**STATISTICS WORKSHEET-3**

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-** 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

**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**- It is a mathematical formula for determining the conditional probability**.** Conditional probability is an likelihood of an outcome occurring , based on a previous outcome occurring. It provides a way to revise existing predictions or theories

11. What is z-score?

**Ans-** Z-score is a numerical measurement that describes a values relationship to the mean of a group of values.Z-score is measured in terms of standard deviations from the mean.z-score is equal to 0 means datapoints score is identical to the mean score and if it is equal to 1 means it is 1 standard deviation from the mean

12. What is t-test?

**Ans-**t-test is a type of inferential statistics used to determine if there is a significant difference between the means of two groups which may be related in certain features.t-test I sused as a hypothesis tesying tool which allows testing of an assumption applicable to population.

13. What is percentile?

**Ans-**Percentile is a score below which a given percentage of score in its frequency distribution falls or a score at or below which a given percentage falls

14. What is ANOVA?

**Ans-**Anova test is a way to find out if survey or experiment results are significant. They help us to figure out if you need to reject null hypothesis or accept alternate hypothesis.It is a statistical technique used to determine whether there are any statistically significant differences between the means

15. How can ANOVA help?

**Ans-**Anova is helpful for testing three or more variables.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.