STATISTICS WORKSHEET-3

Choose the correct answer.

1) Total Variation = Residual Variation + Regression Variation
2) Binomial
3) 2
4) Type I Error
5)) Level of confidence
6) Increase
7) Hypothesis
8) All of the mentioned
9) 0
10) 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.

Formula for Bayes' Theorem

$P(A|B) = P(A \cap B)/P(B) = P(A) \cdot P(B|A)/P(B)$

where:

$P(A)$= The probability of A occurring

$P(B)$= The probability of B occurring

$P(A|B)$=The probability of A given B

$P(B|A)$= The probability of B given A

$P(A \cap B)$)= The probability of both A and B occurring.

11) **Z-score is also known as standard score** gives us an idea of how far a data point is from the mean. It indicates how many standard deviations an element is from the

mean. Hence, Z-Score is measured in terms of standard deviation from the mean. For example, a standard deviation of 2 indicates the value is 2 standard deviations away from the mean. In order to use a z-score, we need to know the population mean (μ) and also the population standard deviation (σ).

A z-score can be calculated using the following formula.

$$z = (X – \mu) / \sigma$$

where,
z = Z-Score,
X = The value of the element,
μ = The population mean, and
σ = The population standard deviation

12) A t-test is an inferential statistic used to determine if there is a statistically significant difference between the means of two variables.

The t-test is a test used for hypothesis testing in statistics.

13) *percentile*: a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it.example-Your percentile is 70 It means **70% students of the total students appeared for the Exam are Behind you**.

Percentile(x) = (Number of values fall under 'x'/total number of values) × 100
P = (n/N) × 100

14) ANOVA, which stands for Analysis of Variance, is a statistical test used **to analyze the difference between the means of more than two groups**. A one-way ANOVA uses one

independent variable, while a two-way ANOVA uses two independent variables.
ANOVA coefficient, F= Mean sum of squares between the groups (MSB)/ Mean squares of errors (MSE).
Therefore **F = MSB/MSE**

15) ANOVA, which stands for Analysis of Variance, is a statistical test used **to analyze the difference between the means of more than two groups**. A one-way ANOVA uses one independent variable, while a two-way ANOVA uses two independent variables.