

STATISTICS WORKSHEET-3

Q1 to Q9 have only one correct answer. Choose the correct option to answer your question.

1. 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

Answer is b) Total Variation = Residual Variation + Regression Variation

2. Collection of exchangeable binary outcomes for the same covariate data are called _____ outcomes.
- a) random
 - b) direct
 - c) binomial
 - d) none of the mentioned

Answer is c) binomial

3. How many outcomes are possible with Bernoulli trial?
- a) 2
 - b) 3
 - c) 4
 - d) None of the mentioned

Answer is a) two possible outcomes

4. If H_0 is true and we reject it is called
- a) Type-I error
 - b) Type-II error
 - c) Standard error
 - d) Sampling error

Answer is a) Type-I error

5. Level of significance is also called:
- a) Power of the test
 - b) Size of the test
 - c) Level of confidence
 - d) Confidence coefficient

Answer is a) Power of the test

6. The chance of rejecting a true hypothesis decreases when sample size is:
- a) Decrease
 - b) Increase
 - c) Both of them
 - d) None

Answer is b) Increase

7. Which of the following testing is concerned with making decisions using data?
- a) Probability
 - b) Hypothesis
 - c) Causal

d) None of the mentioned

Answer is b) Hypothesis

8. 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

Answer is a) Minimize errors

9. Normalized data are centred at_____and have units equal to standard deviations of the original data

- a) 0
- b) 5
- c) 1
- d) 10

Answer is a) 0

Q10and Q15 are subjective answer type questions, Answer them in your own words briefly.

10. What Is Bayes' Theorem?

Bayes' theorem describes the probability of occurrence of an event related to any condition. used to determine the conditional probability of events.

11. What is z-score?

Z-score is a statistical measurement that describes a value's relationship to the mean of a group of values. Z-score is measured in terms of standard deviations from the mean. Z-score of 1.0 would indicate a value that is one standard deviation from the mean. Z-scores may be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating it is below the mean.

The statistical formula for a value's z-score is calculated using the following formula:

$$z = (x - \mu) / \sigma$$

Where:

z = Z-score

x = the value being evaluated

μ = the mean

σ = the standard deviation

12. What is t-test?

The t-test is a test that is mainly used to compare the mean of two groups of samples. It is meant for evaluating whether the means of the two sets of data are statistically significantly different from each other. The one-sample t-test, which is used to compare the mean of a population with a theoretical value.

13. What is percentile?

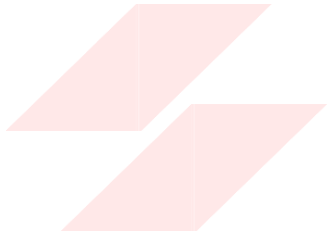
Percentile is defined as the value below which a given percentage falls under.

14. What is ANOVA?

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.

15. How can ANOVA help?

ANOVA is helpful for testing three or more variables. It is similar to multiple two-sample t-tests. However, it results in fewer type I errors and is appropriate for a range of issues. ANOVA groups differences by comparing the means of each group and includes spreading out the variance into diverse sources.



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