



Chapter 1

DEFINITIONS, SCOPE AND LIMITATIONS

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Introduction:

- In the modern world of computers and information technology, the importance of statistics is very well recognized by all the disciplines.
- Statistics has originated as a science of statehood and found applications slowly and steadily in Agriculture, Economics, Commerce, Biology, Medicine, Industry, planning, education and so on. As on date there is no other human walk of life, where statistics cannot be applied.

1.2 Origin and Growth of Statistics:

- The word ' Statistics' and ' Statistical' are all derived from the Latin word Status, means a **political state** .
- The theory of statistics as a distinct branch of scientific method is of comparatively recent growth

1.3 Meaning of Statistics:

- Statistics is concerned with scientific methods for collecting, organising, summarising, presenting and analysing data as well as deriving valid conclusions and making reasonable decisions on the basis of this analysis.

cont.....

1.3 Meaning of Statistics:

The word ' statistic' is used to refer to

1. Numerical facts, such as the number of people living in particular area.
2. The study of ways of collecting, analysing and interpreting the facts.

1.4 Definitions:

Def 1 :

Statistics are the classified facts representing the conditions of people in a state. In particular they are the facts, which can be stated in numbers or in tables of numbers or in any tabular or classified arrangement.

1.4 Definitions:

Def 2:

Statistics are measurements, enumerations or estimates of natural phenomenon usually systematically arranged, analysed and presented as to exhibit important interrelationships among them.

1.4.2 Definition by Croxton and Cowden:

Statistics may be defined as the science of collection, presentation analysis and interpretation of numerical data from the logical analysis. It is clear that the definition of statistics by Croxton and Cowden is the most scientific and realistic one.

Cont.....

1.4.2 Definition by Croxton and Cowden:

- According to this definition there are four stages:
 - 1. Collection of Data**
 - 2. Presentation of data**
 - 3. Analysis of data**
 - 4. Interpretation of data**

1.5 Functions of Statistics:

There are many functions of statistics. Let us consider the following five important functions :

1- Condensation:

Condensation is mainly applied at embracing the understanding of a huge mass of data by providing only few observations.

Cont....

1.5 Functions of Statistics:

2 - Comparison:

Classification and tabulation are the two methods that are used to condense the data. They help us to compare data collected from different sources.

Cont....

1.5 Functions of Statistics:

3 - Forecasting:

By the word forecasting, we mean to predict or to estimate before hand.

Cont....

1.5 Functions of Statistics:

4- Estimation:

One of the main objectives of statistics is drawn inference about a population from the analysis for the sample drawn from that population.

Cont ...

1.5 Functions of Statistics:

5 - Tests of Hypothesis:

A statistical hypothesis is some statement about the

probability distribution, characterising a population on the basis of the information available from the sample observations.

Cont....

1.6 Scope of Statistics:

- 1. Statistics and Industry .**
- 2. Statistics and Commerce.**
- 3. Statistics and Agriculture.**
- 4. Statistics and Economics.**
- 5. Statistics and Education.**
- 6. Statistics and Planning.**
- 7. Statistics and Medicine.**
- 8. Statistics and Modern applications(cont....)**

Homework ... Project

Statistics and Medicine

Collect statistical information's from
Magazines, News papers, Television,
Internet etc.

1.6 Scope of Statistics:

8. Statistics and Modern applications(cont....)

Recent developments in the fields of computer technology and information technology have enabled statistics to integrate their models and thus make statistics a part of decision making procedures of many organisations.

Example : **SYSTAT** **What is?**

SYSTAT

a software package offers mere scientific and technical graphing options than any other desktop statistics package .

1.7 Limitations of statistics

- 1- Statistics is not suitable to the study of qualitative phenomenon .**
- 2 - Statistics does not study individuals**
- 3. Statistical laws are not exact.**
- 4. Statistics table may be misused.**
- 5. Statistics is only, one of the methods of studying a problem**

Exercise – 1

- **Choose the best answer:**

1. The origin of statistics can be traced to

(a) State

(b) Commerce

(c) Economics

(d) Industry.

Exercise – 1

II. Fill in the blanks:

3. In the olden days statistics was confined to only _____.
4. Classification and _____ are the two methods that are used to condense the data.
5. The analysis of time series and regression analysis plays an important role in _____.
6. _____ is one of the statistical tool plays prominent role in agricultural experiments.