WORKSHEET

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?
a) Total Variation = Residual Variation – Regression Variation
b) Total Variation = Residual Variation + Regression Variation
c) Total Variation = Residual Variation * Regression Variation
d) All of the mentioned
ANS- b) Total Variation = Residual Variation + Regression Variation

2. Collection of exchangeable binary outcomes for the same covariate data are called outcomes.
a) random
b) direct
c) binomial
d) none of the mentioned
ANS- c) binomial

3. How many outcomes are possible with Bernoulli trial?
a) 2
b) 3
c) 4
d) None of the mentioned
ANS-A)2

4. If Ho is true and we reject it is called
a) Type-I error
b) Type-II error
c) Standard error
d) Sampling error
ANS- a) Type-I error

5. Level of significance is also called:
a) Power of the test
b) Size of the test
c) Level of confidence
d) Confidence coefficient
ANS-) Power of the test

6. The chance of rejecting a true hypothesis decreases when sample size is:
a) Decrease
b) Increase
c) Both of them
d) None
ANS- b) Increase

7. Which of the following testing is concerned with making decisions using data?
a) Probability
b) Hypothesis
c) Causal
d) None of the mentioned
ANS- b) Hypothesis

8. What is the purpose of multiple testing in statistical inference?
a) Minimize errors
b) Minimize false positives
c) Minimize false negatives
d) All of the mentioned
ANS- d) All of the mentioned

9. Normalized data are centred at and have units equal to standard deviations of the original data
a) 0
b) 5
c) 1
d) 10
ANS-A)0

Q10and Q15 are subjective answer type questions, Answer them in your own words briefly.
10. What Is Bayes' Theorem?
ANS- **Bayes' theorem** describes the probability of occurrence of an event related to any condition.

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.
ANS-

12. What is t-test?
ANS- A t-test is a <u>statistical test</u> that is used to compare the <u>means</u> of two groups. It is often used in <u>hypothesis testing</u> 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?
ANS- A percentile is a comparison score between a particular score and the scores of the rest of a group. It shows the percentage of scores that a particular score surpassed. For example, if you score 75 points on a test, and are ranked in the 85 th percentile, it means that the score 75 is higher than 85% of the scores.

14. What is ANOVA?
ANS- An ANOVA test is a type of statistical test used to determine if there is a statistically significant difference between two or more categorical groups by testing for differences of means using variance.

15. How can ANOVA help?
ANS- It provides the overall test of equality of group means. It can control the overall type I error rate (i.e. false positive finding) It is a parametric test so it is more powerful, if normality assumptions hold true.