Ch-	Probability	distribution.
	, soability	custribution.

Random variable:set of Real values which are associate with sample space is called random variable.

\* Types of Ranclom variable: O Discrete random variable:

Random variable & which take finitely countable values is called discrete random variables.

e.g. - 1 No. of children in a family.

2 Continuous vandom variable: Random variable & which can take all real values within a given internal is called continuous vandom variable.

e.g:- 1) life of an electric bulb in howers.

Probability mass function: If the random variable X takes the value 21, 22, 23............... then P[x=xi] is called probability mass function.

such that,

i) 0 < Pi < 1

iii)  $\sum_{i=1}^{n} p_i = 1$ 

Probability distribution function: 
Set of ordered pairs (z;, pi) i=1,2,3...h

is called distribution of discrete random revisable.

Can be given as

2 = 2;	21	x2	- 2n	1
P(x=xi)	P.	P2	Ph	1

Cummilative distribution function:

1+ is denoted by F(x) and defined as

A Consider the following probability distribution

$\chi = \alpha i$	2.	22	203	Further Law to Ke	xn
P(x=xi)					Pn

(1) Expected value (EG)]:-

$$F(x) = \sum_{i=1}^{n} x_i \times p_i$$

2 Variance V(x)

$$V(x) = E(x^2) - [E x_2]^2$$
where

3) Stondard deviation:

T = 1 V(x)

\$ 000

A

Continuous random vasciable:

Probability density function:

A real value function F(x) is called p.d.f of continuous random variable if it satisfies the following conditions:

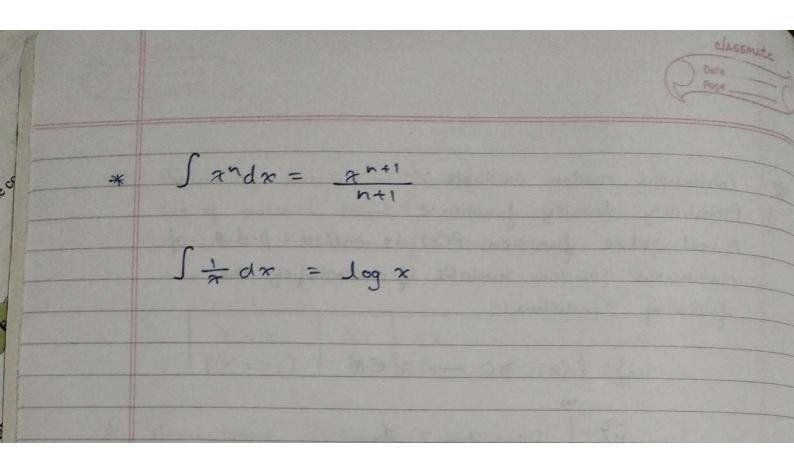
if 
$$f(x) \ge 0 - x \in R$$

if  $f(x) dx = 1$ 

Commilative distinguish function: It is denoted by F(+) and defined as:-

where,  $\infty$   $E(x^2) = \int xi^2 \cdot f(x) dx$ 

3) standard deviation



## Ch - Binomial Theorem

If X is a discreate random variable belongs to Binomial distribution are in parameter n and p then p. mf of X is given by,

where,

P:- probability of success

9:- probability of failure

x:- 1,2,3,...,

p+9=1

\* "Co = "Cn = 1 , "Cn = n

\* "C1 = n

E(x) = n p

v(x) = npg

o = Inpa