Answers for Statistics Worsheet-3

1. b) Total Variation = Residual Variation + Regression Variation
2. c) binomial
3. a) 2
4. a) Type-I error
5. d) Confidence coefficient
6. b) Increase
7. b) Hypothesis
8. d) All of the mentioned
9. a) 0
10. Bayes theorem is one of the most important theorems in statistics and probability that describes how to update the probabilities of the hypothesis when given the evidence. It follows the axioms of conditional probability, and can be used to powerfully reason about wide range of problems involving updates in the beliefs.

    Given a hypothesis H and evidence E, Bayes theorem states the relationship between the probability of getting the hypothesis true before getting the evidence P(E) and the probability of the hypothesis true after getting the evidence P(H|E) as:

    P(H|E) = $\frac{\boldsymbol{P(H)*P(E/H)}}{\boldsymbol{P(E)}}$

11. Z-score of a value is the number of standard deviations the value is from the mean of the data.

12. The t-test a statistical hypothesis test in which the test statistic follows a Student's t-distribution under the null hypothesis. It tell how significant the differences between groups are, in other words it lets you whether if those differences (measured in means) could have happened by chance.

13. Percentile of a value in a data refers to the percentage of the data that falls below that particular value.

14. ANOVA (Analysis of Variance) is a statistical technique to analyse the variation of a target continuous variable measured with respect to the conditions defined by categorical features. It is used to check whether the means of two or more groups are significantly different from each other by comparison.

15. ANOVA can be useful in analysing the effect of different categorical data on the continuous target variable.