Estimation and Confidence Intervals

Part I

Estimation and Confidence Interval

- **Reasons for Sampling**

1. To contact the entire population is too time consuming.
2. The cost of studying all the items in the population is often too expensive.
3. The sample results are usually adequate.
4. Certain tests are destructive.
5. Checking all the items is physically impossible.

Point and Interval Estimates

- A point estimate is a single value (point) derived from a sample and used to estimate a population value.
- An estimate of a population parameter given by a single number is called a point estimate of the parameter.

Point and Interval Estimates

- Interval estimate: An estimate of a population parameter given by two numbers between which the parameter may be considered to lie is called a interval estimate of the parameter.
- Interval estimate indicates the precision or accuracy of an estimate and are therefore preferred over point estimate.

Point and Interval Estimates

- **Example:** If we say that the cost of production of a product is 50 Rs per unit; it is point estimate. If we say that the cost is 50 ± 0.25 Rs is an interval estimate.
- A confidence interval estimate is a range of values constructed from sample data so that the population parameter is likely to occur within that range at a specified probability. The specified probability is called the level of confidence.

Point and Interval Estimates

To be continued ----------

THANK YOU