# Statistics– WORKSHEET 6

## Q1 to Q9 have only one correct answer. Choose the correct option to answer your question.

1. Which of the following is the correct formula for total variation?
   1. Total Variation = Residual Variation – Regression Variation
   2. Total Variation = Residual Variation + Regression Variation
   3. Total Variation = Residual Variation \* Regression Variation
   4. All of the mentioned

Answer: (b)

1. Collection of exchangeable binary outcomes for the same covariate data are called outcomes.
   1. random
   2. direct
   3. binomial
   4. none of the mentioned

Answer: ( c )

1. How many outcomes are possible with bernoulli trial?
   1. 2
   2. 3
   3. 4
   4. None of the mentioned

Answer: (a)

1. If Ho is true and we reject it, then it is called:
2. Type-I error
3. Type-II error
4. Standard error
5. Sampling error

Answer: ( c )

1. Level of significance is also called:
2. Power of the test
3. Size of the test
4. Level of confidence
5. Confidence coefficient

Answer: ( c )

1. The chance of rejecting a true hypothesis decreases when sample size:
2. Decreases
3. Increases
4. Both of them
5. None of them

Answer: ( c )

1. Which of the following testing is concerned with making decisions using data?
2. Probability
3. Hypothesis
4. Causal
5. None of the mentioned

Answer: ( a )

1. What is the purpose of multiple testing in statistical inference?
2. Minimize errors
3. Minimize false positives
4. Minimize false negatives
5. All of the mentione

Answer: (a)

1. Normalized data is centered at and has unit equal to standard deviations of the original data.

(a) 0 (b) 5

(c) 1 (d) 10

Answer: (a)

## Q10and Q15 are subjective answer type questions, Answer them in your own words briefly.

1. What Is Bayes' Theorem?

Answer: **Bayes**' **theorem**, named after 18th-century British mathematician Thomas **Bayes**, is a mathematical **formula** for determining conditional probability. Conditional probability is the likelihood of an outcome occurring, based on a previous outcome occurring.

1. What is z-score?

Answer: A **z**-**score** describes the position of a raw **score** in terms of its distance from the **mean**, when measured in standard deviation units. The **z**-**score** is positive if the **value** lies above the **mean**, and negative if it lies below the **mean**.

1. What is t-test?

Answer: The **t test tells you** how significant the differences between groups are; In other words it lets **you** know **if** those differences (measured in means) could have happened by chance. ... A **t test** can **tell you** by comparing the means of the two groups and letting **you** know the probability of those results happening by chance.

1. What is a percentile?

Answer: The most common definition of a **percentile** is a number where a certain percentage of scores fall below that number. ... That means if you scored 156 on the exam, your score was better than 70 percent of test takers. The 25th **percentile** is also called the first quartile.

1. What is ANOVA?

Answer: **Analysis of variance** (**ANOVA**) is a statistical technique that is used to check if the means of two or more groups are significantly different from each other. **ANOVA** checks the impact of one or more factors by comparing the means of different samples.

1. How can ANOVA help?

Answer: The one-way **analysis of variance** (**ANOVA**) is **used to** determine whether there are any statistically significant differences between the means of two or more independent (unrelated) groups (although you tend to only see it **used when** there are a minimum of three, rather than two groups).