1 Basic Concepts

INTRODUCTION

This chapter introduces the concept of data, its collection, and manipulation strictly according to the questions asked. Then we proceed to the organization of data and look into the purpose of this exercise. Later in the chapter we list some standard ways of representing data which eases their handling and interpretation, each format having its own advantages. These fundamentals will equip you to solve the Data Interpretation section in CAT.

Data

Facts or information in the form of figure, statistics statements etc. relating to any or event or events, especially as basis for inference, are termed as Data. Data can be in the form of figures or statements. Data in the quantitative or numerical forms are also referred to as statistical data.

We come across data in every sphere of life. Thus, for example, one has to deal with bills, receipts, vouchers, etc. in everyday life, data about population and various government schemes in functioning of a state; data generated during scientific observations, experiments and research; demand and supply, money, banking, public finance, import-export and material income in economics; and various figures in production, sales, personnel, quality control etc. in business.

Collection

The data may be available from existing published or unpublished sources-termed secondary data or may be collected by the investigator himself-termed primary data.

Data Organization

Data collected is little use unless it is organized. After collection and editing of data, the first step toward further processing the same is classification. Raw data as such, may not be easily comprehensible. Classification, i.e., grouping of related facts into classes, serves following objectives.

- To condense the mass of data in such a manner that similarities and dissimilarities can be readily apprehended. Millions of figures can thus be arranged in few classes having common features.
- To facilitate comparison
- To pinpoint the most significant features of the data at a glance.
- To give prominence to the important information gathered while dropping out the unnecessary elements.
- To enable statistical treatment and interpretation of the material collected.

Broadly, the data can be classified according to the following four criteria:

Geographical:
i.e., on the basis of geographical or vocational differences between various items, like states, cities, regions, zones, areas, etc.

Chronological:
When data are observed over a period of time, it can be classified on the basis of period in which the events took place.

Qualitative:

i.e., according to some attributes such as sex, colour of hair, religion, etc.

Quantitative:

i.e., on the basis of some characteristics that can be measured such as height, weight, income, sales, profits, etc.

Presentation of Data

Although classified data is a step towards simplification of data. It is not able to explain the data fully, neither does it analyses the data. Data have to be presented in a suitable form before they can be studied and the salient features and significance understood.

The following common forms of presentation are used:

1. Tabular forms
2. Line Graphs
3. Bar Charts (or Diagrams)
4. Pie Charts (or Diagrams)
5. Caselet or textual forms
6. Mix Diagrams
7. Other, including geometrical diagrams, like Circles, Polygons and Triangles; Pictogram, Line networks; and Venn diagrams.

Data Interpretation

In the process of classification and tabulation, the size of the data is considerable reduced and a large number of figures are condensed. Data are then analyzed in order to draw inferences from them about the event or events. Data can be analyzed using arithmetical and statistical tools such as ratios, percentages, rates, averages dispersion and so on.

After data has been tabularly or graphically or diagrammatically presented and analyzed, interpretation is done, i.e., we try to get meaningful information from the data in the vanced statistics, interpretation is a task requiring a high degree of skill and experience. However, in the context of CAT and other management entrance exams, a clear understanding of fundamentals in arithmetic, a little idea of certain statistical principal and rules along with a little common sense are enough. One has to look for trend; relationships, if any between the variables; rate of change of variables and like characteristics in the data.