POWER BI
Questions & Answers

Q1. What are the components of Power BI?

Ans. There are five different components of Power BI.

- Power Pivot: Fetches and cleans data and loads on to Power Query
- Power Query: Operates on the loaded data
- Power Q&A: Makes it possible for users to interact with reports using simple English language
- Power View: This lets users create interactive charts, graphs, maps, and other visuals
- Power Map: Enables the processing of accurate geographic locations in datasets

Q2. How Power BI is different from Tableau?

Ans. Below are some of the major differences between Power BI and Tableau:

- Pricing:

Power BI is generally less expensive than Tableau, especially for larger teams.

- Ease of use:

Power BI is generally easier to use, especially for those who are already familiar with Microsoft products. Tableau has a more robust feature set.

- Data sources:

Both Power BI and Tableau can connect to a wide range of data sources, including databases, Excel files, and web-based data. However, Tableau has more advanced features for connecting to and preparing data.

- Visualizations:

Both Power BI and Tableau offer a wide range of visualization options. However, some users feel that Tableau offers more flexibility and customization options, while others prefer the simplicity of Power BI's visuals.

Q3. How is Power BI different from other BI tools?

Ans. Power BI provides better features and data manipulation tools as compared to other BI tools like Tableau. A single user can connect with multiple data sources without any experience in coding and data analytics. As a product of Microsoft, Power BI is closely integrated with other Microsoft tools such as Office 365, SharePoint, and Bing.

In the free version of Power BI Desktop, the user can analyze datasets of up to 1GB in storage along with 10,000 rows of data steaming every hour. Moreover, it provides features like Power Query which allows the user to easily visualize the datasets by giving the command in the natural English language.

Q4. What is Dax Function?

Ans. It is a formula expression language called (DAX) that can be used with various visualization tools like Power BI. It is also known as a functional language, where the full code is kept inside a function.

Data types of Dax are:

1) Numeric, 2) Boolean, 3) Date Time, 4) String, and 5) Decimal.

Q5. What are the types of filters available in Power BI Reports?

Ans. Important filters of Power BI reports are:

- Visual-level Filters
- Page-level Filters
- Report-level Filters

Q6.Differentiate between Power BI and Excel.

Ans. The key differences are:

- **Tabular reports-**

Power BI is not very good at handling tabular reports.

Excel is better at handling tabular reports.

- **Duplicate table-**

Power BI can't display duplicate tables.

Excel allows users to display duplicate tables.

- **Reports-**

Power BI allows interactive, personalized reports.

Excel users cannot perform advanced cross-filtering between charts.

- **Analytics-**

Power BI offers simple analytics.

Excel offers advanced analytics.

- **Applications-**

Power BI is ideal for KPIs, alerts, and dashboards.

Excel has new charts now but they can't connect to data model.

Q7. What is the CALCULATE function in DAX?

Ans. The CALCULATE function helps calculate the sum of an entire

column. It can be modified using filters.

Syntax:

(CALCULATE(<expression>[, <filter1> [, <filter2> [, ...]]])

Expression: The expression that has to be evaluated.

Filter: The filter is a boolean expression or a table expression that is supposed to define a filter.

Q8. What are the different challenges faced by a Power BI developer?

Ans. The challenges faced are:

- Power BI does not have a feature for data cleansing
- It will create problems with large datasets
- Power BI might face performance issues as it has been observed that it cannot process more than 20000-30000 rows without running into issues for some queries
- Bulky user interface

Q9. How can you do automation in Power BI?

Ans. Automation can be done with Power Automate.

Power Automate is a cloud-based service that allows you to create workflows to automate business processes. With Power Automate, you are able to use out-of-the-box connectors that allow you to connect to more than 200 services and automate repetitive tasks, saving you a considerable amount of time and effort.

Q10. Can you explain the bookmark function of Power BI?

Ans. If you want to capture a configured view of your report's current state, you can use the bookmark feature to achieve this. Default bookmarks capture specific elements of your reports, including slicers and filters.

Q.11. Explain the major concept of Power BI.

Ans. Power BI is a cloud-based, self-service business intelligence solution. It is popularly used for data sharing and creating reports and dashboards.

