



UNIT-III: Estimation

1. Statistical inference is the process of:

- a) Collecting data only
- b) drawing conclusions about a population from a sample
- c) Organizing data into tables
- d) Calculating percentages only

Answer: b) Drawing conclusions about a population from a sample

2. Estimation is used to:

- a) Find the exact population value
- b) Estimate unknown population parameters using sample data
- c) Eliminate sampling errors
- d) Increase sample size

Answer: b) Estimate unknown population parameters using sample data

3. A single value used to estimate a population parameter is called:

- a) Interval estimate
- b) Point estimate
- c) Population value
- d) Standard deviation

Answer: b) Point estimate

4. An interval estimate provides:

- a) A single value
- b) A range of likely values for a population parameter
- c) The sample size only
- d) The probability of success only

Answer: b) A range of likely values for a population parameter

5. Which of the following is commonly used as a point estimate of the population mean?

- a) Sample mean
- b) Sample variance
- c) Population variance
- d) Median only

Answer: a) Sample mean

6. Standard error measures:

- a) The spread of the population
- b) The variability of a sampling distribution

- c) The range of data
- d) The maximum observation

Answer: b) The variability of a sampling distribution

7. As the sample size increases, the standard error:

- a) Increases b) Decreases c) Remains constant d) Becomes zero immediately

Answer: b) Decreases

8. Two-sample estimation is used to estimate:

- a) One population mean only b) The difference between two populations means
- c) The sample size d) The population variance only

Answer: b) The difference between two population means

9. A proportion represents:

- a) The average value b) The fraction of observations with a particular characteristic
- c) The variance of a sample d) The standard deviation only

Answer: b) The fraction of observations with a particular characteristic

10. The sample proportion is generally denoted by:

- a) μ b) σ c) $\hat{p}$ (p-hat) d) λ



Answer: c) $\hat{p}$ (p-hat)

11. Estimating the difference between two proportions involves comparing:

- a) Two means b) Two variances c) Two population proportions d) Two sample sizes only

Answer: c) Two population proportions

12. The ratio of two variances is commonly estimated using:

- a) Z-distribution b) t-distribution c) F-distribution d) Poisson distribution

Answer: c) F-distribution

13. A larger sample size generally produces:

- a) Less accurate estimates b) More accurate estimates
- c) Higher variance always d) No change in estimation

Answer: b) More accurate estimates

14. Which of the following is a population parameter?

- a) Sample mean b) Sample proportion
c) Population mean (μ) d) Sample variance

Answer: c) Population mean (μ)

15. The primary objective of estimation is to:

- a) Replace the population b) Estimate unknown population parameters
c) Increase data values d) Eliminate probability distributions

Answer: b) Estimate unknown population parameters

Fill in the Blanks

1. Statistical _____ is the process of drawing conclusions about a population from sample data.

Answer: Inference

2. The process of estimating population parameters is called _____.

Answer: Estimation

3. A single numerical estimate of a population parameter is called a _____ estimate.

Answer: Point

4. An estimate that provides a range of values is called an _____ estimate.

Answer: Interval

5. The sample _____ is used to estimate the population mean.

Answer: Mean

6. The variability of a point estimate is measured by its _____ error.

Answer: Standard

7. As the sample size increases, the standard error generally _____.

Answer: Decreases

8. In two-sample estimation, the objective may be to estimate the difference between two population _____.

Answer: Means

9. A population _____ is estimated using the sample proportion.

Answer: Proportion

10. The sample proportion is denoted by _____.

Answer: $\hat{p}$ (p-hat)

11. Two-sample estimation can also be used to estimate the difference between two population _____.

Answer: Proportions

12. The ratio of two population variances is estimated using the _____ distribution.

Answer: F

13. A _____ is a numerical characteristic of a sample.

Answer: Statistic

14. A _____ is a numerical characteristic of a population.

Answer: Parameter

15. Increasing the sample size generally improves the _____ of an estimate.

Answer: Accuracy

