Mile-Stone 1: Advance Excel & MySql

Part A – 1 Mark MCQs (30 Marks)

Excel (15 MCQs – 1 Mark each)

1. Which function is used to count only numeric values in Excel?
   a) COUNTA
   b) COUNT
   c) COUNTIF
   d) SUM

2. Shortcut key to create a new worksheet in Excel?
   a) Ctrl + W
   b) Ctrl + N
   c) Shift + F11
   d) Alt + Enter

3. Which function returns the current system date in Excel?
   a) NOW()
   b) DATE()
   c) TODAY()
   d) TIME()

4. In Pivot tables, grouping dates by month helps in:
   a) Filtering duplicates
   b) Aggregating data
   c) Formatting charts
   d) Data validation

5. Which chart type is best suited for showing trends over time?
   a) Pie Chart
   b) Column Chart
   c) Line Chart
   d) Scatter Plot

6. The function =IF(A1>50,"Pass","Fail") is an example of:
   a) Lookup function
   b) Logical function
   c) Text function
   d) Reference function

7. Which Excel function returns the relative position of an item in a range?
   a) VLOOKUP
   b) MATCH

c) INDEX
d) SEARCH

8. Power Query is mainly used for:
   a) Formatting cells
   b) Data cleaning and transformation
   c) Creating PivotTables
   d) Running Macros

9. Which of the following is NOT an Excel data type?
   a) Number
   b) Text
   c) Boolean
   d) Cluster

10. In Excel dashboards, KPIs are used to:
    a) Format tables
    b) Represent key business metrics
    c) Remove duplicates
    d) Insert formulas

11. The OFFSET function in Excel is a:
    a) Lookup function
    b) Reference function
    c) Math function
    d) Date function

12. The shortcut key for Goal Seek in Excel is found under:
    a) Data → What-if Analysis
    b) Insert → Functions
    c) Home → Analysis
    d) Review → Proofing

13. Which feature allows saving a sequence of actions for reuse?
    a) Goal Seek
    b) Macro
    c) Scenario Manager
    d) Data Validation

14. Conditional Formatting in Excel is used to:
    a) Highlight data based on rules
    b) Change worksheet layout
    c) Insert formulas
    d) Build Pivot Tables

15. Which of the following is not a valid Excel chart?
    a) Waterfall
    b) Funnel
    c) Heat Map
    d) Rectangle

16. Which of the following is NOT a DML command?
    a) INSERT
    b) UPDATE
    c) DELETE
    d) CREATE
17. Which MySQL command is used to remove a table?
    a) REMOVE
    b) DELETE
    c) DROP
    d) CLEAR
18. In SQL, `COUNT(*)` returns:
    a) Only NULL values
    b) Only unique values
    c) All rows including NULL
    d) Only non-null values
19. Which constraint ensures unique values in a column?
    a) PRIMARY KEY
    b) FOREIGN KEY
    c) UNIQUE
    d) CHECK
20. Which of the following is a TCL command?
    a) GRANT
    b) COMMIT
    c) CREATE
    d) DROP
21. The default port for MySQL server is:
    a) 1521
    b) 3306
    c) 1433
    d) 8080
22. Which operator is used for pattern matching in SQL?
    a) =
    b) LIKE
    c) MATCH
    d) BETWEEN
23. • The SQL query `SELECT NOW();` returns:
    a) Current date
    b) Current time
    c) Current date & time
    d) System version
24. Which function is used to concatenate strings in MySQL?
    a) MERGE()
    b) CONCAT()

c) JOIN()
d) UNION()

25. In MySQL, `CASCADE` option is used with:
    a) DROP
    b) ALTER
    c) FOREIGN KEY
    d) TRUNCATE
26. Which join returns only matching rows from both tables?
    a) INNER JOIN
    b) LEFT JOIN
    c) RIGHT JOIN
    d) FULL JOIN
27. Which of the following is NOT an aggregate function?
    a) AVG()
    b) SUM()
    c) COUNT()
    d) CONCAT()
28. A subquery inside a WHERE clause is called:
    a) Nested Query
    b) Inline View
    c) Correlated Subquery
    d) Derived Table
29. The process of minimizing redundancy in DB design is called:
    a) Normalization
    b) Optimization
    c) Aggregation
    d) Consolidation
30. A database trigger executes:
    a) Automatically on events
    b) Only when called manually
    c) At server startup
    d) During installation

Part B – II Marks

1. Use **VLOOKUP** to find the department name of Employee ID 105 from the employee table.
2. Create a **Pivot Table** to show total sales by Region from a dataset containing OrderID, Region, Sales.
3. Apply **Conditional Formatting** to highlight all sales values greater than 50,000 in red.
4. Use **TEXT function** to display today's date in the format DD-MMM-YYYY.
5. Perform a **Goal Seek** to find what sales amount is required to reach a profit of 10,000, if profit = sales × 0.2.

