https://www.youtube.com/DebugWithShubham

https://instagram.com/debugwithshubham

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Cognizant GenC 2025

TOP-15   DBMS

Interview Question

Q1. What is DBMS? Why do we use it?
Answer:

DBMS stands for Database Management System.
It is software used to store, retrieve, and manage data efficiently.

Why DBMS?

Data duplication kam hota hai

Data secure rehta hai

Easy access & modification

Multi-user support

Example: MySQL, Oracle, PostgreSQL

Q2. Difference between DBMS and RDBMS

DBMS	RDBMS
Data stored as files	Data stored in tables
No relationship	Relations using keys
Less secure	More secure
Example: File system	Example: MySQL

One-liner:
RDBMS is an advanced version of DBMS.

Q3. What is a Table, Row, and Column?
Answer:

Table → Collection of data

Row (Tuple) → Single record

Column (Attribute) → Field

Example:
Student table → each student = row, name/roll = column

Q4. What is Primary Key?
Answer:

A primary key is a column that uniquely identifies each record in a table.

Properties:

Unique

Cannot be NULL

Example: Roll number

Q5. What is Foreign Key?
Answer:

A foreign key is a column that links one table to another table's primary key.

Example:
Student table ↔️ Department table

Q6. Difference between Primary Key and Foreign Key

Primary Key	Foreign Key
Uniquely identifies record	Links tables
Cannot be NULL	Can be NULL
One per table	Multiple allowed

Q7. What is Normalization? Why is it used?
Answer:

Normalization is the process of organizing data to reduce redundancy and improve consistency.

Benefits:

Avoids data duplication

Prevents anomalies

Improves data integrity

Usually asked till 3NF only.

Q8. What are ACID Properties?
Answer:

ACID ensures reliable transactions:

A – Atomicity: All or nothing

C – Consistency: Data remains valid

I – Isolation: Transactions don't affect each other

D – Durability: Data saved permanently

Example: Bank transaction

Q9. What is a Join? Types of Joins?
Answer:

Joins are used to combine rows from multiple tables.

Types:

INNER JOIN

LEFT JOIN

RIGHT JOIN

FULL JOIN

One-liner:
INNER JOIN returns matching records from both tables.

Q10. Write SQL query to find 2nd highest salary

```sql
SELECT MAX(salary)
FROM employee
WHERE salary < (SELECT MAX(salary) FROM employee);
```

Q11. What is Indexing?

Answer:

Indexing is used to speed up data retrieval in a table.

Advantage:

Faster SELECT queries

Disadvantage:

Slower INSERT/UPDATE

Q12. What is DELETE vs TRUNCATE vs DROP?

DELETE	TRUNCATE.	DROP
Deletes rows	Deletes all row.	Deletes table
WHERE allowed	WHERE not allowed.	Table removed
Can rollback	Cannot rollback.	Cannot rollback

Q13. What is NULL?

Answer:

NULL means no value, not zero.

Important:
NULL ≠ 0 ≠ empty string

Q14. What is a View?

Answer

A view is a virtual table created using a SQL query.

Benefits:

Security

Simplifies queries

Q15. What is the difference between WHERE and HAVING?

WHERE	HAVING
Used with rows	Used with groups
Before GROUP BY	After GROUP BY