- Power BI is a user-friendly software that offers an attractive graphical user interface with intuitive visualizations.
- Business users can collect data from multiple data sources at a time and work with it to create reports for analysis.
- Power BI has on-premise, web-based, cloud-based as well as mobile platforms to share the reports created for other users.
- The users with whom you share these Power BI reports and dashboards can interact with it by filtering and using slicers according to their needs.

Q12. What is Power BI Desktop?

Ans. Power BI Desktop is a Microsoft Windows desktop application for Power BI. It is free-of-cost software that can be installed on any device like a laptop or PC. The Power BI Desktop is loaded with tools and capabilities to import, cleanse, design, and model data. Also, it has many attractive as well as interactive visualizations to represent data graphically in reports. The Power BI Desktop works in association with the Power BI Service. You can save the reports/files that you create in Power BI or publish them on the Power BI Workspace/site or with other business users.

Q13. What is Get Data in Power BI?

Ans. The get Data feature offers data connectivity to a number of different data sources. The Get Data option is on the Menu bar of the Power BI Desktop main page. We can click on this option to connect our Power BI Desktop app with a preferred data source.

You can connect to data files on your local system, Excel files, Azure SQL Database, Facebook, Google Analytics, Power BI datasets, etc.

Q14. What are the building blocks of Power BI?

Ans. Power BI consists of some key components that can also be called its building blocks.

Five key components of Power BI are the Visualizations, Datasets, Reports, Dashboards, and Tiles.

Q15. What are the visualizations in Power BI?

Ans. Visualizations are the visual representation of data. Power BI offers a wide range of attractive visualizations. We can create reports and dashboards using both simple as well as complex visualizations to represent the data set.

There is also a library available for custom visualizations. We can format and customize the visualizations as per liking and edit every detail from the appearance to the data labels finely.

In Power BI, we can create visualizations such as, Bar charts, Column charts, Line chart, Area chart, Pie chart, Stacked area chart, Ribbon chart, Waterfall chart, etc.

Q16. What are reports in Power BI?

Ans. Reports in Power BI are a combination and collection of different kinds of visualizations relevant to a particular business topic. A report is a graphical and structured presentation of datasets used in the analysis. They are informative and reveal important insights from the data.

Users can easily share and publish reports created in Power BI with other users via Power BI Desktop and Power BI website, cloud-based platforms and mobile platforms.

Q17. What do you understand by dashboards in Power BI?

Ans. A Power BI dashboard is a canvas on which we can bring together different elements or visualizations to represent datasets. A dashboard gives us a graphical overview of the story that lies in the

detailed BI report. It contains all the important elements from a report.

A dashboard is always a single page. The consumers use the dashboard for analytical purposes like getting a quick insight into their business, making an important decision based on the information given on a dashboard, etc.

Q18. What are the KPIs in Power BI?

Ans. KPIs are the Key Performance Indicators. The KPIs evaluates an organization's performance in different areas by evaluating values and measurable goals. A KPI always has a base value or measure which is evaluated against a target value. You can evaluate the performances in an analysis just by seeing the KPI as they graphically represent the evaluation. Thus, KPIs will show whether the goals you have set are met or not.

Q19.How many versions of Power BI are available as of now? How are they different?

Ans. There are presently three versions or editions of Power BI i.e. Power BI Desktop, Power BI Pro and Power BI Premium.

- Power BI Desktop: Power BI Desktop is a free of cost development, authoring and publishing tool of Microsoft Power BI. It is a user interaction platform from where users can connect to multiple data sources, transform and clean data, visualize and create reports.
- Power BI Pro: Power BI Pro is a modern self-service BI having advanced features for collaboration, publishing, report sharing, and ad hoc analysis. It costs $9.99 per month per user.
- Power BI Premium: Power BI Premium is an enterprise BI solution with features and tools for advanced analytics, big data support, on-premises and cloud reporting, etc. It also provides dedicated cloud computing and storage facilities. It costs $ 20 per month per user.

Q20. What are Slicers in Power BI?

Ans. Slicers in Power BI are visual filters that are present in the report page. The slicers let us sort and filter information on a packed report. Unlike filters, slicers are present as a visual on the report and we can select values on it while we are analyzing the data in the report.

