# DBMS INTERVIEW COMPLETE GUIDE

## 1. What is DBMS?

DBMS is software used to store, manage, and retrieve data efficiently.

## 2. File System vs DBMS

File system has no security and redundancy; DBMS is secure and efficient.

## 3. Advantages of DBMS

Data security, data consistency, reduced redundancy, easy access.

## 4. Applications of DBMS

Banking, Education, Airlines, Hospitals, E-commerce.

## 5. Data vs Information

Data is raw facts, Information is processed data.

## 6. Database Concepts

Database: Collection of data

Table: Rows and columns

Record: Single row

Field: Single column

## 7. Architecture

1-tier: Direct DB access

2-tier: Client-server

3-tier: Client, Application, Database

## 8. Schema vs Instance

Schema is structure, Instance is actual data.

## 9. Data Independence

Ability to change schema without affecting application.

## 10. Data Models

Hierarchical, Network, Relational, ER Model

11. ER Model

Entity, Attribute, Relationship, Cardinality, Weak Entity

12. Keys

Primary, Candidate, Super, Alternate, Foreign, Composite

13. Constraints

NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, CHECK, DEFAULT

14. Normalization

Remove redundancy and anomalies.

1NF: Atomic values

2NF: No partial dependency

3NF: No transitive dependency

BCNF: Strong 3NF

Denormalization: Performance improvement

15. SQL

DDL: CREATE, ALTER, DROP

DML: INSERT, UPDATE, DELETE

DCL: GRANT, REVOKE

TCL: COMMIT, ROLLBACK

16. Joins

INNER, LEFT, RIGHT, FULL

17. WHERE vs HAVING

WHERE filters rows, HAVING filters groups

18. Transactions

ACID properties: Atomicity, Consistency, Isolation, Durability

19. Concurrency Problems

Dirty Read, Lost Update, Phantom Read

20. Locks

Shared, Exclusive

21. Deadlock

Two transactions waiting for each other

22. Indexing

Clustered and Non-clustered index

23. DBMS vs RDBMS

RDBMS uses tables and relations.

This syllabus is sufficient to crack fresher to mid-level tech interviews.