1. What is Power BI and how does it differ from Excel?
   * Power BI is a business analytics tool used for data visualization, reporting, and interactive dashboards.
   * Key Differences:
     + Power BI is designed for handling large datasets efficiently, while Excel can struggle with big data.
     + Power BI offers real-time data refresh and better interactive dashboards compared to Excel.
     + Power BI supports DAX (Data Analysis Expressions), a more advanced formula language than Excel's formulas.
2. Explain the concept of data modeling in Power BI.
   * Data modeling in Power BI involves structuring and defining relationships between datasets to optimize reporting and analysis.
   * It includes creating relationships, calculated columns, measures, and hierarchies for efficient data analysis.
3. What are the different types of connections available in Power BI?
   * Import Mode (data is stored in Power BI)
   * DirectQuery (queries the data source in real-time)
   * Live Connection (used for SSAS models, connects directly)
   * Composite Mode (combines Import and DirectQuery)
4. How do you handle data transformation in Power BI?
   * Using Power Query Editor to clean, shape, and transform data (e.g., removing duplicates, changing data types, merging tables).
5. What is DAX (Data Analysis Expressions) and why is it important in Power BI?
   * DAX is a formula language used in Power BI to create custom calculations.
   * It's essential for measures, calculated columns, and aggregations.
6. Difference between calculated columns and measures in Power BI?
   * Calculated Columns: Stored in tables, computed row by row.
   * Measures: Calculated dynamically in reports based on user interaction.
7. How do you handle relationships between tables in Power BI?
   * Using primary and foreign keys to create one-to-many or many-to-many relationships.
8. What is the purpose of a Power BI Gateway?
   * It allows on-premises data to be accessed by Power BI Service for scheduled refreshes.
9. How can you schedule data refresh in Power BI Service?
   * Through Settings → Datasets → Scheduled Refresh, setting frequency and credentials.
10. Explain the concept of row-level security in Power BI.

* It restricts data visibility based on user roles using DAX filters in the Power BI model.

1. Power BI Desktop vs. Power BI Service?

* Power BI Desktop: Used for data modeling and report creation.
* Power BI Service: Used for sharing, publishing, and scheduling reports.

1. Explain the concept of Direct Query in Power BI.

* Queries data directly from the source instead of importing it, ensuring real-time updates.

1. What are Power BI templates and how are they useful?

* .pbit files containing report layouts, queries, and model definitions (useful for reusability).

1. How do you handle incremental data refresh in Power BI?

* Using incremental refresh policies in Power BI Service to load only new or changed data.

1. Role of Power Query in Power BI?

* Used for ETL (Extract, Transform, Load) processes to prepare data for analysis.

1. Difference between calculated columns and calculated tables?

* Calculated Columns: Add new data to an existing table.
* Calculated Tables: Create new tables from existing data using DAX.

1. How do you create custom visuals in Power BI?

* Using Power BI Developer Tools and JavaScript (D3.js) frameworks.

1. Best practices for optimizing performance in Power BI?

* Use star schema, avoid excessive calculated columns, use aggregations, and optimize DAX queries.

1. How can you integrate Power BI with other Microsoft products?

* Connect with Azure Synapse, SQL Server, SharePoint, Excel, and Power Automate for seamless data flow.

1. Explain the concept of aggregations in Power BI.

* Precomputed summaries of data stored at different levels to improve performance in large datasets.

1. How do you handle error handling and data quality in Power BI?

* Using Power Query transformations, error-handling functions, and data profiling tools.

1. Purpose of Power BI Embedded and when to use it?

* Allows embedding Power BI reports into custom applications, useful for ISVs and enterprises offering analytics.