

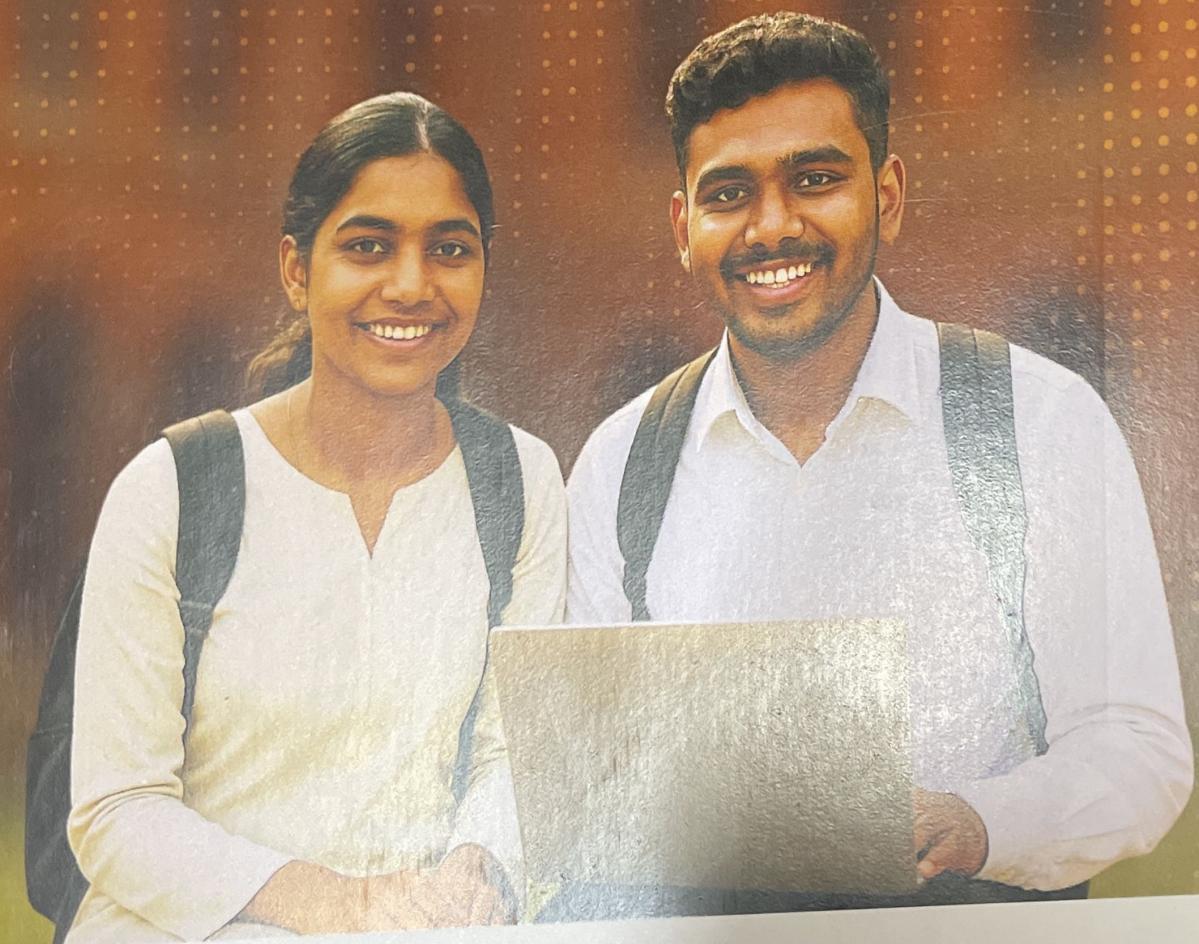
With support from

Adobe

nasscom
foundation

BRIDGING CREATIVITY TO CAREER

Skilling Pathway to Success



Onground Implementation Partner



etrainIndia
empowering education

26-01-2026

Monday

Summer

Basic (9)

Q2, Q3, Q4, Q5, Q7, Q12, Q6, Q11, Q14

Intermediate (5)

Q1, Q6, Q2, Q5, Q12

Database (DBMS) interview Questions

{A} BASIC

(Q2) Primary Key & Foreign Key.

- (PK) Unique record in table.
- Data integrity. (unique)
- (FK) next to PK of new table.
- FK is the old PK of previous table.
- Referential integrity. (consistent data/valid)

(Q3) CRUD operations

Data = "Keshav", 20
Record → name = "Keshav"
no = 20

→ Create :- Use "INSERT INTO" to add record in a table.

→ Read :- Use "SELECT" to retrieve data.

