WORKSHEET
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?
ANS: b) Total Variation = Residual Variation + Regression Variation

2. Collection of exchangeable binary outcomes for the same covariate data are called outcomes.
ANS: c) binomial

3. How many outcomes are possible with Bernoulli trial?
ANS: a) 2

4. If Ho is true and we reject it is called
ANS: a) Type-I error

5. Level of significance is also called:
ANS: a) Power of the test

6. The chance of rejecting a true hypothesis decreases when sample size is:
ANS: b) Increase

7. Which of the following testing is concerned with making decisions using data?
ANS: b) Hypothesis

8. What is the purpose of multiple testing in statistical inference?
ANS: d) All of the mentioned

9. Normalized data are centred at and have units equal to standard deviations of the original data
ANS: a) 0

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. Bayes' Theorem is a mathematical formula for determining conditional probability which is the likelihood of an outcome occurring, based on a previous outcome having occurred in similar circumstances

11. What is z-score?
ANS: Z-score also known as standard score give an idea of how far from the mean a data point is located. It ranges from -3 to +3. It's a way to compare results to a normal distribution.
Its calculated as
Z = (X - mean)/standard deviation

12. What is t-test?
ANS: A t test is a statistical test that is used to compare the means of two groups. It is used in hypothesis testing to check whether a process or treatment has an effect on the population of interest, or whether two groups are different from one another. Its usually used when data sets follow a normal distribution but you don't know the population variance.

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

14. What is ANOVA?
ANS: Analysis of variance is a statistical method that separates observed variance data into different components to use for additional tests. A one-way ANOVA is used for three or more groups of data, to gain information about the relationship between the dependent and independent variables. If no true variance exists between the groups, the ANOVA's F-ratio should equal close to 1.

15. How can ANOVA help?
ANS: It helps in testing 3 or more variables. It results in fewer type-1 errors. It groups differences by comparing the means of each group and includes spreading out the variance into diverse sources. It provides the overall test of equality of group means.