Chapter – 05 Data Handling

- **Data Handling:** Deals with the process of collecting data, presenting it and getting result.
- Data mostly available to us in an unorganised form is called raw data.
- Grouped data can be presented using histogram. Histogram is a type of bar diagram, where the class intervals are shown on the horizontal axis and the heights of the bars show the frequency of the class interval. Also, there is no gap between the bars as there is no gap between the class intervals.
- In order to draw meaningful inferences from any data, we need to organise the data systematically.
- Frequency gives the number of times that a particular entry occurs.
- Raw data can be 'grouped' and presented systematically through 'grouped frequency distribution'.
- **Statistics**: The science which deals with the collection, presentation, analysis and interpretation of numerical data.
- **Observation**: Each entry (number) in raw data.
- **Range**: The difference between the lowest and the highest observation in a given data.
- **Array**: Arranging raw data in ascending or descending order of magnitude.
- Data can also presented using circle graph or pie chart. A circle graph shows the relationship between a whole and its part.
- There are certain experiments whose outcomes have an equal chance of occurring.
- A random experiment is one whose outcome cannot be predicted exactly in advance.
- Outcomes of an experiment are equally likely if each has the same chance of occurring.
- **Frequency**: The number of times a particular observation occurs in the given data.
- **Class Interval:** A group in which the raw data is condensed.
  (i) **Continuous**: The upper limit of a class interval coincides with the lower limit of the next class.

(ii) **Discontinuous**: The upper limit of a class interval does not coincide with the lower limit of the next class.

- **Class Limits:** Each class in a bounded by two figures which are called class limits.
  (i) **Upper Class Limit**: The upper value of a class interval.
  (ii) **Lower Class Limit**: The lower value of a class interval.
- **Class Size or width:** The differencebetwen the upper class limit and lower class limit of a class.
- **Class Mark:** The mid-value of a class-interval. Class mark= $\frac{\text{Upper limit} + \text{Lower limit}}{2}$
- **Graphic representation of data:**
  (i) **Pictograph:** Pictorial representation of data using symbols.
  (ii) **Bar Graph:** A display of information using bars of uniform width, their heights proportional to the respective values.
  (iii) **Double Bar Graph:** A bar graph showing two sets of data simultaneously. It is useful for the comparison of the data.
  (iv) **Histogram:** a graphical representation of frequency distribution in the form of rectangles with class intervals as bases and heights proportional to corresponding frequencies such that there is no gap between any successive rectangles.
  (v) **Circle Graph or Pie Chart:** A pictorial representation of the numerical data in the fomr of sectors of a circle such that area of each sector is proportional to the magnitude of the data represented by the sector.
- **Probability:** The chance of occurring of a certain event when measured quantitatively.
- Probability of an event = $\frac{\text{Number of outcomes that makes an event}}{\text{Total number of outcomes of the experiment}}$ when the outcomes are equally likely.
  (i) **Experiment:** An operation which can produce some well-defined outcomes.
  (ii) **Trial:** The performance of an experiment.
  (iii) **Random Experiment:** An experiment in which all possible outcomes are known and the exact outcome cannot be predicted in advance.
  (iv) **Equally Likely Outcomes:** Certain experiments whose outcomes have an equal chance of occurring.
  (v) **Event:** Each outcome of an experiment or a collection of outcomes is called an event.
- Chances and probability are related to real life.