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

Ans: 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

Ans:c)binomial

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

Ans:a)2

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

Ans: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

Ans:b)Size 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

Ans: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

Ans:b)Hypothesis

8. What is the purpose of multiple testing in statistical inference?
a) Minimise errors
b) Minimise false positives
c) Minimise false negatives
d) All of the mentioned

Ans:d)All of the mentioned

9. Normalised 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

10. 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.

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

Where:

- $P(A|B)$ – the probability of event A occurring, given event B has occurred
- $P(B|A)$ – the probability of event B occurring, given event A has occurred
- $P(A)$ – the probability of event A
- $P(B)$ – the probability of event B

11. What is a z-score?

Ans:A Z-score is a numerical 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. A 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.

12. What is the t-test?

Ans:A 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 has an effect on the population of interest, or whether two groups are different from one another.

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13. What is percentile?

Ans:A percentile (or a centile) is a measure used in statistics indicating the value below which a given percentage of observations in a group of observations fall.

14. What is ANOVA?

Ans:Analysis of variance (ANOVA) is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. Analysts use the ANOVA test to determine the influence that independent variables have on the dependent variable in a regression study.

15. How can ANOVA help?

Ans: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. It is employed with subjects, test groups, between groups and within groups.