For example, if we have a sales analysis report, you can make a slicer for years. From that slicer, we can select the year for which we want to see the sales metrics such as 2017, 2018 etc. The report visuals will automatically and instantly change to show the information for the selected year.

Q21. Discuss about the Content Packs in Power BI.

Ans. The Power BI content packs are packages or pre-build solutions that contain several Power BI objects such as reports, dashboards, datasets, Excel workbooks, etc. A user can deploy their data/objects to the content packs and share them with others in an organization. Content packs are shared and accessed via the Power BI site (Workspace).

There are two types of content packs; the service provider content packs and user-created content packs.

Q22. What are Custom visuals in Power BI?

Ans. Custom visuals are customized visualizations like charts, KPIs, etc. that are created by developers from scratch using custom visuals SDK. Power BI offers a rich library of custom visuals which you can select, import and use in your Power BI report. Developers use JavaScript libraries such as jQuery, D3, R-language scripts, etc. to create custom visuals.

Q23. What data sources can you connect to Power BI?

Ans. The Power BI data sources are divided as follows:

- Files: Data can be imported from Power BI Desktop files (.pbix), Excel (.xlsx, xlxm), and Comma Separated Value (.csv).
- Content Packs: It refers to the collection of related files or documents that are stored as a group. There are two types of content packs in Power BI: those from service providers including Google Analytics, Salesforce, and those created and shared by other users in the organization.
- Connectors: To connect databases and other datasets, including Database, Azure SQL, and SQL Server Analysis Services tabular data, etc.

Q24.How are a Power BI dashboard and a report different from each other?

Ans. Differences are :

1. **Number of pages**

Dashboard - Consists of one page only.

Report - Can be of one or more pages.

2. **Data sources**

Dashboard - Can have data tiles from one or more datasets or reports.

Report - It has a single dataset per report.

3. **Filtering**

Dashboard - Cannot perform filtering or slicing.

Report - Can perform filtering, slicing and highlighting.

4. **Set alerts**

Dashboard - Enables you to set alerts for emails.

Report - No option for setting alerts.

5. **Accessing dataset**

Dashboard - Does not allow viewing or accessing underlying datasets tables and fields.

Report - Provides the option for viewing dataset tables, fields and values.

Q25. What is Power Pivot ?

Ans. Power Pivot is an in-memory component that enables storing compressed data. It is used to build data models, relationships, create formulas, calculate columns from different resources.

Q26. What is Power View?

Ans. Power View is a data visualization technology, which lets you create interactive graphs, charts, maps, and other visuals to bring life to your data. It is available in Excel, SQL Server, SharePoint, and Power BI.

Q27. Define Power Query?

Ans. Power Query is an ETL tool to clean, shape, and transform data without any code using intuitive interfaces. With this:

- You can import data from various sources like databases from files
- Append and join data from a wide range of sources
- You can shape data as needed by adding and removing it

Q28. What is the major difference between a Filter and a Slicer?

Ans. Using Normal filters users are not allowed to interact with dashboards or reports, but using slicers we can interact with dashboards and reports.

Q29. What is the Power BI Service?

Ans. Power BI Service is a cloud-based analytics solution that helps you to create dashboards and publish, design reports, collaborate and share the reports with internal and external stakeholders.

Q30. Tell us about the Excel add-ins for Power BI.

Ans. The Excel BI Toolkit for Microsoft self-service BI has got a number of add-ins:

- Power Query for data mash-up and transformation.
- Power View for viewing data visualizations.
- Power Pivot for in-memory tabular data modeling.
- Power Map for visualizing 3D geo-spatial data.

Q 31. Share some key points about DAX usage in Power BI?

Ans. Some key points about DAX:

- DAX is a functional language. So its complete code is always a function.
- An executable DAX expression generally contains conditional statements, nested functions, value references, etc.
- DAX formulas have two primary data types- Numeric and Non-numeric.
- The numeric data type includes integers, decimals, currency, etc. And, the non-numeric consists of strings and binary objects.
- DAX expressions are evaluated in an inward to outward fashion. It starts from the innermost function going to the outermost function at the last.
- We can use values of mixed data types as inputs in a DAX formula.

