**SQL Server Basics**

1. **What is SQL Server?**  
   a) A programming language  
   b) A relational database management system (RDBMS) ✅  
   c) A web framework  
   d) A cloud service
2. **Which company developed SQL Server?**  
   a) Oracle  
   b) IBM  
   c) Microsoft ✅  
   d) Google
3. **What is the default port number for SQL Server?**  
   a) 3306  
   b) 1521  
   c) 1433 ✅  
   d) 8080
4. **Which SQL Server database stores system-level information?**  
   a) TempDB  
   b) MSDB  
   c) Model  
   d) Master ✅
5. **Which database is used for temporary storage in SQL Server?**  
   a) TempDB ✅  
   b) Model  
   c) Master  
   d) Resource

**Database Concepts**

1. **What does RDBMS stand for?**  
   a) Relational Data Mapping System  
   b) Relational Database Management System ✅  
   c) Real-time Database Management System  
   d) Remote Database Management System
2. **Which of the following is not a type of SQL key?**  
   a) Primary Key  
   b) Foreign Key  
   c) Secondary Key ✅  
   d) Unique Key
3. **Which SQL constraint ensures a column cannot have duplicate values?**  
   a) NOT NULL  
   b) CHECK  
   c) UNIQUE ✅  
   d) DEFAULT
4. **Which SQL command is used to remove a table from a database?**  
   a) DELETE  
   b) REMOVE  
   c) DROP ✅  
   d) TRUNCATE
5. **What is the purpose of the FOREIGN KEY constraint?**  
   a) Enforces unique values in a column  
   b) Defines a relationship between two tables ✅  
   c) Ensures values in a column cannot be NULL  
   d) Creates an index on a table

**SQL Commands and Queries**

1. **Which SQL command is used to retrieve data from a database?**  
   a) INSERT  
   b) UPDATE  
   c) SELECT ✅  
   d) DELETE
2. **Which SQL command is used to modify existing records in a table?**  
   a) UPDATE ✅  
   b) MODIFY  
   c) CHANGE  
   d) ALTER
3. **What is the purpose of the TRUNCATE command?**  
   a) Deletes specific rows from a table  
   b) Removes all rows from a table without logging individual row deletions ✅  
   c) Deletes a table from a database  
   d) Removes duplicate records
4. **Which SQL statement is used to add a new column to an existing table?**  
   a) ADD COLUMN  
   b) UPDATE TABLE  
   c) MODIFY TABLE  
   d) ALTER TABLE ✅
5. **Which SQL clause is used to filter the results of a query?**  
   a) WHERE ✅  
   b) FILTER  
   c) SORT  
   d) GROUP

**Joins and Relationships**

1. **What does an INNER JOIN do?**  
   a) Returns only matching records from both tables ✅  
   b) Returns all records from the left table  
   c) Returns all records from both tables  
   d) Returns records only if there are no matches
2. **Which JOIN returns all records from the left table and matching records from the right table?**  
   a) INNER JOIN  
   b) LEFT JOIN ✅  
   c) RIGHT JOIN  
   d) CROSS JOIN
3. **Which JOIN returns all records from both tables, filling missing matches with NULL values?**  
   a) INNER JOIN  
   b) FULL OUTER JOIN ✅  
   c) LEFT JOIN  
   d) RIGHT JOIN
4. **What is a SELF JOIN?**  
   a) A join between two unrelated tables  
   b) A join where a table is joined with itself ✅  
   c) A join between three tables  
   d) A join using only primary keys
5. **Which join type does not require a condition and returns the Cartesian product of two tables?**  
   a) INNER JOIN  
   b) OUTER JOIN  
   c) CROSS JOIN ✅  
   d) EQUI JOIN

**Indexes and Optimization**

1. **What is an index in SQL Server?**  
   a) A unique constraint  
   b) A data structure to speed up queries ✅  
   c) A relationship between tables  
   d) A type of stored procedure
2. **Which type of index is created automatically when a primary key is defined?**  
   a) Non-clustered index  
   b) Clustered index ✅  
   c) Full-text index  
   d) Hash index
3. **What is a clustered index?**  
   a) An index where data is stored in random order  
   b) An index that sorts and stores data rows in order ✅  
   c) A duplicate of the table  
   d) A temporary storage
4. **Which SQL clause is used to remove duplicate records in a query result?**  
   a) DISTINCT ✅  
   b) UNIQUE  
   c) REMOVE  
   d) DIFFERENT
5. **Which SQL function is used to count the number of records in a result set?**  
   a) COUNT() ✅  
   b) SUM()  
   c) AVG()  
   d) MAX()

