# Statistics– WORKSHEET 4

**Q1 to Q9 have only one correct answer. Choose the correct option to answer your question.**

1. Bernoulli random variables take (only) the values 1 and 0.
   1. True
   2. False

Answer: ( a )

1. Which of the following theorem states that the distribution of averages of iid variables, properly normalized, becomes that of a standard normal as the sample size increases?
   1. Central Limit Theorem
   2. Central Mean Theorem
   3. Centroid Limit Theorem
   4. All of the mentioned

Answer: ( a )

1. Which of the following is incorrect with respect to use of Poisson distribution?
   1. Modeling event/time data
   2. Modeling bounded count data
   3. Modeling contingency tables
   4. All of the mentioned

Answer: ( c )

1. Point out the correct statement.
   1. The exponent of a normally distributed random variables follows what is called the log- normal distribution
   2. Sums of normally distributed random variables are again normally distributed even if the variables are dependent
   3. The square of a standard normal random variable follows what is called chi-squared distribution
   4. All of the mentioned-

Answer: ( a )

1. random variables are used to model rates.
   1. Empirical
   2. Binomial
   3. Poisson
   4. All of the mentioned

Answer: ( c )

1. 10. Usually replacing the standard error by its estimated value does change the CLT.
   1. True
   2. False

Answer: (b )

1. 1. Which of the following testing is concerned with making decisions using data?
   1. Probability
   2. Hypothesis
   3. Causal
   4. None of the mentioned

Answer: (b )

1. 4. Normalized data are centered at and have units equal to standard deviations of the original data.
   1. 0
   2. 5
   3. 1
   4. 10

Answer: ( a )

1. Which of the following statement is incorrect with respect to outliers?
   1. Outliers can have varying degrees of influence
   2. Outliers can be the result of spurious or real processes
   3. Outliers cannot conform to the regression relationship
   4. None of the mentioned

Answer: ( c )

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

1. What do you understand by the term Normal Distribution?

Answer: The normal distribution is the most common type of distribution assumed in technical stock market analysis and in other types of statistical analyses. The standard normal distribution has two parameters: the mean and the [standard deviation](https://www.investopedia.com/terms/s/standarddeviation.asp). For a normal distribution, 68% of the observations are within +/- one standard deviation of the mean, 95% are within +/- two standard deviations, and 99.7% are within +- three standard deviations.

1. How do you handle missing data? What imputation techniques do you recommend?

Answer: **a number of alternative ways of handling the missing data has been developed.**

1. Listwise or case deletion. ...
2. Pairwise deletion. ...
3. Mean substitution. ...
4. Regression imputation. ...
5. Last observation carried forward. ...
6. Maximum likelihood. ...
7. Expectation-Maximization. ...
8. Multiple imputation.
9. What is A/B testing?

Answer: A/B testing is the process of comparing two variations of a page element, usually by testing users' response to variant A vs variant B, and concluding which of the two variants is more effective

1. Is mean imputation of missing data acceptable practice?

Answer: In statistics, **imputation** is the process of replacing **missing data** with substituted **values**. ... Because **missing data** can create problems for analyzing **data**, **imputation** is seen as a way to avoid pitfalls involved with listwise deletion of cases that have **missing values**.

1. What is linear regression in statistics?

Answer: **Linear regression** is the next step up after correlation. It is **used when** we want to predict the value of a variable based on the value of another variable. The variable we want to predict is called the dependent variable (or sometimes, the outcome variable).

1. What are the various branches of statistics?

Answer: 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.