**WORKSHEET 3 STATISTICS**

**Q1 to Q9 has 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

1. **Collection of exchangeable binary outcomes for the same covariate data are called…………outcomes.**

**Ans.** C) binomial

1. **How many outcomes are possible with the Bernoulli trial?**

**Ans.** A) 2

1. **If Ho is true and we reject it is called**

**Ans.** A) Type-I error

1. **Level of significance is also called:**

**Ans.** B) Size of the test

1. **The chance of rejecting a true hypothesis decreases when the sample size is:**

**Ans.** B) Increase

1. **Which of the following testing is concerned with making decisions using data?**

**Ans.** B) Hypothesis

1. **What is the purpose of multiple testing in statistical inference?**

**Ans.** D) All of the mentioned

1. **Normalized data are centered……….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.**

1. **What Is Bayes' Theorem?**

**Ans.**  In probability, the Bayes theorem is a mathematical formula, which is used to determine the conditional probability of a given event. Conditional probability is defined as the likelihood that an event will occur, based on the occurrence of a previous outcome. P(A|B) is the probability of event A occurring given that B is true. P(B|A) is the probability of event B occurring given that A is true. P(A) and P(B) are the probabilities of observing A and B respectively without any given conditions.

1. **What is the z-score?**

**Ans.**  In statistics, Z-score is the method to find out the outliers present in the data, and also z-score shows how much the particular point is away from the standard deviation. Z-scores range from -3 standard deviations up to +3 standard deviations. Formula for find out the z-score is : z = (x – μ) / σ where , x = data point μ = Mean value σ = Standard deviation

1. **What is a t-test?**

**Ans.**  The independent sample t-test or 2 samples t-test compares the mean of two independent groups in order to determine whether the mean of two different variables is identical or not.

1. **What is a percentile?**

Ans. In statistics, the percentile is used to indicate the value below which the group the percentage of data fall. For example, the 20th percentile is the value (or score) below which 20% of the observations may be found.

1. **What is ANOVA?**

**Ans.**  ANOVA test is a type of statical test that allows a comparison of more than two groups at the same time it helps to determine whether a relationship exists between them or not.

1. **How can ANOVA help?**

**Ans.**  The one-way ANOVA can help you to determine whether or not there are significant differences between the means of your independent variables(for ex- Age, Sex, Position). When you understand how each independent variables are different from others, you can begin to understand which of them has a connection to your dependent variables and begin to learn what is driving that behavior.