1. a) True
2. a) Central Limit Theorem
3. b) Modelling bounded count data
4. c) The square of a standard normal random variable follows what is called chi-squared distribution
5. c) Poisson
6. b) False
7. b) Hypothesis
8. a) 0
9. c) Outliers cannot conform to regression relationships

10. Normal Distribution is also known as Guassian Distribution or bell curve and is categorized by its bell shaped curve. The curve is symmetric and is centered around its mean value. Mean, median and mode of this distribution is equal. It is the most common distribution for independent, randomly generated variables. The most common parameters are the mean and the standard deviation.

11.
12. A/B testing is a statistical technique used in marketing, product development, and other fields to compare the performance of two different versions of a product or service. In an A/B test, two groups (A and B) are created, and each group is exposed to a different version of the product or service. The performance of each group is then compared to determine which version is better.

13.
14. Linear regression is a statistical technique used to model the relationship between a dependent variable (Y) and one or more independent variables (X). It assumes that there is a linear relationship between the dependent variable and the independent variables.

The equation for a simple linear regression model with one independent variable is:

$$Y = \beta 0 + \beta 1X + \varepsilon$$
where Y is the dependent variable,
X is the independent variable,
$\beta 0$ is the intercept,
$\beta 1$ is the slope, and ε is the error term.

The goal of linear regression is to estimate the values of $\beta 0$ and $\beta 1$ that best fit the data, so that we can make predictions about the value of Y based on the value

of X. This is done by minimizing the sum of the squared errors between the observed values of Y and the predicted values of Y.

There are two types of linear regression models: simple linear regression and multiple linear regression. Simple linear regression involves only one independent variable, while multiple linear regression involves two or more independent variables.

15. The main branches of statistics:

Descriptive statistics: This branch of statistics deals with the collection, organization, and analysis of data to describe and summarize it.

Inferential statistics: This branch of statistics deals with using a sample of data to make inferences about a larger population.