-Types of Statistics-

Through various bases have been adopted to classify statistics, following are the two major ways of classifying statistics -

1. **On the Basis of Functions :-**

As statistics has some particular procedures to deal with its subject matter or data, three types of statistics have been described.

A. **Descriptive Statistics :-**

The branch which deals with descriptions of obtained data is known as descriptive statistics. On the basis of these descriptions a particular group of population is defined for corresponding characteristics. The descriptive statistics include classification, tabulation, measures of central tendency and variability.

These measures enable the researchers to know about the tendency of data or the scores, which further enhance the ease in description of phenomena.

2. **Correlational Statistics :-**

The obtained data are disclosed for their inter correlations in this type of statistics. It includes various types of techniques to compute the correlations

among data. Correlational statistics also provide description about sample or population for their further analyses to explore the significance of their differences.

C. Inferential Statistics :-

Inferential statistics deals with the drawing of conclusions about large group of individuals (population) on the basis of observations of few participants from them or about the events which are yet to occur on the basis of past events It provide tools to compute the probabilities of future behaviour of the subjects.

2. On the Basis of Distribution of Data :-

Parametric and Nonparametric statistics are the two classifications on the basis of distribution of data. Both are also concerned to population or sample. By population we mean the total number of items in a sphere. In general it has infinite number therein but in statistics there is a finite number of a population, like the number of students in a college.

According to Kerlinger (1968) " the term population and universe mean all the members of any well-defined class of people, events or objects. In a broad sense, statistical population may have three kinds of properties- (a) containing finite number of items and knowable

(D) having finite number of articles but unknowable and.

(E) keeping infinite number of articles.

Sample is known as a part from population which represents that particular population's properties. As much as the sample selection will be unbiased and random, it will be more representing its population.

Sample is a part of a population selected (usually according to some procedure and with some purpose in mind) such that it is considered to be representative of the population as a whole."

Parametric Statistics:-

Is defined to have an assumption of normal distribution for its population under study.

Parametric statistics refers to those statistical techniques that have been developed on the assumption that the data are of a certain type. In particular the measure should be an interval scale and the scores should be drawn from a normal distribution.

There are certain basic assumptions of parametric statistics. The very first characteristic of parametric statistics is that it moves after confirming its population's property of normal distribution

The concept of normal distribution is of utmost importance in statistical theory and practice, and no one is expected to interpret a statistic successfully without some understanding of the concept of normal distribution.

A normal curve is one which graphically represents normal distribution. By definition, a normal distribution is one in which the majority of cases are located in the middle of the scale and only small number of cases are located at both extreme of the ~~most~~ scale. Many frequency distributions are close to this absolute form and we assume that they are normally distributed.

Imp) → The major characteristics of normal curve are enlisted below:

1. A normal curve is always symmetrical, that is the right half of the curve is equivalent to the left half of the curve.

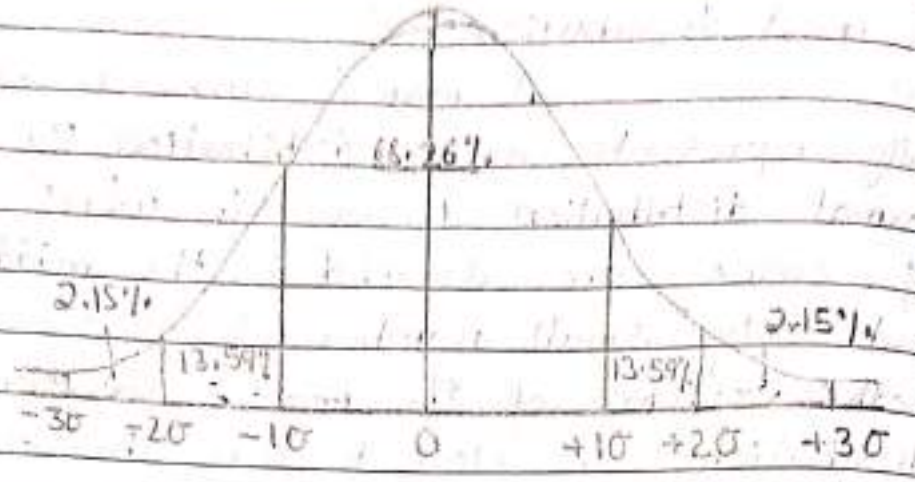
2. A normal curve is unimodal, and the mode is always at the centre of the distribution. In fact in a normal curve the mean, the median and the mode are numerically identical and fall at the centre of the distribution.

3. A normal curve is asymptotic to the x-axis. Hence, a normal curve never touches the baseline, no matter how far the curve is stretched.

4. In a normal curve the highest ordinate is at-

the centre. All ordinates on both sides of the distribution are smaller than the highest ordinate.

5. A normal curve is continuous.



Different percentages of area under the normal curve at various standard deviation units.

Practical applications :—

1. A normal curve helps in transforming the raw scores into standard scores.
2. A normal curve helps in calculating the percentile rank of the given scores.
3. If we want to normalize the obtained distribution, a normal curve is of immense importance.
4. A normal curve helps in testing the significance of the obtained measures against a chance hypothesis and thus enables the researcher to make generalisation about the population from which the sample was drawn.

5. The data obtained on the basis of the responses to attitude scales, rating or rankings may be scaled in terms of the qualitative data by making suitable transformation in the numerical values.

The samples are independent in their selection. The chances of occurrence of any event or item out of the total population are equal and any item can be selected in the sample. This reflects the randomised nature of sample which also happens to be a good tool to avoid any experimenter bias.

In view of the above assumptions parametric statistics seem to be more reliable and authentic as compared to the nonparametric statistics. These statistics are more powerful to establish the statistical significance of effects and differences among variables. It is more appropriate and reliable to use parametric statistics in case of large samples as it consist of more accuracy of results The data to be analysed under parametric statistics usually from interval scale.

However, along with many advantages some disadvantages have also been noted for the parametric statistics. It is bound to follow the rigid assumption of normal distribution and further it narrows the scope of its usage. In case of small sample, normal distribution and further it narrows the scope of its usage. In case cannot be attained and thus parametric statistics cannot be used.

Further, computation in parametric statistics is lengthy and complex because of large samples and numerical calculations. T-test, F-test, χ-test are some of the major parametric statistics used for data analysis.

Nonparametric statistics :— are those statistics which are not based on the assumption of normal distribution of population. Therefore, these are also known as distribution free statistics. They are not bound to be used with interval scale data or normally distributed data. The data with non-continuity are to be tackled with these statistics. In the samples where it is difficult to maintain the assumption of normal distribution, nonparametric statistics are used for analysis. The samples with small number of items are treated with nonparametric statistics because of absence of normal distribution.

It can be used even for nominal data along with the ordinal data. Some of the useual nonparametric statistics include chi-square, Spearman's rank difference method of correlation, Kendall's rank difference method, Mann-Whitney U test etc.