Endsem Examination
Database Management System

Greeshma. P.G
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1. If every employee is, has a unique name, then empname as a clustered index can be used. If unique name is ensured, then tuples can be organised according to alphabetical empname.

→ Using both empname and empid as clustered index may not be possible.
Only either of them can be/have clustered index.

If everyone has a unique id, then definitely using empid as a clustered index is possible.
So, automatically they can be (tuples) organised according to their respective id.s.

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2. • DDL is important in representing information (creating, deleting and altering tables) because it is used to describe logical and external schemas.

• DML is used to access (insert, delete) and update (modify) data and is not important for representing data.

3. True

This is done to increase transaction throughput, to improve the execution time of the user's queries.

Because of interleaving, one user will not have to wait for other user's transactions to complete.

Without this interleaving each and every user will have to wait for the completion of other user's transactions (who started first), which is not all prefferable.

4.

a. A user in banking system should ensure or guarantee that,

- he do not use any unethical means to make use of the services.
- make sure he do not share his/her transaction details with anybody.
- But he being law-abiding, truthful is his own choice and has nothing to do with banking system and cannot be guaranteed by transaction and database consideney.

b. While, DBMS must guarantee

- that it remains consistent and provide easy multiple transactions simultaneously.
- that the transaction should be completely executed independently without bugs.
- incase of problems, or incomplete transactions, the process should abort.
- database of a different users should not mix-up.

5. Yes, it is possible to determine a key of a relation given only one instance of the relation.

For that functional dependency has to be checked.

Find closure of given instance, if it determines all relation, then its a ~~super~~ key, if its proper subset is not a super key, then its a candidate key and because if is not NULL, it can be considered a primary key.

7.

Supplies.

Sid	Sname	address.
1	Abhi	Delhi
2	Ravi	Bihar
3	Aman	Goa

Parts

Pid	Pname	Colour
1	Red01	Red
2	Red03	Red
3	Green09	green
4	Blue98	Blue
5	Red57	Red.

Catalog

Sid	Pid	Cost
1	1	10
2	2	20
2	3	40
1	4	50
1	5	60

⇒ Relation algebra (Query).

$\rho(R_1, \text{Catalog})$

$\rho(R_2, \text{Catalog})$

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

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⇒ Query in SQL.

```
Select Pid from Catalog as T1, Catalog as T2
    WHERE T1.Pid = T2.Pid
    AND T1.Sid <> T2.Sid.
```

8. This is an invalid query, because this relational algebra statement/query returns nothing because of sequence of projection operators.

If, once sid is projected, projecting any other on the same will not return anything, as, sid projected is the only field in the set.

9.

```
CREATE VIEW Update_Emp (eid, name,
                        age, salary)
AS SELECT E.eid, E.name, E.age, E.salary
FROM Emp E
WHERE E.age > 35
```