STATISTICS WORKSHEET-3

1.b) Total Variation = Residual Variation + Regression Variation

2.c) binomial

3.a) 2

4.a) Type-I error

5.a) Power of the test

6.a) Decrease

7.b) Hypothesis

8.d) All of the mentioned

9.a) 0

10.
Bayer's 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.
P(A|B) = *P(A) P(B|A)/*P(B)

- 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.
A z-score measures the distance between a data point and the mean using standard deviations. Z-scores can be positive or negative. The sign tells you whether the observation is above or below the mean.

A z-score of zero equals the mean. Statisticians also refer to z-scores as standard scores

Z Score = $(x - \bar{x})/\sigma$

x = Standardized random variable. $\bar{x}$ = Mean. σ = Standard deviation.

12.
- A T-test is a statistical method of comparing the means or proportions of two samples gathered from either the same group or different categories.

- It is aimed at hypothesis testing, which is used to test a hypothesis pertaining to a given population.

- It is the difference between population means and a hypothesized value.

- One-sample, two-sample, paired, equal, and unequal variance are the types of T-tests users can use for mean comparisons.

13.
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
The term percentile and the related term *percentile rank* are often used in the reporting of scores from norm-referenced testsP = (n/N) × 100

Where,

- n = ordinal rank of the given value or value below the number

- N = number of values in the data set

- P = percentile

14.

- Analysis of variance, or ANOVA, is a strong statistical technique that is used to show the difference between two or more means or components through significance tests.
- It also shows us a way to make multiple comparisons of several populations means.
- The Anova test is performed by comparing two types of variation, the variation between the sample means, as well as the variation within each of the samples..
- If an experiment has one factor is called a one-way ANOVA. If an experiment has two factors, then the ANOVA is called a *two-way ANOVA*.

15.

- ANOVA is helpful for testing three or more variables. It is similar to multiple two-sample t-tests.
- it results in fewer type I errors and is appropriate for a range of issues.
- one-way ANOVA can help you know whether or not there are significant differences between the means of your independent variables . When you understand how each independent variable's mean is different from the others, you can begin to understand which of them has a connection to your dependent variable, and begin to learn what is driving that behavior.