\* Power BI Fundamentals

**1. What is Power BI and how does it differ from Excel?**

**A**NS- Power BI is a business intelligence tool that helps you visualize and analyze data. It's designed for larger datasets and more complex analyses than Excel.

ANS- Excel is primarily a spreadsheet application, good for smaller datasets and simpler calculations. Power BI offers more advanced features like data modeling, interactive dashboards, and integration with other Microsoft tools.

2. **Explain the concept of data modeling in Power BI.**

ANS- Data modeling in Power BI involves creating relationships between tables to establish connections between data points. This allows you to analyze data from different sources in a unified way.

**3. What are the different types of connections available in Power BI?**

ANS- Import: Data is copied into Power BI for analysis.

ANS- Direct Query: Data is queried from the original source in real time.

ANS- Live Connection: For on-premises Analysis Services databases, providing real-time data.

**4. How do you handle data transformation in Power BI?**

ANS- Power Query is used for data transformation. You can clean, shape, and combine data from various sources.

**5. What is DAX (Data Analysis Expressions) and why is it important in Power BI?**

ANS- DAX is a formula language used to create calculated columns, measures, and tables. It's essential for complex calculations and analysis.

**6. Can you explain the difference between calculated columns and measures in Power BI?**

ANS- Calculated columns are values calculated for each row of a table.

ANS- Measures are calculations that aggregate data across a table.

**7. How do you handle relationships between tables in Power BI?**

ANS- You create relationships by identifying common columns (keys) between tables.

**8. What is the purpose of a Power BI Gateway?**

ANS- Power BI Gateway allows you to connect to on-premises data sources and refresh data in Power BI.

**9. How can you schedule data refresh in Power BI Service?**

ANS- You can set up scheduled refreshes to automatically update data in your reports.

**10. Explain the concept of row-level security in Power BI.**

ANS- Row-level security controls which data users can see based on their permissions.

**11. What is the Power BI Desktop and how does it differ from Power BI Service?**

ANS- Power BI Desktop is a standalone application for creating and designing reports.

ANS- Power BI Service is a cloud-based service for sharing and publishing reports.

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

ANS- Direct Query queries data directly from the source in real time, providing the latest data but potentially impacting performance.

**13. What are Power BI templates and how are they useful?**

ANS- Power BI templates are pre-built reports and dashboards that can be customized for your specific needs.

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

ANS- Incremental refresh updates only the new or changed data, improving performance for large datasets.

**15. What is the role of Power Query in Power BI?**

ANS- Power Query is used for data preparation, cleaning, and transformation.

**16. Explain the difference between calculated columns and calculated tables in Power BI?**

ANS- Calculated columns are values calculated for each row of a table. Calculated tables are new tables created using DAX formulas.

**17. How do you create custom visuals in Power BI?**

ANS- You can create custom visuals using custom visuals development tools or by using R or Python.

**18. What are the best practices for optimizing performance in Power BI?**

ANS- Use incremental refresh, optimize data models, and avoid unnecessary calculations.

**19. How can you integrate Power BI with other Microsoft products like Azure and Office 365?**

ANS- Power BI integrates seamlessly with Azure services like Azure Data Factory and Azure SQL Database. It also integrates with Office 365 products like Excel and SharePoint.

**20. Explain the concept of aggregations in Power BI.**

ANS- Aggregations summarize data, such as calculating sums, averages, or counts.

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

ANS- Use DAX functions like ISERROR and ERROR to handle errors. Implement data quality checks during data preparation.

**22. What is the purpose of Power BI Embedded and when would you use it?**

ANS- Power BI Embedded allows you to embed Power BI visuals and reports into your own applications. It's useful for building custom analytics solutions.