1) Functional Dependency

The functional dependency is a relationship that exists between two attributes. It typically exists between primary key and non-key attribute

$X \rightarrow Y$

Here X is determinant
Y is dependent

2) Trivial dependency

→ $A \rightarrow B$ has a trivial functional dependency if B is subset of A

→ The dependencies like $A \rightarrow A$, $B \rightarrow B$ are also trivial

3) Candidate key

→ candidate key is a single key or a group of multiple keys that uniquely identify tuples (or) rows in a table

→ A candidate key is a subset of super keys

4)

Multi level indexing

Multi level indexing helps in breaking down the index into several smaller indices in order to make outermost level so small that it can be saved in a single block

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5) ## prime attribute

An attribute that is a part of one of the candidate keys is called as prime attribute

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6) ## Augmentation rule:

If $a \rightarrow b$ holds and y is a attribute set, they $ay \rightarrow by$ also holds. That is adding attributes in dependencies, does not change the basic dependencies

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7) ## Sparse index

A sparse index is a file with pairs of keys and pointers for every block in date file.

→ A sparse index points to the lowest search key in each block

1MARKS

1) Why the concurrency control is needed

A) If many transactions try to access the same data, then inconsistency arises. concurrency control is needed to maintain consistency data. It is needed to increase time efficiency

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2) What is functional dependency.

A) A functional dependency is a relationship between two attributes, typically between primary key and non-key attributes within a table

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3) Differentiate between B-tree and B+ tree

B-tree	B+ tree
1) In B-tree, keys and records can be stored in internal nodes as well as leaf nodes	1) In B+ tree, records are stored in leaf nodes and the keys are stored in internal nodes
2) In B-tree, sequential access of data (or) records not possible	2) In B+ tree, sequential access of data (or) records can be possible

4) What is meant by schedule

A) A schedule is defined as an execution sequence of transaction. A schedule is the arrangement of transaction operations. A schedule may contain a set of transactions

5) Define serializability

A) Serializability is defined as checking correctness of schedule. It is a classical concurrency scheme. It ensures that concurrent transactions is equivalent to serial transactions in same order

1) What is multivalued Dependency?

A) It refers to having multiple rows in a given table. Thus, it implies that there is a presence of multiple other rows. A multivalued dependency would prevent the 4NF

2) What is strict schedule

A) A schedule in which Tj transaction can performed read and write operations only when Ti transaction is commit then it is called strict schedule

3) What is a timestamp

A) Timestamp is a unique identifier created by DBMS to identify the relative starting time of transaction

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4) What is a transaction

A) Transactions are a set of operations used to perform a logical set of work. one of the major uses of DBMS is to protect the user's data from system failures

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