Q1. What is probability distribution?

**It is the distribution of random variable which possesses any random value and probability associated with it within the given range of value.**

Q2. Probability distributions are classified into how many major types?

**2 types: Continuous and Discrete.**

Q3. What is Normal distribution?

**Normal Distribution is a type of Continuous probability distribution of variables under a bell shaped symmetric curve about the mean. Generally the data points are dense on and near the mean shows that those data points occurred in dataset frequently and vice versa.**

Q4. Properties of Normal distribution

* 1. **It has a bell-shaped curve which is symmetrical across measures of central tendency.**
  2. **Mean = median= mode**
  3. **The total area under the curve is 1.**

Q5. Normal distribution is characterized by

**Mean and Standard Deviation**

Q6. Notation used to represent Normal distribution

**N (mu, sigma)**

Q7. Properties of standard normal distribution

**A Normal distribution with mu= 0 and sigma=1**

Q8. How is standard normal distribution represented?

**N (0, 1)**

Q9. What are the other applications of scale function?

**To make your data scale free and unit free.**

Q1. What is Confidence Interval?

**A Confidence Interval is a range of values we are fairly sure our true value lies in.**

Q2. What is Margin of Error?

**A small amount of error that is allowed to express the sampling error.**

**MOE= z\*sigma/sqrt(n)**

Q3. Formula for standardization.

**z=x-mu/sigma**

Q4. What is 1-alpha?

**Confidence level**

Q6. Function to calculate z value in Python.

**scipy.stats.norm.cdf()**

Q7. What we do if population standard deviation, sigma is not known?

**Resort to sample standard deviation and t distribution**

Q8. Characterize t distribution.

**The t-distribution is symmetric and bell-shaped, like the normal distribution, but has heavier tails and** **charactered by degrees of freedom**

Q9. Function to calculate student’s t-dist in Python?

**scipy.stats.t.cdf()**

Q10. How to interpret the findings from sample data for population?

**By calculating confidence interval.**

Q1. What does Hypothesis testing mean?

**Hypothesis testing is a statistical method that is used in making statistical decisions using experimental** **data.**

Q2. Condition of Null hypothesis

**No Action Condition/Status Quo**

Q3. Condition for Alternate hypothesis

**Take action condition / there is a change.**

Q4. Hypothesis test is done on sample, but statements are written/ applied for population:True/False ?

**True**

Q5. What are the steps involved in Hypothesis testing?

1. **Identification business problem**
2. **Data collection**
3. **Define hypothesis statements**
4. **Choose the test**
5. **Check the P value**
6. **Compare with alpha value and conclude the decision**