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- Q1. If there is clustered index ~~if~~ on empname, then every employee must have a unique name to make it possible. Using empid as clustered index is most suitable because it is already a unique attribute and the <sup>tuples in the</sup> table will be organized accordingly. It is most suitable to do non-clustered indexing in case of empname & empid as the access to the table is faster.
- Q2. • DDL is important in representing data in DBMS because it is used to describe external and logical schemas.
- DML is used to access and update data, it is not important for representing data.
- Q3. The above statement is True because interleaving improves the execution time of various users performing the transactions. A single transaction becomes independent of the other user's transactions and the users don't have to wait for other transactions to complete in order to process their own transaction.
- Q4. a) A user must guarantee that his or her transaction does not corrupt data or insert garbage in the database. In the Banking System XYZ, a user must guarantee that cash withdrawal transaction accurately assigns the amount a user removes from his/her account. There ~~ma~~ shouldn't be any wrong/garbage input

by the user otherwise the xyz system may malfunction.

b) A DBMS must guarantee that transactions are executed fully, accurately and independently of all the other transactions. The system should follow Isolation and shouldn't mix up various user's transactions. The xyz Banking system must also follow Atomicity and should be durable such that in case the process is aborted, no part of the transaction must execute, which in turn maintains consistency.

Q6. a) `CREATE CLUSTERED INDEX ix-stName-email`  
`ON table-name (studentName ASC)`  
`SELECT Email FROM table-name`  
 (Here, the <sup>assumed</sup> table name is table-name).

b) Null  
 Jh@xyz.com  
 Krishna@pqr.com

Q7.  $\rho(R_1, \text{catalog})$   
 $\rho(R_2, \text{catalog})$   
 $\pi_{R_1.pid \neq R_2.pid} (R_1 \times R_2)$

Q8. The final result will be the list of all suppliers selling red coloured parts which costs less than 100.



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Q9. CREATE VIEW updateEmp (eid, Name, age, salary)  
AS  
SELECT E.eid, E.ename, E.age, E.salary  
FROM EMP E  
WHERE E.age > 50.

Q5. It isn't possible to determine a key of a relation given only one instance of the relation. The given instance is just a temporary view of a relation. At other times, the same instance may have any instance that contains different tuples of a table.

~~X~~