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19BCS080
Nitin Biradar

DBMS END SEM EXAM

1) Using emp name as a clustered index is possible only when every employee will have a unique name. if this is ensured, the tuples will be organised accordingly emp name as alphabatically.
Using emp id as a clustered index is definitely possible considering everyone already has a unique id assigned to them. The tuples will be organized accordingly to emp id.
Using both emp name and emp id as a clustered indexes may not be possible but it is possible to have one clusted index and one non-clustered index.

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2.) ——?

Ans→ i.) DDL is important in representing information in DBMS because it is used to describe external and logical schemas.

ii.) DML is used to update and access data; it is not important for representing data.

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3) A database is typically shared among many users. Transaction from these users can be interleaved to improve the execution time of users queries. By interleaving queries, users donot have to wait for other user's transactions to complete fully before their own transaction begins. without interleaving if user #1 begins a transaction that will take 10 seconds to complete, and user #2 wants to begin a transaction, user #2 would have to wait an additional 10 seconds for user #1's transaction to complete before the database would begin processing user #2's request. Overall it is to increase the transaction throughout.

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4.) a.) —— ?

Ans-> A user must guarantee that his or her transaction doesnot corrupt data or insert nonsense in the database. for example, in a banking database, a user must guarantee that a cash withdraw transaction accurately models the amount a person removes from his or her account. A database application would be worthless if a person removed 20 dollars from an ATM but the transaction set their balance to zero! A DBMS must guarantee that transactions are executed fully and independently of other transactions.

b.) —— ?

Ans-> A DBMS must guarantee that transactions are executed fully and independently of other transactions An essential property of a DBMS is that a transaction should be

executed atomically, or as if it is the only transaction running. Also transactions will either complete fully, or will be aborted and the database returned to its initial state. This ensures that database remains consistent.

5.) —— ?

Ans) You cannot determine a key of a relation given only one instance of the relation. because the fact that the instance is "legal" is immaterial. A candidate key, as defined, is a key, not something that only might be a key. The instance shown is just one possible "snapshot" of a relation. At other times, the same relation may have an instance that contains a totally different set of tuples, & we cannot make predictions about those instances based only upon the instance that we are given.

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7.) —— ?

Ans) RA

$\rho(R_1, \text{catalog})$
$\rho(R_2, \text{catalog})$
$\pi\ R_1.Pid\ \sigma\ R_1.Pid = R_2.Pid \wedge R_1.sid \neq R_2.sid\ (R_1 \times R_2)$

TRC

$\{ T \mid \exists T_1 \in \text{catalog}\ (\exists T_2 \in \text{catalog}\ (T_2.Pid = T_1.pid \wedge T_2.sid \neq T_1.sid) \wedge T.pid = T_1.Pid \}$

DRC

$\{ \langle X \rangle \mid \langle X, Y, Z \rangle \in \text{Catalog} \wedge \exists A, B, C\ (\langle A, B, C \rangle \in \text{catalog} \wedge B = Y \wedge A \neq X) \}$

SQL

```
SELECT C.sid
FROM catalog C
WHERE EXISTS (SELECT C1.sid
              FROM catalog C1
              WHERE C1.pid = C.pid
              AND C1.sid ≠ C.sid)
```

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8.) It is Invalid query.

Because, this relational algebra statement doesnot return anything because of the sequence of projection operators. Once the Sid is projected, it is the only field in the set. Therefore, projecting on some will not return anything.

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9.) The following view on Emp can be updated ~~automatically~~ automatically by updating ~~Emp~~

Emp :

```
CREATE VIEW SeniorEmp
    (eid, name, age, salary)
AS SELECT E.eid, E.ename, E.age,
          E.salary.
FROM Emp E
WHERE E.age > 50.
```