

STATISTICS ASSIGNMENT

ANSWERS:

Objective type:

1. b) Total Variation = Residual Variation + Regression Variation
2. c) binomial
3. a) 2
4. a) Type-I error
5. b) Size of the test
6. b) Increase
7. b) Hypothesis
8. d) All of the mentioned
9. a) 0

Subjective type:

10. **Bayes' Theorem:** 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. **Z-score:** 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. A data point having a Z-score more than -3.0 or +3.0 is treated as an outlier.
12. **T-test:** 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 has an effect on the population of interest, or whether two groups are different from one another.
13. **Percentile:** The value below which a percentage of data falls. For example, 80% of people are shorter than you so this means that you are 80th percentile.

14. **ANOVA:** ANOVA which stands for 'Analysis of Variation' is a statistical formula used to compare variances across the means (or average) of different groups. A range of scenarios use it to determine if there is any difference between the means of different groups.
15. ANOVA can help in selecting the best features to train a model. ANOVA minimizes the number of input variables to reduce the complexity of the model. ANOVA helps to determine if an independent variable is influencing a target variable.