STATISTICS WORKSHEET-3

# 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



* 1. None of the mentioned

Answer:- a)

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

Answer:- a)

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

Answer:- b)

1. The chance of rejecting a true hypothesis decreases when sample size is:
   1. Decrease
   2. Increase
   3. Both of them
   4. None

Answer:- b)

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

Answer:- b)

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

Answer:- d)

1. Normalized data are centred at and have units equal to standard deviations of the original data
   1. 0
   2. 5
   3. 1
   4. 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 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.

1. What is z-score?

Answer:- 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](https://www.investopedia.com/terms/s/standarddeviation.asp) 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. Z-scores may be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating it is below the mean.

1. What is t-test?

Answer:- A t-test is a [statistical test](https://www.scribbr.com/statistics/statistical-tests/) that is used to compare the [means](https://www.scribbr.com/statistics/mean/) of two groups. It is often used in [hypothesis testing](https://www.scribbr.com/statistics/hypothesis-testing/) to determine whether a process or treatment actually has an effect on the population of interest, or whether two groups are different from one another.

1. What is percentile?

Answer:- In statistics, a k-th percentile is a score below which a given percentage k of scores in its frequency distribution falls or a score at or below which a given percentage falls. For example, the 50th percentile is the score below which or at which 50% of the scores in the distribution may be found.

1. What is ANOVA?

Answer:- Analysis of variance, or ANOVA, is a statistical method that separates observed variance data into different components to use for additional tests. A one-way ANOVA is used for three or more groups of data, to gain information about the relationship between the dependent and independent variables

1. How can ANOVA help?

Answer:- ANOVA is helpful for testing three or more variables. It is similar to multiple two-sample [t-tests](https://www.investopedia.com/terms/t/t-test.asp). However, it results in fewer [type I errors](https://www.investopedia.com/terms/t/type_1_error.asp) and is appropriate for a range of issues. ANOVA groups differences by comparing the means of each group and includes spreading out the variance into diverse sources.

