is equal to corresponding element of b.

Eg:
$$\begin{bmatrix} 2a+b & a-2b \\ 5c-d & 4c+3d \end{bmatrix} = \begin{bmatrix} 4 & -3 \\ 11 & 24 \end{bmatrix}$$
 Find a,b,c,d .

$$801^{7}$$
: $2a+b=4$ $5c-d=11$ $4c+3d=24$

. OPERATIONS on MATRICES :-

- > Two maturices can only be added if they are of the same order. 1 Addition of Maturices:
 - A = [aij]mxn A+B=Cmxn B = [bij]mxn

Cij = aij + bij

NOTE: Complexity of Matrix Addition 7 0 (m2) & Matulx Subtraction

: 83 here we have to perform (3×3) time Arithmetic oper (Add").

@ Multiplication of a Maturix by Scalar :we define it as follows :if Amxn = [aij]mxn

and k is a scalar, then → K. Amxm. Kaij + i,j k[a;j] + i,j or [ka;j]