Assignment of power bi

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

Ans. power BI is a BI tool for creating automated, interactive dashboards, while Excel is mainly a spreadsheet for manual analysis. Power BI handles large datasets and real-time reporting better than Excel.

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

Ans. Data modeling in Power BI organizes tables and defines relationships for accurate reporting. It ensures better performance, accurate calculations, and clean relationships.

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

Ans. power BI supports Import, DirectQuery, and Live Connection modes. Import stores data in memory, DirectQuery fetches live from the source, and Live connects to SSAS or existing datasets.

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

Ans. Handled in Power Query, using steps like removing duplicates, splitting columns, or changing data types. It cleans and shapes raw data before modelling

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

Ans DAX is a formula language in Power BI for creating measures and calculated columns. It enables dynamic calculations like totals, percentages, and time intelligence

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

Ans Calculated columns add data row-by-row and increase model size, while measures calculate on the fly without storage. Measures are more efficient and used in visuals

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

Ans Relationships in Power BI link tables using keys (like primary-foreign key) to enable cross-table analysis. You can manage them in the Model view, defining cardinality (1:1, 1:\* , *:*) and direction

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

Ans A Gateway connects on-premises data sources with Power BI Service for secure data transfer. It allows scheduled refresh and live queries for local databases.

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

Ans In Power BI Service, you can configure scheduled refresh in dataset settings. You set frequency (daily/weekly) and time slots so reports always show updated data.

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

Ans RLS restricts data access based on user roles so each person sees only their permitted data. It is implemented using DAX filters in roles (e.g., region-based access).

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

Ans. Power BI Desktop is a free development tool for data modeling, transformation, and report creation. Power BI Service is a cloud platform for sharing, collaboration, scheduled refresh, and dashboards.

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

Ans Direct Query connects Power BI directly to the source without importing data. It’s useful for large or real-time datasets but performance depends on the database

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

Ans Templates are pre-built report files (.PBIT) with structure, visuals, and queries but no data. They allow reuse of report designs with different datasets

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

Ans Incremental refresh loads only new or changed data instead of full reloads. It improves performance and is configured in Power BI Service for large datasets

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

Ans Power Query is the ETL tool in Power BI used for data connection, cleaning, and transformation. It uses the M language to define transformation steps.

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

Ans Calculated columns add new fields row-by-row in existing tables, while calculated tables create entirely new tables using DAX. Tables are useful for creating reference or summary datasets.

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

Ans Custom visuals are user-built or marketplace visuals added to Power BI for advanced visualization needs. They are created using TypeScript and Power BI Developer Tools.

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

Ans Best practices include using star schema, reducing columns, preferring measures over calculated columns, and enabling aggregations. Also, minimize visuals on a page and avoid complex DAX.

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

Ans Power BI integrates with Azure (Data Lake, Synapse, SQL DB, ML models) for analytics and Office 365 (Excel, Teams, SharePoint) for collaboration and reporting. This creates a seamless Microsoft ecosystem for BI.

20. Explain the concept of aggregations in Power BI

Ans Aggregations pre-calculate summary data (e.g., totals, averages) to improve query performance on large datasets. Power BI uses them to answer queries faster without scanning detailed data.

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

Ans. Power Query provides steps like removing errors, replacing values, and validating data types. Data profiling tools (column distribution, quality, profile) help ensure clean and accurate data.

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

Ans Power BI Embedded is an Azure service that lets developers embed Power BI reports and dashboards into custom applications or websites. You’d use it when you want to provide analytics and interactive reporting inside your own app for customers or users without requiring them to have a Power BI account or license.