**Stored Procedures and Functions**

1. **What is a stored procedure?**  
   a) A precompiled SQL query stored in the database ✅  
   b) A table constraint  
   c) A function that returns a value  
   d) A temporary table
2. **Which command is used to execute a stored procedure?**  
   a) RUN PROCEDURE  
   b) EXEC ✅  
   c) CALL  
   d) EXECUTE FUNCTION
3. **What is the difference between a function and a stored procedure?**  
   a) Functions must return a value, stored procedures may not ✅  
   b) Functions can modify data  
   c) Stored procedures cannot be executed  
   d) Functions cannot have parameters
4. **What is a trigger in SQL Server?**  
   a) A type of stored procedure executed automatically ✅  
   b) A data constraint  
   c) A backup mechanism  
   d) A primary key
5. **Which statement is true about triggers?**  
   a) They execute automatically in response to events ✅  
   b) They are used to create tables  
   c) They replace stored procedures  
   d) They do not support transactions

**Transactions and Error Handling**

1. **What is a transaction in SQL Server?**  
   a) A single SQL statement  
   b) A sequence of SQL statements executed as a unit ✅  
   c) A backup operation  
   d) A type of stored procedure
2. **Which SQL command is used to save changes made by a transaction?**  
   a) SAVE  
   b) APPLY  
   c) COMMIT ✅  
   d) UPDATE
3. **Which SQL command is used to undo changes made by a transaction?**  
   a) UNDO  
   b) ROLLBACK ✅  
   c) DELETE  
   d) REMOVE
4. **What are the properties of a transaction (ACID)?**  
   a) Atomicity, Consistency, Isolation, Durability ✅  
   b) Automation, Control, Integration, Data  
   c) Access, Commit, Integrity, Data  
   d) Allocation, Constraint, Integrity, Duplication
5. **Which SQL keyword starts an explicit transaction?**  
   a) BEGIN TRANSACTION ✅  
   b) START TRANSACTION  
   c) OPEN TRANSACTION  
   d) NEW TRANSACTION

**Functions and Data Types**

1. **Which SQL function returns the highest value in a column?**  
   a) MAX() ✅  
   b) MIN()  
   c) AVG()  
   d) SUM()
2. **Which SQL function calculates the average value of a numeric column?**  
   a) SUM()  
   b) AVG() ✅  
   c) COUNT()  
   d) ROUND()
3. **Which SQL function is used to return the current system date and time?**  
   a) CURRENT\_TIME  
   b) SYSTEM\_DATE  
   c) GETDATE() ✅  
   d) SYSDATE()
4. **What is the difference between CHAR and VARCHAR?**  
   a) CHAR is fixed-length, VARCHAR is variable-length ✅  
   b) CHAR supports Unicode, VARCHAR does not  
   c) VARCHAR is faster than CHAR  
   d) CHAR can store only numeric data
5. **Which data type is used to store large text data in SQL Server?**  
   a) TEXT ✅  
   b) STRING  
   c) BIGTEXT  
   d) VARCHAR(10)

**Views and Temporary Tables**

1. **What is a view in SQL Server?**  
   a) A physical table  
   b) A virtual table based on a query ✅  
   c) A stored procedure  
   d) A type of join
2. **Which SQL statement is used to create a view?**  
   a) CREATE TABLE  
   b) CREATE VIEW ✅  
   c) CREATE INDEX  
   d) CREATE PROCEDURE
3. **Which type of SQL Server table is temporary and gets deleted when a session ends?**  
   a) Temp table ✅  
   b) Physical table  
   c) Indexed table  
   d) Cache table
4. **How do you create a temporary table in SQL Server?**  
   a) CREATE TABLE #TempTable ✅  
   b) CREATE TEMP TABLE TempTable  
   c) CREATE TABLE TempTable  
   d) CREATE VIEW TempTable
5. **What is the purpose of a CTE (Common Table Expression)?**  
   a) To create temporary views  
   b) To define a temporary result set that can be referenced multiple times ✅  
   c) To create indexes on tables  
   d) To define primary keys

**Security and Performance**

1. **Which SQL command is used to grant user permissions on a database?**  
   a) GIVE  
   b) PERMIT  
   c) GRANT ✅  
   d) ALLOW
2. **Which SQL command is used to remove user permissions?**  
   a) DELETE  
   b) REMOVE  
   c) REVOKE ✅  
   d) DROP
3. **What is SQL injection?**  
   a) A type of SQL function  
   b) A method to optimize queries  
   c) A security vulnerability where malicious SQL is executed ✅  
   d) A way to insert records into a database
4. **Which SQL Server feature is used to optimize queries by indexing text data?**  
   a) Full-Text Search ✅  
   b) Auto-Indexing  
   c) Table Partitioning  
   d) Query Optimizer
5. **What is the purpose of the SQL Server Execution Plan?**  
   a) To visualize the steps taken by SQL Server to execute a query ✅  
   b) To store query results  
   c) To create indexes  
   d) To roll back transactions