@ Permutation :-

Que. Define permutation with suitable example.

Permutation is an arrangement of z' object from n' object. It is denoted be "Pz & it is given by-

$$- \frac{1}{n^{b}} = \frac{(n-r)!}{n!}$$

Ex. How many variable names a letters can be form from the letter A, B, C, D, E, F, G, H, I if no letter is repeated.

> There are a, b, c, d, e, f, g, h, i nine letters

Eight letters word is to be formed

:. No of words faimed = nps

$$=\frac{(n-x)!}{(n-x)!}$$

Ex. These are 10 person called for an interview each one is to be selected for the job. How many prase there to selected 4 from 10.

There are to person called for an interview

four person is to be selected

:. No. of ways to be selected = mpa

$$= \frac{n!}{(n-3)!} = \frac{10!}{(10-4)!}$$

Ex. How many word of 3 distinct letter can be form from the letter of the word most MAST

There we four letters in the wood MAST

3 letters word is to be formed.

: No. of word form = npx

$$=\frac{m!}{(n-3)!}$$

$$=\frac{4!}{(4-3)!}$$

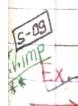
: No of word form = 24

1,105 2,00

How many distinguishable of the letters in the word BANANA use there.

There are 6 letters in the word BANANA.

No. of N's = 23=2



How many distinguishable of word in the 'PASCAL'
There are 6 letters in the word PASCAL

:. No. of distinguishable word =
$$\frac{n!}{(n-1)!}$$
= $\frac{6!}{1!2!!!!!!}$
= $\frac{720}{2}$

:. No. of distinguishable word = $\frac{360}{2}$

Ex. How many distinguishable permutation of the letter

- @ MISSISSIPI
- @ REQUIREMENT
- BODLEAN

MISSISSIPI -

There are to letters in the word MISSISSIPI.

". No. of M'S=31=1

No. of I's = 3=4

No. of s's= 3=4

No. of P'S = 34=1

@ REQUIREMENT -

There use II letters in the word REQUIRMENT.

$$M=11$$

.. No of distinguishable wood = 3326400

BOOLEAN-

There are 7 letters in the word BOOLEAN.

$$\eta = 7$$

Que. Define following terms.

@ Product Set :

product set is denoted be - A.B & is define as -

@ Relation :

Risa subset of AXB i.e. REAXB we say thata is related to b by R & we write it as a R b

3 Matsix Relation:

from A to B then motrix relation is denoted be-Ma & is define as-

$$M_R = \begin{cases} 1 & \text{if } (aibi) \in R \\ 0 & \text{if } (aibi) \notin R \end{cases}$$