



CHAPTER – 15
PROBABILITY

S.no	Term	Description
1	Empirical probability	<p>It is a probability of event which is calculated based on experiments</p> <p>Empirical Probability $= \frac{\text{No of trails which expected outcome came}}{\text{Total Number of trials}}$</p> <p>Example:</p> <p>A coin is tossed 1000 times; we get 499 times head and 501 times tail,</p> <p>So empirical or experimental probability of getting head is calculated as</p> $p = \frac{499}{1000} = .499$ <p>Empirical probability depends on experiment and different will get different values based on the experiment</p>
2	Important point about events	<p>If the event A, B, C covers the entire possible outcome in the experiment. Then,</p> $\mathbf{P(A) + P(B) + P(C) = 1}$
3	impossible event	<p>The probability of an event (U) which is impossible to occur is 0. Such an event is called an impossible event</p> $\mathbf{P(U)=0}$
4	Sure or certain event	<p>The probability of an event (X) which is sure (or certain) to occur is 1. Such an event is called a sure event or a certain event</p> $\mathbf{P(X) = 1}$
5	Probability of any event	<p>Probability of any event can be as</p> $0 \leq P(E) \leq 1$

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1	Theoretical Probability	<p>The theoretical probability or the classical probability of the event is defined as</p> $P(E) = \frac{\text{Number of outcome favourable to } E}{\text{Number of all possible outcome of the experiment}}$
2	Elementary events	<p>An event having only one outcome of the experiment is called an elementary event.</p> <p>"The sum of the probabilities of all the elementary events of an experiment is 1."</p> <p>I.e. If we three elementary event A,B,C in the experiment ,then</p> $P(A)+P(B) +P(C)=1$
3	Complementary events	<p>The event \bar{A}, representing 'not A', is called the complement of the event A. We also say that \bar{A} and A are complementary events. Also</p> $P(A) +P(\bar{A})=1$
4	Sure or certain event	<p>The probability of an event (X) which is sure (or certain) to occur is 1. Such an event is called a sure event or a certain event</p> $P(X) = 1$
5	Probability of any event	<p>Probability of any event can be as</p> $0 \leq P(E) \leq 1$