Q32. Which table functions will you use to group data in Power BI?

Ans. We can use two main DAX functions to group data in Power BI - SUMMARIZE() and SUMMARIZECOLUMNS:

- The SUMMARIZE function is used to *group data by columns*.
- The SUMMARIZECOLUMNS function is generally used in Power BI to *group data by columns, expressions, and tables*.

Q33. Explain the concept of Power BI DAX?

Ans. The three fundamental concepts of Power BI DAX are Syntax, Context, and Functions.

 1. Syntax:

It comprises of various components that make up the formula. For e.g. - Total Sales = SUM(Sales[SalesAmount])

- Total Sales is the Measure name.
- The equals sign (=) indicates the start of the DAX formula.
- SUM is used to add the values of a given field.
- The parenthesis () is used to enclose and define arguments in an expression
- Sales are the table referenced
- The referenced column [SalesAmount] is an argument with which the SUM function identifies the column on which it has to aggregate a SUM.

2. Context:

It is one of the essential concepts of DAX. There are two types of Contexts - Row Context and Filter Context.

- The Row-Context is applied whenever a formula has a function that filters to identify a single row in a table.
- Filter-Context is used when one or more filters are applied in a calculation.

3. Functions:

Functions are structured, predefined, and ordered formulae. They complete calculations using arguments passed on to them.

Q34. Explain some commonly used DAX functions.

Ans. Some of the most commonly used DAX functions are:

- Date and Time Functions -

These functions carry out calculations on the date and time values. Ex: DATE, CALENDER, HOUR, MINUTE

- Time Intelligence Functions -

These functions are used to evaluate values over a fixed period. Ex: DATESBETWEEN, ENDOFQUARTER, CLOSINGBALANCEMONTH

- **Logical Functions** -

These functions are used to evaluate an argument or expression logically. Ex: AND, FALSE, IFERROR, IF

- **Mathematical and Trigonometric Functions** -

These functions are used to perform all sorts of mathematical functions on the reference values. Ex: DIVIDE, FACT, ACOS

- **Statistical Functions** -

These functions carry out statistical and aggregation functions on data values in a DAX expression. Ex: AVERAGE, COUNT, GENERATE

- **Text Functions** -

These are similar to the string functions of Excel. Ex: FIND, LEFT, FIXED, FORMAT

- **Table functions** -

In DAX formulas, these functions are used to apply operations and conditions on entire tables. Ex: FILTER, VALUES, DISTINCT

Q35. What is a summarize function in DAX?

Ans. Summarize is a DAX function that gives an aggregated result from a table. This is how summarize function is used:

Summarize(<table>,<grouping column>,[<name>,<expression>)

- table - a DAX expression that returns a table
- grouping column - the column name you want to use for grouping
- name - the name of the new aggregated column
- expression - generates the aggregated column.

Q36. What are DAX Calculation types?

Ans. DAX in Power BI has two types of calculations or formulas. These are:

- Calculated Columns: These are used to merge new columns into existing ones with filters. These columns can be created from the Modeling tab in Power BI Desktop, where new columns can be created by entering their names and formula.
- Calculated Measures: They enable the user to create fields with aggregate values like average, ratio, percentage, etc. The measures are also created from the modeling tab of Power BI Desktop.

Q37. Explain Power BI Query Editor.

Ans. Power BI Query Editor is used to transform or edit data files before they are loaded. The Query Editor plays the role of an intermediate data container where you can transform data by selecting rows and columns, splitting rows and columns, pivoting and unpivoting columns, etc.

The modifications done by the Query Editor are not reflected in the actual datasheet.

Q38. Are Power View and Power Query the same?

Ans. Power Query can be used to download data to Excel as well as make nice transformations. Example: Filter, merge multiple sources, calculate, etc.

Power View enables you to present the data in reports.

Q39. What is parameter in Power BI?

Ans. A parameter serves as a way to easily store and manage a value that can be reused. Parameters give you the flexibility to dynamically change the output of your queries depending on their value. And can be used for Changing the argument values for particular transforms and data source functions.

Q40. How to sort data in Power BI?