Employee Table

EmployeeID	EmployeeName	Department
101	John	HR
102	Amit	Finance
103	Sara	IT
104	Lina	Marketing
105	Raj	Sales
106	Emma	Admin

Salse Table

OrderID	Region	Sales
1001	North	45000
1002	South	52000
1003	East	67000
1004	West	48000
1005	North	72000

OrderID	Region	Sales
1006	South	35000

Profit Table

Sales	Profit
20000	4000
30000	6000
40000	8000
50000	10000
60000	12000

6 Differentiate between **DDL and DML commands** with examples.

7 Write a query to fetch the **second highest salary** from an employee table.

8 Explain the difference between **INNER JOIN** and **LEFT JOIN** with an example.

9 What is a **Trigger** in MySQL? Give a use case.

10 Why is **Normalization** important? Explain with an example.

Part c

Department Table

dept_id	dept_name
1	Sales
2	IT
3	HR
4	Finance

Employee Table

emp_id	emp_name	dept_id	salary	hire_date
101	John	1	50000	2018-05-12
102	Amit	2	65000	2017-03-20
103	Sara	2	72000	2019-08-15
104	Lina	3	48000	2020-01-10
105	Raj	4	55000	2016-09-25
106	Emma	1	60000	2015-11-02

Attendance table

att_id	emp_id	att_date	status
1	101	2025-09-01	Present
2	102	2025-09-01	Absent
3	103	2025-09-01	Present
4	104	2025-09-01	Present

att_id	emp_id	att_date	status
5	105	2025-09-01	Present
6	106	2025-09-01	Present

A company database has the following tables:

employees(emp_id, emp_name, dept_id, salary, hire_date)
departments(dept_id, dept_name)
attendance(att_id, emp_id, att_date, status)

Answer the following in sequence (each part builds on the previous one):

a) Write a **DDL command** to create the departments table with dept_id as Primary Key and dept_name as NOT NULL.

b) Insert two sample records into the departments table (e.g., Sales, IT).

c) Write a query to display the **employee name and department name** using a JOIN between employees and departments.

d) Write a query to find the **highest salary** using an aggregate function.

e) Write a **subquery** to fetch the employees who earn more than the **average salary**.

f) Create a **view** named emp_salary_view to display emp_name, dept_name, salary.

g) Write a **stored procedure** named GetDeptEmployees that accepts a dept_id and returns all employee names in that department.

h) Write a **user-defined function** YearWorked(hire_date) that calculates the number of years an employee has worked in the company.

i) Create a **trigger** that automatically inserts a record into attendance table with status = 'Present' whenever a new employee is added.

j) Write a query using **string function** to display employee names in uppercase.

Global Finance Insights Dashboard

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1. Objective

To design an interactive financial dashboard in Excel that provides insights into **global stock indices, macroeconomic indicators, and trade performance** across multiple countries. The dashboard should help stakeholders analyze trends, compare countries, and identify risks/opportunities in the global economy.

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2. Scope

- Use the provided dataset (Global finance data.csv)
- Create **KPIs, charts, and slicers** to summarize performance
- Present insights across **markets, economies, and trade**

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3. Key Metrics & KPIs

- **Stock Market Performance**: Index Value, Daily Change %
- **Macroeconomic Health**: GDP Growth, Inflation, Interest Rate, Unemployment
- **Global Trade**: Export Growth %, Import Growth %, Current Account Balance
- **Financial Stability**: Credit Rating, Bond Yield, Political Risk, Banking Sector Health
- **Commodity Influence**: Oil & Gold Prices, Commodity Index

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4. Functional Requirements (Dashboard Sections)

1. **Global Market Overview**
    - Top 5 performing Stock Indices (bar/line chart)
    - Market Cap by Country (treemap)
    - Daily Change % heatmap
2. **Economic Indicators**

- GDP Growth vs Inflation (scatter plot)
- Unemployment vs Interest Rate (comparison chart)
- Government Debt % of GDP (bar chart)

3. **Trade & Commodities**
    - Export vs Import Growth (clustered bar)
    - Current Account Balance trend (line chart)
    - Oil vs Gold Price trend (dual-axis chart)
4. **Risk & Stability Analysis**
    - Credit Rating distribution (donut chart)
    - Political Risk Score by Country (bar chart)
    - Banking Sector Health (matrix/slicer view)

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5. Technical Requirements

- Dataset cleaning using Excel Power Query (remove duplicates, correct formats)
- Dashboard design using PivotTables, PivotCharts, and Slicers
- Use of KPIs (traffic lights, conditional formatting)
- Interactive filtering by **Country, Year, and Stock Index**