

## Probability Lecture 1?

\* The main formulas covered in previous topics are

- Mutually exclusive

$$A_i \cap A_j = \emptyset, \text{ for any } i, j \text{ in sample space.}$$

- Event (E), Sample space (S)

$$P(E) = \frac{n(E)}{n(S)}, \text{ Basically count the trials.}$$

⇒ Main Basic formulas.

### \* Random Experiment:

An Experiment whose outcome cannot be predicted with certainty (or) whose outcome is uncertain before the begin of Experiment.

### \* Sample Space of RE:

Consider the tossing of ~~say~~ coin, there are only 2 possibilities head and a tail.

$$\text{So, } \Omega = \text{Sample space} = \{T, H\}.$$

⇒ We need a Sample space of RE, because for a better understanding of Events happening. Also, In the later part, it is helpful in the determination of Probability of an Event.

## Infinite Sample Space:

- The Sample Space is said to be infinite if the possible outcomes of that RE are infinite.

## Finite Sample Space:

- The Sample Space is said to be finite if the possible outcomes of that RE are finite.

\* Most often, we encounter finite sample spaces.

Sample points: The various number of outcomes of the sample space which are possible are called sample points.

- For finite they are finite and for infinite they are infinite.

\* Tossing of coin is an example of finite. We have only two sample points.

\* Number of typographical errors (typos) in a book can be 0, 1, 2 or many large so, it can be considered as an example for infinite.