1. What is Power BI, and what are its three main components?

Power BI is a Microsoft business intelligence (BI) tool for connecting to data sources, transforming data, and creating interactive reports and dashboards. - Power BI Desktop – a Windows app for creating reports. - Power BI Service – a cloud service for sharing and collaboration. - Power BI Mobile – apps for iOS/Android/Windows to access dashboards on the go.

2. Name two business use cases for Power BI dashboards.

1. Financial performance monitoring – track revenues, expenses, and profitability. 2. Sales and marketing analytics – measure campaign success, customer behavior, and regional sales performance.

3. How do you download and install Power BI Desktop?

Option 1 (Recommended): Download from the Microsoft Store. Option 2: Visit powerbi.microsoft.com/desktop, download .exe installer, and install manually.

4. What is the difference between Power BI Desktop and Power BI Service?

Desktop = free, used to build reports and models (local, .pbix). Service = cloud, used to publish, share, and collaborate (requires Pro/Premium for sharing).

5. What file extension does a Power BI project use?

.pbix – main Power BI report file. .pbit – template (report structure only, without data).

6. Explain the role of Power Query in Power BI.

Power Query is the data transformation engine in Power BI. It helps: - Connect to multiple data sources. - Clean, filter, merge, and reshape data. - Automate transformations with M language (applied steps).

7. Why would a business prefer Power BI over Excel for reporting?

- Better interactive dashboards and visualizations. - Can handle large datasets (millions of rows). - Easier sharing and collaboration via cloud. - Built-in AI/ML insights and natural language queries.

8. Describe one limitation of the free version of Power BI.

Reports can be created in Desktop but cannot be shared with others in Power BI Service without a Pro license.

9. What is a 'published report' in Power BI Service?

It is a report created in Power BI Desktop and then uploaded/published to Power BI Service for others to view, interact with, and collaborate on.

10. How does Power BI Mobile enhance accessibility?

- Provides anytime, anywhere access to dashboards. - Supports touch-friendly interactivity. - Sends alerts and push notifications on KPIs.

11. Compare Power BI with Tableau—pros and cons.

Power BI Pros: Lower cost, easy integration with Microsoft ecosystem (Excel, Azure, Teams), simple for beginners. Cons: Limited advanced customization compared to Tableau. Tableau Pros: Stronger visual customization and data storytelling, handles complex datasets well. Cons: More expensive, steeper learning curve.

12. Explain how Power BI integrates with Azure services.

- Azure SQL Database / Data Lake → as data sources. - Azure Machine Learning → predictive analytics. - Azure Synapse Analytics → large-scale data warehousing integration. - Azure Active Directory (AAD) → identity and security management.

13. What are 'gateways' in Power BI, and when are they needed?

A gateway is a bridge that connects on-premises data sources (like SQL Server, Oracle, SAP) with Power BI Service. Needed when you want cloud reports to refresh with data stored inside company servers.

14. How would you convince a company to adopt Power BI? (ROI argument)

- Cost-effective (lower license fees than competitors). - Time savings: automated data refresh instead of manual Excel reports. - Faster decisions: real-time dashboards. - Improved collaboration: shared dashboards reduce siloed reporting. ROI comes from better insights, faster reaction, and reduced reporting workload.

15. What security features does Power BI offer for sensitive data?

- Row-level security (RLS): restricts what data users can see. - Azure Active Directory integration: authentication & role-based access. - Data encryption (at rest and in transit). - Sensitivity labels for compliance (GDPR, HIPAA). - Audit logs & monitoring for tracking access.