1. a) True
2. a) Central Limit Theorem
3. b) Modeling bounded count data
4. d) All of the mentioned
5. c) Poisson
6. b) False
7. b) Hypothesis
8. a) 0
9. ) Outliers cannot conform to the regression relationship

10.The normal distribution is a distribution that describes how the values of a variable are distributed. It is a symmetric distribution where most of the observations cluster around the central peak and the probabilities for values further away from the mean taper off equally in both directions. Extreme values in both tails of the distribution are similarly unlikely, Properties of a normal distribution

The mean, mode and median are all equal.

The curve is symmetric at the center (i.e. around the mean, μ).

Exactly half of the values are to the left of center and exactly half the values are to the right.

The total area under the curve is 1.

11.Handling missing values is very crucial step for interpretation of better results.Most of the time the common approach to handle missing value is to delete the null values from the entire dataset ,but that results in loss of data, so a more logical approach is imputation, which simply means replacing values,for a continuous series or numerical data,we can replace the values with mean ,like fillna(mean of that column) ,for categorical variables the values our replace with mode .There are two types of imputer , One type of imputation algorithm is univariate, which imputes values in the i-th feature dimension using only non-missing values in that feature dimension (e.g. impute.SimpleImputer). By contrast, the other multivariate imputation algorithms use the entire set of available feature dimensions to estimate the missing values (e.g. impute.IterativeImputer).

12.A/B testing, aka. split testing, refers to an experiment technique to determine whether a new design brings improvement, according to a chosen metric.

In web analytics, the idea is to challenge an existing version of a website (A) with a new one (B), by randomly splitting traffic and comparing metrics on each of the splits. A/B testing allows individuals, teams, and companies to make careful changes to their user experiences while collecting data on the results. This allows them to construct hypotheses, and to learn better why certain elements of their experiences impact user behavior. In another way, they can be proven wrong—their opinion about the best experience for a given goal can be proven wrong through an A/B test. For instance, a B2B technology company may want to improve their sales lead quality and volume from campaign landing pages. In order to achieve that goal, the team would try A/B testing changes to the headline, visual imagery, form fields, call to action, and overall layout of the page.

13. It is a Bad practice in general ,If just estimating means: mean imputation preserves the mean of the observed data,Leads to an underestimate of the standard deviation,Distorts relationships between variables by “pulling” estimates of the correlation toward zero.

14. Linear regression is a basic and commonly used type of predictive analysis.  The overall idea of regression is to examine two things: (1) does a set of predictor variables do a good job in predicting an outcome (dependent) variable?  (2) Which variables in particular are significant predictors of the outcome variable, and in what way do they–indicated by the magnitude and sign of the beta estimates–impact the outcome variable  These regression estimates are used to explain the relationship between one dependent variable and one or more independent variables.  The simplest form of the regression equation with one dependent and one independent variable is defined by the formula y = c + b\*x, where y = estimated dependent variable score, c = constant, b = regression coefficient, and x = score on the independent variable.

15. The two main branches of statistics are descriptive statistics and inferential statistics. Both of these are employed in scientific analysis of data and both are equally important for the student of statistics. Descriptive Statistics

Descriptive statistics deals with the presentation and collection of data. This is usually the first part of a statistical analysis. It is usually not as simple as it sounds, and the statistician needs to be aware of designing experiments, choosing the right focus group and avoid biases  that are so easy to creep into the experiment.

Inferential Statistics

Inferential statistics, as the name suggests, involves drawing the right conclusions from the statistical analysis that has been performed using descriptive statistics. In the end, it is the inferences that make studies important and this aspect is dealt with in inferential statistics.