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**Question 1**

Not yet answered

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Which of the following is TRUE about Boyce–Codd Normal Form (BCNF)?

- a. BCNF allows transitive dependencies
- b. BCNF removes partial dependencies only
- c. Every BCNF relation is in 3NF
- d. Every 3NF relation is in BCNF

**Question 2**

Not yet answered

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A relation R(A, B, C, D) has functional dependencies  $A \rightarrow B$ ,  $B \rightarrow C$ ,  $C \rightarrow D$ . What is the key of R?

- a. A
- b. B
- c. A, B, C
- d. A and B

**Question 3**

Not yet answered

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In SQL, which operator is used for pattern matching other than LIKE?

- a. REGEX
- b. MATCHES
- c. SIMILAR TO
- d. PATTERN

**Question 4**

Not yet answered

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Which schedule avoids cascading rollback?

- a. Recoverable schedule
- b. View-serializable schedule
- c. Strict schedule
- d. Conflict serializable schedule

**Question 5**

Not yet answered

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For query optimization, cost is MOSTLY measured by:

- a. Network latency
- b. CPU time
- c. Memory usage
- d. Disk I/O operations

**Question 6**

Not yet answered

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When does a deadlock occur in DBMS?

- a. Multiple users querying same table
- b. High lock granularity
- c. Transactions wait for each other cyclically
- d. Multiple updates on a record

**Question 7**

Not yet answered

Marked out of 1.00

In SQL, the keyword used to remove duplicate rows is:

- a. REMOVE
- b. DISTINCT
- c. DEDUP
- d. UNIQUE

**Question 8**

Not yet answered

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In ER diagrams, weak entities must have:

- a. Partial key + identifying relationship
- b. A multi-valued attribute
- c. A composite key
- d. A foreign key only

**Question 9**

Not yet answered

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Which index type is MOST suitable for range queries?

- a. B+ Tree Index
- b. Dense Index
- c. Bitmap Index
- d. Hash Index

**Question 10**

Not yet answered

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Which isolation level prevents dirty reads but allows non-repeatable reads?

- a. READ COMMITTED
- b. REPEATABLE READ
- c. SERIALIZABLE
- d. READ UNCOMMITTED

**Question 11**

Not yet answered

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A view created using other views is called:

- a. Complex View
- b. Derived View
- c. Chained View
- d. Nested View

**Question 12**

Not yet answered

Marked out of 1.00

Which protocol guarantees serializability but may cause deadlocks?

- a. Basic 2-Phase Locking
- b. Validation-based concurrency
- c. Optimistic protocol
- d. Timestamp ordering

**Question 13**

Not yet answered

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Which of the following operations in Relational Algebra is NOT a basic operation?

- a. Set Union
- b. Selection
- c. Projection
- d. Natural Join

**Question 14**

Not yet answered

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Which of the following ensures freedom from deadlocks?

- a. Time-stamp ordering
- b. Wait-die scheme
- c. Conservative 2PL
- d. 2-Phase Locking (2PL)

**Question 15**

Not yet answered

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Which of the following is NOT a property of a transaction schedule?

- a. Cascadeless
- b. Conflict Serializability
- c. Recoverability
- d. Starvation

**Question 16**

Not yet answered

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The ACID property ensuring that a transaction's effects are permanent is:

- a. Isolation
- b. Durability
- c. Consistency
- d. Atomicity

**Question 17**

Not yet answered

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In hashing, collisions cannot be avoided due to:

- a. Limited hash functions
- b. Pigeonhole principle
- c. Bucket overflow
- d. Poor partitioning

**Question 18**

Not yet answered

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Which of these is a method of join optimization?

- a. Sort-Merge Join
- b. Selective Join
- c. Enumerated Join
- d. Priority Join

**Question 19**

Not yet answered

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A table with 1 million rows is queried frequently on a boolean column. Best index type?

- a. B+ Tree
- b. Hash Index
- c. Clustered Index
- d. Bitmap Index

**Question 20**

Not yet answered

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What is the purpose of a CHECKPOINT in DBMS?

- a. Reduce locking
- b. Limit deadlocks
- c. Reduce recovery time
- d. Speed up disk writing

**Question 21**

Not yet answered

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A trigger that executes BEFORE an insert operation is classified as:

- a. PRIOR Trigger
- b. Constraint Trigger
- c. Pre-action Trigger
- d. BEFORE Trigger

**Question 22**

Not yet answered

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What does a dense index store?

- a. Index entries for primary keys only
- b. Index entries for every search key
- c. Index entries only for blocks
- d. Index entries only for non-null values

**Question 23**

Not yet answered

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The FOREIGN KEY constraint ensures:

- a. Entity integrity
- b. Referential integrity
- c. Domain integrity
- d. Functional integrity

**Question 24**

Not yet answered

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Which JOIN returns unmatched rows of the left table?

- a. INNER JOIN
- b. FULL JOIN
- c. LEFT JOIN
- d. RIGHT JOIN

**Question 25**

Not yet answered

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A schedule is said to be conflict serializable if:

- a. It prevents deadlocks
- b. It ensures recoverability
- c. It can be converted to a serial schedule by swapping non-conflicting operations
- d. It has no conflicting operations

**Question 26**

Not yet answered

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SQL query to return 3rd highest salary is typically written using:

- a. LIMIT with OFFSET
- b. MIN() function
- c. HAVING clause
- d. GROUP BY

**Question 27**

Not yet answered

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In distributed databases, fragmentation transparency means:

- a. Users must know fragment location
- b. Only vertical fragmentation is supported
- c. Users can control fragmentation
- d. Users do not need to know how data is split

**Question 28**

Not yet answered

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A relation with multivalued dependencies is normalized using:

- a. 4NF
- b. 2NF
- c. 3NF
- d. BCNF

**Question 29**

Not yet answered

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What is the worst case time complexity of searching in a B+ tree of order m?

- a.  $O(N/m)$
- b.  $O(\log N)$
- c.  $O(m)$
- d.  $O(\log m N)$

**Question 30**

Not yet answered

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Phantom reads occur under which condition?

- a. A transaction updates rows while another reads them
- b. A transaction reads newly inserted rows during re-execution
- c. A transaction reads uncommitted data
- d. A transaction reads the same row twice and gets different values