CS310
DBMS
End Sem Exam

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1.

Here In Given Question:

Using empname as a culsted index is possible only when every employee will have a unique name. If this is ensured, the tuples will be orgin'zed according empname alphabitally.

Using empid as a clustered index is definetly possible considaty everyone already has a unique id assigned to there. The tuples will be organized according to empid.

Using both empname and empid as a clustered indexes may not be possible but it is possible two hand one clusted index and one non-clustered index.

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2.

* DDL is important in representing information in DBMS because it is used to describe external and logical schemas.

* DML is used to access and update data. it is not important for representing the data.

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3. True, A DBMS is typically shared among many users. Transactions from these can be interleaved to improve the execution time of the users queries. By interleaving queries, users do not have to wait for others users transactions to complete fully before their own transaction begins.

4.

a. A user must guarantee that their transaction must not corrupt data or insert non-sensial or duplicates of data in the data-base. Also with any transaction (credit or withdrawal), the user must ensure that the transaction models the amount he/she adds to or removes from his/here account. The database application will be worthless if a user removed a small amount of money from their amount but the transaction let their balance to zero.

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b. A DBMS must guarantee that all transaction are executed fully, successfully or independent of other transactions. An important property of DBMS would be the atomic execution of traction running words, it must seem that it is the only transaction running. Transaction will either fully complete, or will be aborted and the database is returned to inital state. This encures the database consistency.

5. Yes, We can determine the key of relation with the help of instance.

eg: In a one to many relation we can consider the column/attribute with unique values as a primary key.

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7. Relation Algebra:

$\rho(R_1, catlog)$

$\rho(R_2, catalog)$

$\pi_{R_1.pid}\ \sigma_{R_1.pid = R_2.pid \wedge R_1.sid \neq R_2.sid}\ (R_1 \times R_2)$

SQL:

```
SELECT    c.sid
From      catalog.c
    where  Exists (SELECT c1.sid
                   From catalog c1
                   where c1.pid=c2.pid AND
                         c1.cid ≠ c.sid)
```

8. Invalid Query:

This relational algebra statement doesn't return anything because of the sequence of projection operators. Once the sid is projected, it is the only field in the set. Therefore, project ensure will not return anything.

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9. The query on Emp schema that could be automatically updated by updating emp is

```
CREATE VIEW senior Emp (eid, ename, age,
                        salary)
As SELECT E.eid, E.ename, E.age, E.salary
From Emp E
where E.age > 50.
```