# 1. Introduction to Business Intelligence & Power BI

A. What is Business Intelligence (BI)?
B. Evolution of BI: Traditional vs Self-Service BI
C. Why Power BI in Business Analytics
D. Overview of Power BI products: Desktop, Service, Mobile, Gateway
E. Power BI ecosystem & architecture basics
F. Comparing Power BI with other BI tools (e.g., Tableau)

# 2. Power BI Desktop Setup & Interface

A. Installing Microsoft Power BI Desktop
B. Getting started with the Power BI workspace
C. Overview of panes: Fields, Visualizations, Filters, Relationships
D. Using the Ribbon and Views (Report, Data, Model)
E. Understanding report pages & canvas
F. Data types, fields, tables and metadata handling

# 3. Data Extraction & Power Query (ETL)

A. Connecting to multiple data sources: Excel, CSV, databases, web APIs
B. Power Query Editor basics
C. Cleaning and shaping data: filter rows, remove duplicates, replace values
D. Transformations: merge, append, pivot and unpivot
E. Data type conversion, splitting and combining columns
F. Working with parameters and query folding concepts

# 4. Data Modeling

A. Understanding relationships between tables
B. Cardinality & cross-filter direction
C. Star schema, snowflake schema concepts
D. Creating hierarchies (e.g., Year → Month → Day)
E. Default summarization, role playing dimensions
F. Managing model view and table properties

# 5. DAX (Data Analysis Expressions)

A. Introduction to DAX and its role in Power BI
B. Calculated Columns vs Measures
C. Basic functions: SUM, AVERAGE, COUNT, DISTINCT
D. Logical functions: IF, SWITCH
E. Time Intelligence functions: YTD, MTD, previous period calculations

F. FILTER, ALL, CALCULATE and advanced context filtering
G. Variables (VAR) and optimized formulas

## 6. Data Visualization & Reporting

A. Creating core visuals: bar, line, area, pie, donut, cards, KPIs
B. Tables, matrix visuals, combo charts
C. Maps and geo-visuals (ArcGIS, Bing maps)
D. Custom visuals from marketplace
E. Slicers and filters (basic, advanced, sync across pages)
F. Conditional formatting & interactive visual interactions

## 7. Reports, Dashboards & Interactivity

A. Designing multi-page reports
B. Drill-down, drill-through and tooltips
C. Bookmarks, buttons, and navigation techniques
D. KPIs and dashboards in Power BI Service
E. Pinning visuals to dashboards and setting alerts
F. Exporting and printing reports

## 8. Power BI Service & Collaboration

A. Publishing reports to Power BI Service
B. Workspaces, Apps, and datasets
C. Sharing with users and setting permissions
D. Scheduled data refresh and gateways
E. Row-Level Security (RLS) setup
F. Application lifecycle & deployment differences

## 9. Advanced Features & Optimization

A. Performance optimization tips
B. Usage metrics and query diagnostics
C. Incremental refresh and large datasets
D. Integrating R and Python scripts
E. Using AI/ML insights and Copilot features
F. Custom analytics scenarios

## Mini Projects:

- Sales Performance Dashboard
- Financial Reporting & Profit/Loss Dashboard
- Customer Segmentation & Market Insights
- HR Analytics: Attrition & KPI Tracking
- Inventory/Operations BI Use-Case
- Portfolio reports with business story narrative and interpretation