

Worksheet-3

Statistics

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- b) Total Variation = Residual Variation + Regression Variation

Question-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- c) binomial

Question-3 How many outcomes are possible with Bernoulli trial?

- a) 2 b) 3
- c) 4 d) None of the mentioned

Answer- a) 2

Question 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- a) Type-I error

Question 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- b) Size of the test

Question-6 The chance of rejecting a true hypothesis decreases when sample size is:

- a) Decrease b) Increase
- c) Both of them d) None

Answer- c) Both of them

Question-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- b) Hypothesis

Question-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- d) All of the mentioned

Question-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- a) 0

Question 10- What Is Bayes' Theorem?

Answer- Bayes' Theorem states that the conditional probability of an event, based on the occurrence of another event, is equal to the likelihood of the second event given the first event multiplied by the probability of the first event.

Question 11- What is z-score?

Answer- 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. If a Z-score is 0, it indicates that the data point's score is identical to the mean score.

Question 12- What is t-test?

Answer- A t-test is any statistical hypothesis test in which the test statistic follows a Student's t-distribution under the null hypothesis

Question 13- What is percentile?

Answer- In statistics, a percentile is a term that describes how a score compares to other scores from the same set. While there is no universal definition of percentile, it is commonly expressed as the percentage of values in a set of data scores that fall below a given value.

Question 14- What is ANOVA?

Answer- Analysis of variance is a collection of statistical models and their associated estimation procedures used to analyze the differences among means. ANOVA was developed by the statistician Ronald Fisher.

Question 15- How can ANOVA help?

Answer- 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.