1. Define the Bayesian interpretation of probability.

Ans:- Bayesian probability is an interpretation of the concept of probability, in which, instead of frequency or propensity of some phenomenon, probability is interpreted as reasonable expectation representing a state of knowledge or as quantification of a personal belief.

1. Define probability of a union of two events with equation.

Ans:- **P(A or B)** **= P(A) + P(B)**. The chance of any (one or more) of two or more events occurring is called the union of the events. The probability of the union of disjoint events is the sum of their individual probabilities.

1. What is joint probability? What is its formula?

Ans:- Joint probability is a statistical measure that calculates the likelihood of two events occurring together and at the same point in time. Joint probability is the probability of event Y occurring at the same time that event X occurs.

1. What is chain rule of probability?

Ans:- In probability theory, the chain rule (also called the general product rule) permits the calculation of any member of the joint distribution of a set of random variables using only conditional probabilities.

1. What is conditional probability means? What is the formula of it?

Ans:- Conditional probability is defined as the likelihood of an event or outcome occurring, based on the occurrence of a previous event or outcome. Conditional probability is calculated by multiplying the probability of the preceding event by the updated probability of the succeeding, or conditional, event.

1. What are continuous random variables?

Ans:- A random variable X is continuous if possible values comprise either a single interval on the number line or a union of disjoint intervals. Example: If in the study of the ecology of a lake, X, the r.v. may be depth measurements at randomly chosen locations.

1. What are Bernoulli distributions? What is the formula of it?

Ans:- Bernoulli Distribution is a type of discrete probability distribution where every experiment conducted asks a question that can be answered only in yes or no. In other words, the random variable can be 1 with a probability p or it can be 0 with a probability (1 - p). Such an experiment is called a Bernoulli trial.

1. What is binomial distribution? What is the formula?

Ans:- To recall, the binomial distribution is a type of probability distribution in statistics that has two possible outcomes. In probability theory, the binomial distribution comes with two parameters n and p. The probability distribution becomes a binomial probability distribution when it meets the following requirements.

1. What is Poisson distribution? What is the formula?

Ans:- The Poisson distribution is a probability model which can be used to find the probability of a single event occurring a given number of times in an interval of (usually) time.

1. Define covariance.

Ans :- Covariance is a measure of the relationship between two random variables and to what extent, they change together. Or we can say, in other words, it defines the changes between the two variables, such that change in one variable is equal to change in another variable.

1. Define correlation

Ans:- Correlation is a statistical calculation that indicates that two variables are parallelly related (which means that the variables change together at a constant rate).

1. Define sampling with replacement. Give example.

Ans:- Sampling with replacement is used to find probability with replacement. In other words, you want to find the probability of some event where there's a number of balls, cards or other objects, and you replace the item each time you choose one.

1. What is hypothesis? Give example.

Ans:- Hypothesis is a working statement or a theory that is based on insufficient evidence. As a result, it gives way to further testing and experimentations. The outcome of the experiment could either be true or false. The two groups being compared are the independent variable.