End-Sem

DBMS.

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1) Using empname as a clustered index is possible only when every employee will have a unique name. If this is ensured, the tuples will be organized according empname alphabitcally.

Using empid as a cluster index is definetly possible Considerly everyone already has a unique id assigned to there. The tuple will be organised according to empid.

Using both empname & empid as a clustered indexes may not be possible but it is possible to have one clustered index & one non-clustered index.

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2)

a) DDL is important in Representing information in DBMS because it is used to describe External & Logical Schemes.

b) DML is used to Modify and Manipulate 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 user's queries. By interleaving queries, users do not have to wait for other user's transactions to complete fully before their own transaction begins.

4)
a) A user must guarantee that his (or) her transaction does not corrupt data (or) insert nonsense in the database for example, After the transaction was completed the database should update according to that. like if a user withdraw 1000 rs after Success-full transaction the we should upda-te his/her record by dedicting the withdraw balance.

b). A DBMS must guarantee that transactions are executed fully & independently of other transac-tions. An essential property of a DBMS is that a transaction should execute automatically

or as if it is the only transaction running. Also, transactions will either complete fully, or will be aborted & the database returned to it's initial state. This ensures that that the database remains Consistent.

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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) Relational Algebra:-

$\rho(R_1, \text{Catalog})$
$\rho(R_2, \text{Catalog})$

$\Pi_{R_1.Pid}\sigma_{R_1.Pid = R_2.Pid \wedge R_1.Sid \neq R_2.Sid}(R_1 \times R_2)$

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)
```

8) Invalid query

Explanation: 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