

### 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?  
b) Total Variation = Residual Variation + Regression Variation
2. Collection of exchangeable binary outcomes for the same covariate data are called outcomes.  
c) binomial
3. How many outcomes are possible with Bernoulli trial?  
a) 2
4. If  $H_0$  is true and we reject it is called  
a) Type-I error
5. Level of significance is also called:  
b) Size of the test
6. The chance of rejecting a true hypothesis decreases when sample size is:  
b) Increase
7. Which of the following testing is concerned with making decisions using data?  
b) Hypothesis
8. What is the purpose of multiple testing in statistical inference?  
d) All of the mentioned
9. Normalized data are centred at and have units equal to standard deviations of the original data  
a) 0

**Q10 and Q15 are subjective answer type questions, Answer them in your own words briefly.**

10. What Is Bayes' Theorem?

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.

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.

12. What is t-test?

A t-test is a statistical test that is used to compare the means of two groups. It is often used in 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.

13. What is percentile?

In statistics, a percentile is a term that describes how a score compares to other scores from the same set. While there is no universal definition of percentile, it is commonly expressed as the percentage of values in a set of data scores that fall below a given value.

14. What is ANOVA?

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.

15. How can ANOVA help?

ANOVA is helpful for testing three or more variables. It is similar to multiple two-sample t-tests. However, it results in fewer type I errors 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.