DBMS - CS310

End Term Examination

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1) * Using Emp name as a clustered index is possible only when every employee will have a unique name, if this is ensured, the pio will be organized accordingly Emp name alphabitically.

* Using Empid as a clustered index is definitely poss -ble, Considering everyone already has a unique id assigned to them, The tuples will be organized according to Empid

* Using both Emp name & Empid as a clustered indexes may not be possible but it is possible two have one clustered index and one non-clustered index

2) * DDL is important in representing information in DBMS because it is used to describe External & logical schemas

* DML is used to <u>access</u> and <u>update</u> data it is not important for representing data

3) A 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, 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' transaction to complete before the data -base would begin processing user B's request

4) a) A user must guarantee that his or her trans -action does not corrupt data or insert non sense in the database. for example, in a banking database a user must guarantee that a cash withdraw transaction accurately models the amount a person removes from his or her account. A database appli -cation would be worthless if a person removed 20 dollars from an ATM but the transaction set their balance to zero

4) b) A DBMS must guarantee that transactions are executed fully and independently of other transactions. An essential property of a DBMS is that a transaction should execute automically, or as if it is the only transaction running. Also, transactions will either complete fully, or will be aborted and the database returned to it's initial state. This ensures that the database remains consistent.

8) 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)
```

-invalid Query :-

Reason :- This relational algebra statement does not 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 same will not return anything

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9) The following view on Emp can be updated automatically by updating Emp:

CREATE VIEW Senior Emp (eid, name, age, salary)

AS SELECT E.eid, E.ename, E.age, E.salary

FROM Emp E

WHERE E.age > 50

5) Yes, we can determine the key of relation with the help of instance. for ex, in one to many relation we can consider the column/attribute with unique values as a primary key