STATISTICS WORKSHEET 3

Answers

Q1. Which of the following is the correct formula for total variation?

a) Total Variation = Residual Variation – Regression Variation

b) Total Variation = Residual Variation + Regression Variation

c) Total Variation = Residual Variation * Regression Variation

d) All of the mentioned

ANS b) Total Variation = Residual Variation + Regression Variation

Q2. Collection of exchangeable binary outcomes for the same covariate data are called outcomes.

a) random

b) direct

c) binomial

d) none of the mentioned

ANS c) binomial

Q3. How many outcomes are possible with Bernoulli trial?

a) 2

b) 3

c) 4

d) None of the mentioned

ANS a) 2

Q4. If Ho is true and we reject it is called

a) Type-I error

b) Type-II error

c) Standard error

d) Sampling error

ANS a) Type-I error

Q5. Level of significance is also called:

a) Power of the test

b) Size of the test

c) Level of confidence

d) Confidence coefficient

ANS d) Confidence coefficient

Q6. The chance of rejecting a true hypothesis decreases when sample size is:

a) Decrease

b) Increase

c) Both of them

d) None

ANS b) Increase

Q7. Which of the following testing is concerned with making decisions using data?

a) Probability

b) Hypothesis

c) Causal

d) None of the mentioned

ANS b) Hypothesis

Q8. What is the purpose of multiple testing in statistical inference?

a) Minimize errors

b) Minimize false positives

c) Minimize false negatives

d) All of the mentioned

ANS d) All of the mentioned

Q9. Normalized data are centred at and have units equal to standard deviations of the original data

a) 0

b) 5

c) 1

d) 10

ANS a) 0

Q10. What Is Bayes' Theorem?

ANS: In statistics and probability theory, the Bayes' theorem (also known as the Bayes' rule) is a mathematical formula used to determine the conditional probability of events. Essentially, the Bayes' theorem describes the probability of an event based on prior knowledge of the conditions that might be relevant to the event.

The theorem is named after English statistician, Thomas Bayes, who discovered the formula in 1763. It is considered the foundation of the special statistical inference approach called the Bayes' inference.

Q11. What is z-score?

ANS: In statistics, a z score can be defined as a measurement that is used to denote the number of standard deviations by which a particular raw score will be above or below the mean of that distribution $z = x-\mu/\sigma$

[μ = population mean, σ = population standard deviation, x = raw score]

Q12. What is t-test?

ANS: A T-test is the final statistical measure for determining differences between two means that may or may not be related. The testing uses randomly selected samples from the two categories or groups. It is a statistical method in which samples are chosen randomly, and there is no perfect normal distribution.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

Q13. What is percentile?

ANS: A percentile is **a comparison score between a particular score and the scores of the rest of a group**. It shows the percentage of scores that a particular score surpassed. For example, if you score 65 points on a test, and are ranked in the 75 th percentile, it means that the score 65 is higher than 75% of the scores.

Q14. What is ANOVA?

ANS: An ANOVA test is a type of statistical test used to determine if there is a statistically significant difference between two or more categorical groups by testing for differences of means using variance. In case of more than two groups there ANOVA test is Required.

Q15. How can ANOVA help?

ANS: Analysis of Variance is an essential approach for examining. The different factors that can influence a given arrangement of information. It can be said as an assortment of statistical models that are actually used to examine the differences. Among all the groups implied in the sample. Analysis of variance was created by a notable analyst Ronald Fisher. Anova has been utilized strongly in statistical hypothesis speculation testing for examining the experiment information. ANOVA assumes a significant job in deciding if it is required to dismiss the invalid hypothesis or it needs to acknowledge the substitute speculation. Statistics itself is a complex subject; this is the reason **anova in statistics** is very quite difficult. We have included all the required information that will help you know about What is the Use of anova in Statistics.