

### **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 - 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 - c)** binomial

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

**Answer – 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 - 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 - a)** 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

**Answer – 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** - 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** - d) All of the mentioned

9. Normalized data are centered at \_\_\_\_ and have units equal to standard deviations of the original data

- a) 0
- b) 5
- c) 1
- d) 10

**Answer** - a) 0

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

10. What Is Bayes' Theorem?

**Answer** – Bayes Theorem provides a principled way for calculating a conditional probability.

It is a deceptively simple calculation, although it can be used to easily calculate the conditional probability of events where intuition often fails.

11. What is z-score?

**Answer** - Z-score (also called a standard score) gives you an idea of how far from the mean a data point is. But more technically it's a measure of how many standard deviations below or above the population mean a raw score is.

12. What is t-test?

**Answer** – 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, a percentile is a score below which a given percentage of scores in its frequency distribution falls or a score at or below which a given percentage falls.

14. What is ANOVA?

**Answer** – An ANOVA test is a way to find out if survey or experiment results are significant. In other words, they help you to figure out if you need to reject the null hypothesis or accept the alternate hypothesis

15. How can ANOVA help?

**Answer** - The one-way ANOVA can help you know whether or not there are significant differences between the means of your independent variables (such as the first example: age, sex, income). When you understand how each independent variable's mean is different from the others; you can begin to understand which of them has a connection to your dependent variable (landing page clicks), and begin to learn what is driving that behavior.