1. **What do you mean by BI? Explain.**

**Ans-** BI stands for **Business Intelligence**.

* Business Intelligence is a set of processes, architectures, and technologies that convert raw data into meaningful information that drives profitable business actions.
* It is a suite of software and services to transform data into actionable intelligence and knowledge.
* BI has a direct impact on an organization’s strategic, tactical and operational business decisions. BI supports fact-based decision-making using historical data rather than assumptions and gut feelings.

1. **How Power-BI helps in BI, and how does it help Analysts? Explain.**

**Ans-**

* Power BI helps in various ways in the field of Business Intelligence
  + It increased the efficiency of the operational process.
  + Insight into customer behavior and shopping patterns.
  + Accurate tracking of sales, marketing, and financial performance.
  + It is a very powerful BI tool that provides features like Easy to use, easy to collaborate, Cost-Effective, Wide Coverage of Data sources, Visualization, Data shaping, and Data Modeling.
  + BI has a direct impact on an organization’s strategic, tactical and operational business decisions. BI supports fact-based decision-making using historical data rather than assumptions and gut feelings.
* Power-BI is a Business Intelligence tool developed by Microsoft, it lets you visualize your data and share insights across your organization, or embed them in your app or website.
* It helps us to connect the various source of data, clean it up and transform it into a data model for clear data visualization.
* Power BI is the overall process of ETL which stands for Extract, Transform and Load which help Analyst to process data and bring insight into built-in dashboards or provide interactive reports.

1. **Explain Descriptive analytics?**

**Ans-**

* Descriptive analytics is a field of statistics that focuses on gathering and summarizing raw data to be easily interpreted characteristic of data, It is the **“what we know”** (current user data, real-time data, previous engagement data, and [big data](https://www.talend.com/resources/future-big-data/)).
* Descriptive analytics focuses on summarizing and highlighting patterns in current and historical data, which helps companies understand what has happened to date. However, it doesn’t attempt to analyze why something will happen or predict what might happen in the future.
* Descriptive analytics is the most basic and widely used type of analytics, it’s used to produce the key performance indicators (KPIs) and metrics included in business reports and dashboards.
* Descriptive analytics is the first step in making sense of that raw data. It often uses basic mathematical operations to produce summary statistics.
* Descriptive analysis can be categorized into **four types:-**
  + Measure of **Frequency**(No of Data occurrence)
  + Measure of **Central tendency**(Mean, Median, Mode)
  + Measure of **Dispersion or Variation**(Range, IQR, Variation, STD)
  + Measure of **Position**(Percentails, Quatertails, Standard Score(Z-score) )
* Descriptive analytics uses two key method, **Data Aggregation** and **Data Mining**(also known as Data Discovery)
* Data aggregation is the process of **collecting and organizing data** to create manageable data sets. These data set are used in the **Data Mining** phase where patterns, trends, and meaning are identified and then presented in an understandable way.
* **Descriptive Analytics Process in Five Broad Steps:-**
  + State Business Metrics
  + Identify Data Required
  + Extract and Prepared Data
  + Analysed Data
  + Present data
* **Example Descriptive Analytics:-**
  + Business Report
  + Financial Metric
  + Survey Report

1. **Explain Predictive analytics?**

**Ans-**

* **Predictive analytics** is the use of **Data to Predict Future Trends** and events. It uses historical data to forecast potential scenarios that can help to drive strategic decisions, It is the **“what could happen”.**
* Predictive analytics uses statistics and modeling techniques to determine future performance.
* It draws on a series of techniques to make these determinations, including Artificial Intelligence (AI), Data Mining, Machine Learning, Modeling, and Statistics.
* **Predictive Analytics Workflow**
  + **Access and Explore Data**
    - Files, Database, Web archives, etc
  + **Preprocess Data**
    - Working with Messy Data, Data reduction, and Data Transformation, Feature Extraction
  + **Develop Predictive Model**
    - Model Creation-Machine Learning, Parameter Optimization, Model Validation
  + **Integrate Analytics With System**
    - Desktop Apps, Enterprise-Scale System(Excel, Python, Matlab, etc), Embedded Devices and Hardware
* **Predictive Analytics Example:-**
  + Fraud detection
  + Risk management
  + Health care
  + Analytics customer relationship management(CRM)

1. **Explain Perspective analytics?**

**Ans-**

* **Prescriptive analytics** works with another type of data analytics, predictive analytics, which involves the use of statistics and modeling to determine future performance, based on current and historical data. However, **it goes further**: Using the predictive analytics' estimation of what is likely to happen, **it recommends what future course to take**, It is the **“what should happen”.**
* Prescriptive analytics is **the process of using data to determine an optimal course of action**. By considering all relevant factors, this type of analysis yields recommendations for the next steps. Because of this, prescriptive analytics is a valuable tool for data-driven decision-making
* Prescriptive analytics makes use of machine learning to help businesses decide a course of action based on a computer program’s predictions.
* Prescriptive analytics works with predictive analytics, which uses data to determine near-term outcomes.
* When used effectively, prescriptive analytics can help organizations make decisions based on facts and probability-weighted projections, rather than jump to under-informed conclusions based on instinct.
* **Benefits of prescriptive analytics:-**
  + Effortlessly map the path to success.
  + Inform real-time and long-term business operations.
  + Spend less time thinking and more time doing.
  + Reduce human error or bias.

**6. Write five real-life questions that PowerBi can solve.**

**Ans-**

* Customer Segmentation Dashboard.
* Sales Scorecard Dashboard.
* Product Sales Dashboard.
* Ad Display Campaign Dashboard.
* Finance Dashboard.