

STATISTICS WORKSHEET-4

**Q1to Q15 are descriptive types. Answer in brief.**

1. What is central limit theorem and why is it important?
2. What is sampling? How many sampling methods do you know?
3. What is the difference between type1 and typeII error?
4. What do you understand by the term Normal distribution?
5. What is correlation and covariance in statistics?
6. Differentiate between univariate ,Biavariate,and multivariate analysis.
7. What do you understand by sensitivity and how would you calculate it?
8. What is hypothesis testing? What is H0 and H1? What is H0 and H1 for two-tail test?
9. What is quantitative data and qualitative data?
10. How to calculate range and interquartile range?
11. What do you understand by bell curve distribution ?
12. Mention one method to find outliers.
13. What is p-value in hypothesis testing?
14. What is the Binomial Probability Formula?
15. Explain ANOVA and it’s applications.
16. The central limit theorem (CLT) states that the distribution of sample means approximates a normal distribution as the sample size gets larger, regardless of the population's distribution. Sample sizes equal to or greater than 30 are often considered sufficient for the CLT to hold.

This is useful since the researcher never knows which mean in the sampling distribution corresponds to the population mean, but by taking numerous random samples from a population, the sample means will cluster together, allowing the researcher to obtain a very accurate estimate of the population mean.

1. When one conducts research about a group of people, it’s rarely possible to collect data from every person in that group. Instead, you select a sample. The sample is the group of individuals who will actually participate in the research.

To draw valid conclusions from your results, one has to carefully decide how to select a sample that is representative of the group as a whole. There are two types of sampling methods:

Probability sampling involves random selection, allowing you to make strong statistical inferences about the whole group.

Non-probability sampling involves non-random selection based on convenience or other criteria, allowing you to easily collect data.

1. A type I error (false-positive) occurs if an investigator rejects a null hypothesis that is actually true in the population; a type II error (false-negative) occurs if the investigator fails to reject a null hypothesis that is actually false in the population
2. A normal distribution is **an arrangement of a data set in which most values cluster in the middle of the range and the rest taper off symmetrically toward either extreme**.

WORKSHEET

