DBMS End Sem Examination:

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1) Here In given Question,

Using empname as a clusted index is possible only when every employee will have a unique name. If this is ensured, the tuples will be organized accdding empname alphabatically.

Using Empid as a clustered index is definitely possible Considerly everyone already has a unique id assigned to there Tuples will be organized according to Empid.

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

2) (i) DDL is important in representing information in DBMS, because it is used to describe external and logical sheets.

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

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3. True, A DBMS typically shared among many users. Transactions from these users can be interleaved to improve the execution time of users' queries. By interleaving queries, users don't have to wait for others user's transactions to complete fully before their own transaction begins. Without interleaving if user A begins a transaction that will take 10 seconds to complete, and user B wants to begin a transaction user B would have to wait an additional 10 seconds for user A's transaction to complete before the database would begin processing user B's request.

4. a) A user must guarantee that his or her transaction doesn't corrupt data (or) insert non-sense in the database. For example, in a banking database, a user must guarantee that a cash withdraw transaction that will accurately models the amount a person from his/her account. If data base application is worthless if draws certain amount from an ATM but his transaction set their balance to zero.

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b) A DBMS must guarantee that transactions are executed fully and independently of other transactions. As 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 and the database returned to its initial state. This ensures that the database remains constant.

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

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

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6) a) Create clustered index IX_empname_index ON STUDENTTable (StudentName DESC)

"SELECT Email FROM STUDENTTable"

This query displays all the Emails in the descending order of the StudentName. First the table gets sorted based on StudentName in DESC order then the Select query displays the emails in that order

b)

StudentID	StudentName	Email	Age
1005	Krishna	krishna@pqr.com	22
1030	John	Null	23
1020	John	Jh@xyz.com	22

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7) Relational Algebra:

$\rho(R_1, catalog)$

$\rho(R_2, catalog)$

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

SQL:

```
SELECT    C.sid
FROM      catalog C
WHERE     EXISTS (SELECT  C1.sid
                  FROM    catalog C1
                  WHERE   C1.pid = C.pid  AND
                          C1.sid ≠ 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, projecting on one will not return anything.