

### Ex 13.4

Dt. \_\_\_\_\_ B+  
Pg. \_\_\_\_\_

Random Variable :- It is a real value function whose Domain is the sample space. (x)

S.S  $\{H, H, TT, TH, HT\}$

$X$  = Number of head on toss

$$X(0) = \frac{1}{4} \quad X(1) = \frac{2}{4} \quad X(2) = \frac{1}{4}$$

Probability Distribution table

|        |               |               |               |
|--------|---------------|---------------|---------------|
| $X$    | 0             | 1             | 2             |
| $P(x)$ | $\frac{1}{4}$ | $\frac{2}{4}$ | $\frac{1}{4}$ |

\*  $P(x) \neq -ve$

\*  $0 \leq P(x) \leq 1$

\*  $\sum P(x) = 1$

⇒ Mean of Random Variable

$$X = R.V$$

$$E(x) = \mu = \text{mean of R.V}$$

↓  
Expectation

$$E(x) = \mu = \sum_{i=1}^n x_i p_i = x_1 p_1 + x_2 p_2 + x_3 p_3 + \dots + x_n p_n$$

⇒

|        |               |               |               |
|--------|---------------|---------------|---------------|
| $x$    | 0             | 1             | 2             |
| $P(x)$ | $\frac{1}{4}$ | $\frac{2}{4}$ | $\frac{1}{4}$ |

$$\mu = 0 \times \frac{1}{4} + 1 \times \frac{2}{4} + 2 \times \frac{1}{4} = 0 + \frac{1}{2} + \frac{1}{2} = 1$$

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