Worksheet_set3_statistics

1.	**b (Total Variation = Residual Variation + Regression Variation)**
2.	**c (binomial)**
3.	**a (2)**
4.	**a (Type 1 error)**
5.	**d (level of confidence)**
6.	**b (increase)**
7.	**b (Hypothesis)**
8.	**d**
9.	**a (0)**

10. What Is Bayes' Theorem?

Ans: Bayes' Theorem describes the probability of the event based on prior knowledge of conditions that might be related to the event.

The formula of bays theorem is : $P(A|B) = P(B|A)\ P(A) / P(B)$

Where:

$P(A|B)$ – 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

Note that events A and B are independent events (i.e., the probability of the outcome of event A does not depend on the probability of the outcome of event B).

11. What is 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. The z-score is positive if the value lies above the mean, and negative if it lies below the mean.

12. What is t-test?

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. A large t-score, or t-value, indicates that the groups are different while a small t-score indicates that the groups are similar. There are three main types of t-test:

1.An Independent Samples t-test compares the means for two groups.

2.A Paired sample t-test compares means from the same group at different times (say, one year apart).

3.A One sample t-test tests the mean of a single group against a known mean.

13. What is percentile?

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. For example, the 20th percentile is the value (or score) below which 20% of the observations may be found.

14. What is ANOVA?

Analysis of Variance (ANOVA) tells you if there are any statistical differences between the means of three or more independent group. The two most common types of ANOVAs are the one-way ANOVA and two-way ANOVA.Example : A grocery chain wants to know if three different types of advertisements affect mean sales differently. They use each type of advertisement at 10 different stores for one month and measure total sales for each store at the end of the month.

15. How can ANOVA help

ANOVA is helpful for testing three or more variables. It is similar to multiple two-sample t-tests. ANOVA uses the f-tests to statistically test the equality of means. ANOVA helps you find out whether the differences between groups of data are statistically significant. It works by analyzing the levels of variance within the groups through samples taken from each of them. The ANOVA f-test is used for feature selection methods for numerical input data when the target variable is categorical (e.g. classification predictive modeling).