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- B

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

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

ANSWER-A

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

ANSWER-A

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-D

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

ANSWER-B

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

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

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

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

10. What Is Bayes' Theorem?

ANSWER

Bayes theorem is a mathematical formula used to determine the conditional probability of events. The Bayes' theorem describes the probability of an event based on prior knowledge of the conditions that might be relevant to the event. The formula of bays theorem is :

$$P(A|B) = P(B|A)\ P(A) / P(B)$$

The formula can also be used to see how the probability of an event occurring is affected by hypothetical new information, supposing the new information will turn out to be true.

11. What is z-score?

ANSWER

Z-score is a statically measures which gives the information about how far are the data point from the mean in terms of standard deviation. . If a Z-score is 0, it indicates that the data point's score is identical to the mean score. 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.

12. What is t-test?

ANSWER

A t-test is a type of inferential statistic used to determine if there is a significant difference between the means of two groups. The larger the t score, the more difference there is between groups. The smaller the t score, the more similarity there is between groups. There are 3 types of t-test
Independent Samples t-test
Paired sample t-test
One sample t-test

13. What is percentile?

ANSWER

Percentile is a number where a certain percentage of scores fall below that number. he 50th percentile is the score below which 50% of the scores in the distribution may be found. 25 percentile is known as the 1st quartile, 502 percentile is the mean and the 75 percentile is the 3rd quartile. Percentile is used to get idea of the frequency distribution of the data points .

14. What is ANOVA?

ANSWER

Analysis of variance (ANOVA) is a statistical technique that is used to check if the means of two or more groups are significantly different from each other. ANOVA checks the impact of one or more factors by comparing the means of different samples.

15. How can ANOVA help?

ANSWER

ANOVA allow you to determine if differences in mean values between three or more groups are by chance or if they are indeed significantly different. ANOVA makes use of the F-test to determine if the variance in response to the satisfaction questions is large enough to be considered statistically significant. ANOVA is helpful for testing three or more variables. ANOVA is used when one variable is numeric and one is categorical, such as numerical input variables and a classification target variable in a classification task.