→ Update :- Use "UPDATE" statement to update.

→ Delete :- Use "DELETE FROM" statement to delete.

Q4) Types of joins & work

Inner Join :- Retrieve record, matching value in both tables.

Left Outer Join :- All left record match right (table 2) (table 1).

Right Outer Join :- All right record match left.

Full Outer Join :- Matching & non matching both are retrieved. Unmatched are NULL.

Q5) Ensure data integrity in Relational database.

→ 1) Primary Keys (PK)

2) Foreign Keys (FK)

3) Unique constraints :- Column values are different.

4) Not Null constraints :- Prevent empty field.

5) Check constraints :- Follow defined rules

6) Transactions :- ↓ (no invalid inputs)

Either full execute or not at all.

Q6) ACID properties & imp.

~ Ensures :- 1) Reliable transaction.

2) Data reliability. (trust)

3) Integrity. (accurate)

Atomicity :- F

Consistency :-

Isolation :-

Durability :-

even for

Q12) Data

→ Process

int

→ Ber

Q6) Di

→ Online

→ Short

(ins

→ Eg

Atomicity! - Full transaction or abort.

Consistency! - transaction keeps database valid.

Isolation! - Transaction is not interleaved.

Durability! - Ensure permanent storage of transaction result in database even for failure.

Q12) Data Normalization

→ Process of minimizing redundancy & maintain integrity.

→ Benefits

- Reduces duplicates
- maintain consistency.
- Easier to view & maintain & update.
- Eliminate unnecessary data.

Q6) Differentiate OLTP & OLAP databases.

[OLTP]

- Online transaction Processing.
- Short online transaction, (insert, update, delete)
- Eg:- Retail Sales System.

[OLAP]

- Online analytical processing.
- read heavy operations on large operations of data.
- Eg:- Data warehousing.

Q11) What is Relational Database.
How differ from NoSQL database.

Relational	NoSQL
→ Structured-table	→ Unstructured table -
→ ACID Property follow.	→ Does not provide ACID.
→ Best for complex Queries & transaction	→ Best for storing large unorganized data for web applications.
→ Predefined Schemas relationships.	

Q14) SQL function for data aggregation.

Aggregation → One column result.

- **SUM()**: Total sum of numeric column.
- **AVG()**: Total average.
- **COUNT()**: Total number of rows.
- **MIN()**: Minimum value of column.
- **MAX()**: Maximum value in column.

{B} Inter

Q1) Explain Implant

- Transaction
- Opened unit
- It follows
- Implant in Banking occurs

* Q2) Opti

1) Indexing

2) Avoiding

3) Query into

4) Analysis and

5) Data

6) For

{B} Intermediate

1, 2, 5, 6, 12

Q1) Explain database Transactions & importance in application development.

- Transaction means a sequence of operations performed as a single unit of work.
- It follows ACID properties.
- Importance: - Maintain data consistency, in banking transaction either transaction occurs fully or it does not.

Q2) Optimize database Queries for performance.

- 1) Indexing: - Creating index on frequently used columns.
- 2) Avoiding Select: - Only select the column used.
- 3) Query refactoring: - Rewriting complex commands into simple & faster one.
- 4) Analysing execution plan: - Use tools to understand why the query is slow.
- 5) Database Configuration: - Maintain settings & database properly.
- 6) Archive old data: - Remove old data (unused)

Q

Q5) Handle concurrent data access & prevent deadlocks?

- → concurrent data access means when many users read, write on database at the same time.
- → deadlock mean when both processes are waiting for each other to execute.

Handling & preventing

- → Locking mechanism → if one run, others must wait.
- → Transaction isolation level
 - database separates users work.
- → deadlock detection → check if deadlock occur, kill one transaction.
- → Short transaction → pay quickly not waiting 10min (unsafe)
- → Ordering access
 - lock A first then B.
prevent both fight in opposite direction.

PTO →

Q6)

Database Query

→ database specific column

→ import

1) Spec

2) im



3)

we
d

Q12)

→ W
related

App

→ R

→ R

→ M

→ LA

Q6) Database indexing & importance in query performance.

→ database indexing means creating a special shortcut from table column, for faster data retrieval.

importance

1) Speed up Query :- directly jump to matching row.

2) improve sorting :- index helps database arrange quickly during sorting.

3) Enhance join performance :- when we join two tables, index helps database match record quickly.

Q12) Window functions & Applications.

→ Window functions perform calculation on related rows but does not remove row.

Applications :-

→ Ranking :- Assign ranks to rows.

→ Running total :- calculate total till current row.

→ Moving average :- average of last few rows.

→ LAG and LEAD :- Compare previous row to next.