Q.1 **what is the difference between data analysis and machine learning?**

Ans. Difference between data analysis (Data Analytics) and machine learning -

* Data analytics is a process of inspecting, cleansing, transforming and modelling data with the goal of discovering useful information, suggesting conclusion and supporting decision- making. Machine Learning is a process than can work with thousands of different inputs, and make predictions regarding new unseen inputs.
* Data Analytics focuses on generating valuable insights from the available data. Machine learning refers to the study of algorithms that improves through experience
* Data Analytics helps you take raw data and extract helpful information from the same. A machine learning algorithm learns from data automatically and applies the learning without requiring human intervention.
* Statistical Analysis, SQL, Knowledge of R and Python are the skills of Data Analytics .Deep learning, Natural language processing (NLP), and computer vision are the skills of Machine learning.

Q.2 **what is Big Data?**

Ans. Big Data is a field that treats way to analyze, systematically extract information from, or otherwise deals with data sets that are too large or complex to be dealt with by traditional data processing application software. With Big Data, the amount of data we will have to process high volumes of low density, unstructured data.

Big Data is a combination of structured, semi structured and unstructured data collected by organisations that can be mined for information and used in machine learning projects, predictive modelling and other advanced analytics applications. Big Data is often characterized by three V’s :

* The large volume of data in many environments.
* The wide variety of data types frequency stored in big data system.
* The velocity, at which much of the data is generated, collected and processed.

Q.3 **what are the four main things we should know before studying data analysis?**

Ans. Business Analytics is the combination of skills, technologies, application and processes used by organisation to gain data- driven insights. Some of these things for data analysis include:

* Structural Query Language (SQL)
* Critical Thinking
* R or Python- statistical Programming
* Data Visualization
* Presentation skills
* Machine Learning
* Microsoft Excel

Q.4 **what is the difference between inferential statistics and descriptive statistics?**

Ans. Difference between inferential statistics and descriptive statistics –

* Inferential statistics focuses on making predictions and its results are usually in the form of probability. Descriptive statistics are used to describe the characteristics or features of a dataset.
* The accuracy of inferential statistics relies heavily on the sample data being both accurate and representative of the large population. Descriptive statistics can be used to describe both individual quantitative observations as well as overall process of obtaining insights from these data.
* Descriptive statistics:

1. Measure of Central Tendency
2. Measure of Variability

Inferential statistics:

1. Sample
2. Population

* Inferential statistics allows comparing data, making hypothesis and predictions. Descriptive statistics helps to organizing, analyzing and to present data in a meaning manner.

Q.5 **What** **is the difference between Population and Sample in inferential statistics?**

Ans. Difference between Population and Sample in inferential statistics –

* Population statistics is the entire group that you want to draw conclusion about. Sample statistics is the specific group that you will collect data from.
* Population statistics is a large amount of data or group. The size of the sample is always less than the total size of the population statistics.
* In most cases Population statistics is impossible to test an entire population. Sample is a subset of population statistics.
* Population statistics is costly, difficult and unmanageable. Sample statistics is Cost effective and manageable
* Example of Population statistics is population of the India. Example of Sample statistics is population of Madhya Pradesh.