

### 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

**ANSWER (Option : 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

**ANSWER (Option : C) binomial)**

3. How many outcomes are possible with Bernoulli trial?

- a) 2
- b) 3
- c) 4
- d) None of the mentioned

**ANSWER (Option : A) 2)**

4. If  $H_0$  is true and we reject it is called

- a) Type-I error
- b) Type-II error
- c) Standard error
- d) Sampling error

**ANSWER (Option : 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

**ANSWER (Option : B) Size 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

**ANSWER (Option : 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

**ANSWER (Option : 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

**ANSWER (Option : B) 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

**ANSWER (Option : A) 0 )**

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

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

**ANSWER :** A theorem describing how the conditional probability of each of a set of possible causes for a given observed outcome can be computed from knowledge of the probability of each cause and the conditional probability of the outcome of each cause.

**11. 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 from the mean.

**12. What is t-test?**

**ANSWER :** 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?**

**ANSWER :** In statistics, percentiles are used to understand and interpret data.

**14. What is ANOVA?**

**ANSWER :** a statistical method in which the variation in a set of observations is divided into distinct components.

**15. How can ANOVA help?**

**ANSWER :** Key part of ANOVA is that it splits the independent variable into 2 or more groups. For example, one or more groups might be expected to influence the dependent variable.

while the other group is used as a control group, and is not expected to influence the dependent variable.