STATISTICS WORKSHEET-3

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

Answers are highlighted in green

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

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

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

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

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

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

7. Which of the following testing is concerned with making decisions using data?
   a) Probability
   b) Hypothesis
   c) Causal
   d) None of the mentioned

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

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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

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

10. What Is Bayes' Theorem?

Ans:

In simple terms Bayes' Theorem states that the conditional probability of an event, which is 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

11. What is z-score?

Ans:

z-score is the position of a raw score in terms of its distance from the mean, when measured in standard deviation units.
The z-score is positive if the value lies above the mean, and negative if it lies below the mean. In simple words It is a numerical measurement that describes a value's relationship to the mean of the group of values.

12. What is t-test?

Ans:

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 influences the population of interest, or whether two groups are different from one another.

13. What is percentile?

Ans:

A percentile is a comparison score between a particular score and the scores of the rest of a group. It is a measure in statistics on a scale of 100 which indicates the value below which a given percentage of observations in a group observation belongs.
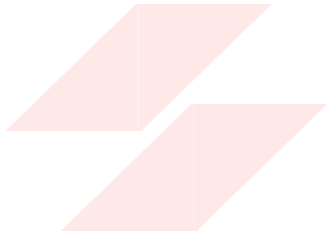
14. What is ANOVA?

Ans:

ANOVA which is stands for Analysis of Variance. It is the statistical method in which the variation in a set of observations is split into distinct components to determine if there is a statistically significant difference between observations.
It is an inferential statistical tool that we use to find statistically significant differences among the means of two or more populations.

15. How can ANOVA help?

Ans:

ANOVA is helpful for testing three or more variables. It is like 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.