

SET – 1

1. What is Schedule?

- A. A schedule is the sequence in which operations (like read, write, commit) from multiple transactions are executed.

It shows how transactions are interleaved and helps determine if the execution maintains consistency and concurrency control.

2. What is dirty read?

- A. A dirty read occurs when a transaction reads data that has been modified by another transaction but not yet committed.

If the other transaction rolls back, the read data becomes invalid or "dirty."

3. What is granularity?

- A. In DBMS, granularity refers to the size or level of detail of the data items that are locked during a transaction.

- Fine granularity: Locks small items (e.g., rows) → more concurrency, more overhead.
- Coarse granularity: Locks large items (e.g., tables) → less concurrency, less overhead.

4. Define Atomicity.

- A. Atomicity is a property of a transaction that ensures all operations are completed successfully, or none at all.

If any part fails, the entire transaction is rolled back to maintain data consistency.

5. What is an Index?

- A. An index in DBMS is a data structure that helps speed up data retrieval operations on a database table. It's like a shortcut that allows the database to quickly locate the data without scanning the entire table.

6. Define serializability.

- A. Serializability is the property that ensures that the concurrent execution of a set of transactions produces the same result as if these transactions were executed one after the other without any overlapping, i.e., serially.

7. How many types of Indexes?

- A. There are two main types of indexes in DBMS:

- Primary Index – Built on the primary key.
- Secondary Index – Built on non-primary key attributes.

8. What is ISAM?

- A. It is a file organization technique that stores records sequentially and uses an index to access them quickly. It supports both sequential and direct access to data.

9. What is Redundancy?

- A. Redundancy in DBMS refers to the unnecessary repetition of data in a database. It can lead to increased storage, inconsistency, and data anomalies.

10. What is the full form of BCNF?

- A. The full form of BCNF is Boyce-Codd Normal Form.

SET – 2

1. What is a Transaction give an example?

- A. A transaction is a single unit of work in a database that consists of one or more operations (like read, write, update).

Example:

Transferring ₹1000 from Account A to Account B involves:

- Read balance of A
- Subtract ₹1000 from A
- Add ₹1000 to B
- Save both changes (commit)

All steps must succeed for the transaction to be valid.

2. Discuss about blind writes?

- A. A blind write happens when a transaction writes data without reading it first. It may cause problems like overwriting uncommitted changes made by other transactions, leading to inconsistencies.

3. How many types of schedules are there give real world examples?

- A. There are two main types of schedules in DBMS:

- Serial Schedule – Transactions run one after another without overlapping.
Example: At an ATM, one person withdraws money completely before the next begins.
- Concurrent (Non-serial) Schedule – Transactions run interleaved, but must maintain consistency.
Example: Two users booking movie tickets at the same time, handled safely to avoid double booking.

4. What is granularity?

- A. Granularity in DBMS refers to the level of detail at which data can be locked or accessed.
- Fine granularity: Small units like rows → more concurrency.
 - Coarse granularity: Large units like tables → less concurrency, less overhead.

5. What is File?

- A. In DBMS, a file is a collection of related records stored on disk. It helps in organizing, storing, and managing data for easy retrieval and manipulation.

6. Write any three types of File organizations?

- A. Three types of file organizations are:

- Sequential File Organization
- Heap (Unordered) File Organization
- Hash File Organization

7. Define Primary index?

- A. A Primary Index is an index created on the primary key of a table. It stores the key values in sorted order and points to the corresponding records, allowing fast access.

8. Write any 2 Disadvantages of clustered index?

- A. Two disadvantages of clustered index are:

- Slower insert/update operations due to maintaining sorted order.
- Only one clustered index allowed per table.

9. What is Schema refinement?

- A. Schema refinement is the process of improving a database schema to remove redundancy and anomalies. It often involves applying normalization to ensure better data consistency and efficiency.

10. What is Redundancy?

- A. Redundancy in DBMS refers to the unnecessary repetition of data in a database. It can lead to increased storage, inconsistency, and data anomalies.

SET – 3

1. What are the Techniques to implement Durability?

- A. Techniques to implement Durability in DBMS include:

- Write-Ahead Logging (WAL) – Logs changes before applying them to the database.
- Shadow Paging – Uses copies of data pages to ensure safe recovery.
- Checkpointing – Saves consistent database states at intervals for recovery.

2. Write the Advantages of Concurrent Executions in DBMS.

- A. Advantages of Concurrent Executions in DBMS:

- i) Increased throughput
- ii) Better resource utilization
- iii) Reduced waiting time
- iv) Improved system responsiveness.

3. What is Serializability?

- A. Serializability is the property that ensures that the concurrent execution of a set of transactions produces the same result as if these transactions were executed one after the other without any overlapping, i.e., serially.

4. What are the Several levels of Recoverability that can be supported by a Database System?

- A. Several levels of recoverability in a database system are:

- Recoverable Schedule – A transaction commits only after all transactions whose changes it read have committed.
- Cascadeless Schedule – No transaction reads uncommitted data (prevents cascading rollback).
- Strict Schedule – Transactions can neither read nor write a data item until the last writer commits or aborts (ensures easy recovery).

5. What are the types of Storage?

- A. Types of storage in DBMS:

- Primary Storage
- Secondary Storage
- Tertiary Storage
- Cache Storage

6. What is File Organization?

- A. File Organization refers to the way records are arranged and stored in a file on disk. It affects the efficiency of data access, insertion, deletion, and updating operations.

7. What are the types of Indexes?

- A. There are two main types of indexes in DBMS:

- Primary Index – Built on the primary key.
- Secondary Index – Built on non-primary key attributes.

8. What is Granularity?

- A. Granularity in DBMS refers to the level of detail at which data can be locked or accessed.
- Fine granularity: Small units like rows → more concurrency.
 - Coarse granularity: Large units like tables → less concurrency, less overhead.

9. What is Active Databases?

- A. Active Databases in DBMS are databases that include event-driven capabilities, such as triggers or rules, which automatically execute predefined actions in response to specific events. These databases react to changes or conditions without user intervention, making them suitable for applications requiring real-time updates and monitoring.

10. What are the types of Decomposition?

- A. Types of Decomposition:
- Lossless Decomposition.
 - Dependency-Preserving Decomposition.