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

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

3. How many outcomes are possible with Bernoulli trial?
   a) 2

   Ans:A

   b) 3
   c) 4
   d) None of the mentioned

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

   e) L,l,.;l,,ppl,l

5. The chance of rejecting a true hypothesis decreases when sample size is:
   a) Decrease
   b) Increase Ans:B
   c) Both of them
   d) None

6. Which of the following testing is concerned with making decisions using data?
   a) Probability
   b) Hypothesis Ans:B
   c) Causal
   d) None of the mentioned

7. What is the purpose of multiple testing in statistical inference?
   a) Minimize errors
   b) Minimize false positives Ans:B
   c) Minimize false negatives
   d) All of the mentioned

8. Normalized data are centred at____and have units equal to standard deviations of the original data

a) 0 Ans:A
b) 5
c) 1
d) 10

Q10and Q15 are subjective answer type questions, Answer them in your own words briefly.

9. What Is Bayes' Theorem?
10. What is z-score?
11. What is t-test?
12. What is percentile?
13. What is ANOVA?
14. How can ANOVA help?

9Ans: Bayes' theorem describes the probability of occurrence of an event related to any condition. It is also considered for the case of conditional probability. Bayes theorem is also known as the formula for the probability of “causes”.

10Ans: A z-score describes the position of a raw score in terms of its distance from the mean, when measured in standard deviation units. The z-score is positive if the value lies above the mean, and negative if it lies below the mean.

11Ans: The t-test is any statistical hypothesis test in which the test statistic follows a Student's t-distribution under the null hypothesis.

12Ans: If your test score is in the 12th percentile, it means that you scored better than 12 percent of all the test takers. It also means that 88 percent scored the same or better than you.

13Ans:Analysis of variance, or ANOVA, is a strong statistical technique that is used to show the difference between two or more means or components through significance tests. It also shows us a way to make multiple comparisons of several populations means.

14 Ans:ANOVA is a method to determine if the mean of groups are different. In inferential statistics, we use samples to infer properties of populations. Statistical tests like ANOVA help us justify if sample results are applicable to populations.