STATISTICS WORKSHEET-3

1. Which of the following is the correct formula for total variation?
Ans. b) Total Variation = Residual Variation + Regression Variation

2. Collection of exchangeable binary outcomes for the same covariate data are called outcomes
Ans. c) binomial

3. How many outcomes are possible with Bernoulli trial?
Ans. a) 2

4. If Ho is true and we reject it is called
Ans. a) Type-I error

5. Level of significance is also called:
Ans. b) Size of the test

6. The chance of rejecting a true hypothesis decreases when sample size is:
Ans. b) Increase

7. Which of the following testing is concerned with making decisions using data?
Ans. b) Hypothesis

8. What is the purpose of multiple testing in statistical inference?
Ans. d) All of the mentioned

9. Normalized data are centred at and have units equal to standard deviations of the original data
Ans. a) 0

10. What Is Bayes' Theorem?
Ans. Bayes' Theorem, named after 18th-century British mathematician Thomas Bayes, is a mathematical formula for determining conditional probability. Conditional probability is the likelihood of an outcome occurring, based on a previous outcome having occurred in similar circumstances. Bayes' theorem provides a way to revise existing predictions or theories (update probabilities) given new or additional evidence.

11. What is z-score?
Ans. A z-score gives us an idea of how far from the mean a data point is. It is an important topic in statistics. Z-scores are a method to compare results to a “normal” population. For example, we know someone’s weight is 70 kg, but if you want to compare it to the “average” person’s weight, looking at a vast table of data can be overwhelming. A z-score gives us an idea of where that person’s weight is compared to the average population’s mean weight. In this article, we will learn what is z score.

12. What is t-test?
Ans. A t-test is a statistical test that is used to compare the means of two groups. It is often used in hypothesis testing to determine whether a process or treatment actually has an effect on the population of interest, or whether two groups are different from one another.

13. What is percentile?

Ans. A percentile (or a centile) is a measure used in statistics indicating the value below which a given percentage of observations in a group of observations fall. For example, the 20th percentile is the value (or score) below which 20% of the observations may be found.

14. What is ANOVA?

Ans. Analysis of Variance (ANOVA) is a statistical formula used to compare variances across the means (or average) of different groups. A range of scenarios use it to determine if there is any difference between the means of different groups.

For example, to study the effectiveness of different diabetes medications, scientists design and experiment to explore the relationship between the type of medicine and the resulting blood sugar level. The sample population is a set of people. We divide the sample population into multiple groups, and each group receives a particular medicine for a trial period. At the end of the trial period, blood sugar levels are measured for each of the individual participants. Then for each group, the mean blood sugar level is calculated. ANOVA helps to compare these group means to find out if they are statistically different or if they are similar