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

Ans - B

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

Ans - C

3. How many outcomes are possible with Bernoulli trial?
   a) 2 **Ans - A**
   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

Ans - 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

Ans - B

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

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

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

Ans - D

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WORKSHEET

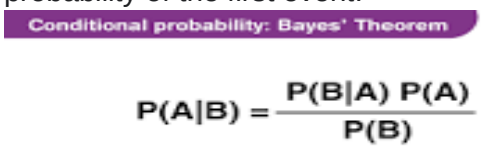
9. Normalized data are centred at_and have units equal to standard deviations of the original data
   a) 0
   b) 5
   c) 1
   d) 10

Ans - A

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

10. What Is Bayes' Theorem?

Ans - 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.



11. What is z-score?

Ans - A z score is simply defined as the number of standard deviation from the mean. The z-score can be calculated by subtracting mean by test value and dividing it by standard value. Where x is the test value, μ is the mean and σ is the standard value.

12. What is t-test?

Ans - t-test is a statistically significant test for the hypothesis testing (null and alternative hypotheses) when the sample size is small and the population parameter (mean and variance) is unknown.

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 shows the percentage of scores that a particular score surpassed. For example, if you score 75 points on a test, and are ranked in the 85 th percentile, it means that the score 75 is higher than 85% of the scores.

14. What is ANOVA?

Ans - An Analysis of Variance (ANOVA) is an inferential statistical tool that we use to find statistically significant differences among the means of two or more populations. We calculate variance but the goal is still to compare population mean differences. The test statistic for the ANOVA is called F.

15. How can ANOVA help?

Ans - ANOVA checks the impact of one or more factors by comparing the means of different samples. We can use ANOVA to prove/disprove if all the medication treatments were equally effective or not. Another measure to compare the samples is called a t-test. When we have only two samples, t-test and ANOVA give the same results.