DBMS

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i) 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 to empname.

ii) using empid as a clustered index is possible considering everyone has unique id assigned to them tuples will be organized according to empid.

iii) using both empname & empid as clustered indexes may not possible. but if there's a chance for possibility Two have one clustered index & one non-clustered index

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2)

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

- The DML is used to access and update data, it is not important for representing the data

3) yes it is true. because DBMS is 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 other user's transactions to complete. fully before their own. transaction begins without interleaving

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4)

a) A user must guarantee that the transaction doesn't corrupt data in the database.

Ex: In a xyz Banking database a user must gurantee that a cash withdraw transaction accurately models the amount of a person removes from the account. A banking database application would be useless if a person remove Rs 1000 from an ATM. but the transaction sets the balance to zero

b) A DBMS must guarantee that transactions are executed fully independently of other transactions The property of DBMs is that a transaction should execute.

automatically. Also transactions will either complete fully or will be aborted and database returned to its initial state. This proves that the banking database remains consistent

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

Ex: In the one to many relation. we can consider the column. with the given unique values as the 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 descending order of student
Name. first the table gets
sorted based on studentName
in DESC. order then the.
select query displays the
emails in that

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7) Relational Algebra:

$P(R_1, catalog)$

$P(R_2, catalog)$

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

SQL

```
SELECT  C.sid
FROM.   Catalog C.
WHERE   EXISTS ( SELECT C1.sid
                 FROM. Catalog C1
                 WHERE C1.Rid = C.pid
                 AND C1.sid = C.sid)
```

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8) It is invalid query because the relation algebra doesn't return anything because of the sequence of projection operators once the sid is projected. It is the only field in the set. ∴ Projecting on same will not return anything