Ans. Sorting is available in multiple formats. In the data view, there is a common sorting option of alphabetical order.

We have the option of Sorting by column, where one can sort a column based on another column. Sort by ascending and descending option by the fields and measure present in the visual is also available.

Q41. How to combine two columns in Power BI?

Ans. To combine two columns in Power BI, you need to select a new calculated column using the DAX expression.

For example, if you need to add the values of two columns & make the third column, then you can do it by the Following DAX Expression: *Total=Sheet Name(Col1) +sheet Name(Col2).*

Q42. What is Power BI Data Gateway? How can we use it?

Ans. Power BI Data Gateway is software used to access the data connected to a premise- network from the cloud.

On-premises data gateway acts as a bridge to provide quick and secure data transfer between on-premises data (data that isn't in the cloud) and several Microsoft cloud services. These cloud services include Power BI, PowerApps, Power Automate, Azure Analysis Services etc.

To use Data Gateway, you need first to install it in your system; add the users to this who will be accessing the data from on-premise sources. Give authentication & request and get connected to the On-Premise Data sources.

Q43.How is the filter function used in Power BI?

Ans. You can use FILTER to reduce the number of rows in the table

that you are working with, and use only specific data in calculations.

FILTER is not used independently, but as a function that is embedded in other functions that require a table as an argument.

Power BI Service (Basic to Intermediate Level)

Q: What is Power BI Service, and how does it differ from Power BI Desktop?
A: Power BI Service is a cloud-based analytics platform, while Power BI Desktop is a local data preparation and reporting tool.

Q: How can you share a Power BI report with others using the Power BI Service?
A: You can share reports by publishing them to a workspace, and setting permissions for users or groups.

Q: What are Workspaces in Power BI Service, and how are they used?
A: Workspaces are collaborative environments in Power BI Service, where teams can create, edit, and share reports and dash

Q: Explain the role of Row-Level Security (RLS) in Power BI Service.
A: RLS restricts data access for specific users based on assigned roles, ensuring data confidentiality within shared reports.

Q: What is the purpose of Dataflows in Power BI Service?
A: Dataflows allow users to prepare and manage data within Power BI Service for reuse across reports.

Q: Describe the types of licenses available for Power BI Service.
A: Power BI offers Free, Pro, and Premium licenses, each with different levels of sharing and collaboration capabilities.

Q: How do scheduled data refreshes work in Power BI Service?
A: Scheduled refreshes allow users to automatically update data at specified intervals, ensuring current information.

Q: What are dashboards in Power BI Service, and how are they created?
A: Dashboards are single-page summaries of report visuals created by pinning elements from various reports.

Q: How can you collaborate on reports and dashboards within Power BI Service?
A: You can collaborate by sharing dashboards, adding comments, and using workspaces for teamwork.

Q: What are Content Packs, and how do they function within Power BI Service?
A: Content Packs are pre-built collections of reports, datasets, and dashboards, which can be shared with other users.

Power BI Mobile Apps

Q: How can you interact with reports and dashboards on Power BI Mobile Apps?
A: Power BI Mobile Apps allow you to view, filter, and interact with data reports and dashboards on mobile devices.

Q: Describe the offline capabilities of Power BI Mobile Apps.
A: Power BI Mobile Apps support offline access to cached reports, enabling data review without an internet connection.

Practical Power BI Questions for Newbies

Q: How would you optimize a slow report in Power BI Service?
A: To optimize, reduce the dataset size, use data aggregations, limit visuals, and optimize DAX calculations.

Q: How do you handle data refresh errors in Power BI?
A: Start by checking your data gateway and data source connection, then verify the refresh schedule and any applied credentia

Q: What steps would you take to set up Row-Level Security (RLS) in Power BI?
A: Define roles with DAX filters in Power BI Desktop, assign users to roles, and publish to Power BI Service for secure data ac

Q: How can you improve the performance of DAX calculations?
A: Use calculated columns wisely, avoid complex measures in visuals, and use variables to simplify DAX expressions.

Q: How do you troubleshoot visualizations that are not displaying correctly?
A: Check the data model, filters applied, and any relationships between tables; ensure visuals are properly configured.