**SQL assignment 1**

**Ans 1**  **RDBMS**

A relational database is a type of database(organised collection of data stored in an electronic format). It uses a structure that allows us to identify and access data in relation to another piece of data in the database. Often, data in a relational database is organized into tables.

Whereas , A relational database management system (RDBMS) is a program that allows you to create, update, and store a relational database. All this run through queries Most relational database management systems use the SQL language to access the database.

There are several advantages of Database management system over file system. Few of them are as follows:  
  
No redundant data– Redundancy removed by data normalization  
Data Consistency and Integrity – data normalization takes care of it too  
Secure – Each user has a different set of access  
Privacy – Limited access  
Easy access to data  
Easy recovery  
Flexible

**Ans 2 ACID Properties in DBMS**

**ACID** is an acronym for atomicity, consistency, isolation, and durability.

**ACID** is a set of properties of database transactions intended to guarantee validity even in the event of errors, power failures, etc.

In the context of databases, a sequence of database operations that satisfies the ACID properties, and thus can be perceived as a single logical operation on the data, is called a transaction.

For example, a transfer of funds from one bank account to another involves debiting from one account and crediting to another, and this whole process is a single transaction.

* **Atomicity**  
  All statements of a transaction must succeed completely, or fail completely in each and every situation, including power failures, errors and crashes. Example - Debiting and crediting in a money transfer transaction, both must happen either together or not at all.
* **Consistency**  
  The database must remain in a consistent state after any transaction. Data in the database should not have any changes other than intended after the transaction completion.
* **Isolation**  
  Isolation ensures that concurrent execution of transactions leaves the database in the same state that would have been obtained if the transactions were executed sequentially.
* **Durability**  
  Durability guarantees that once a transaction has been committed, it will remain committed even in the case of a system failure which actually means recording the completed transactions (or their effects) in non-volatile memo

**Ans 3 Normalization**

Normalization is the process of efficiently organizing data in a database. There are two goals of the normalization process: eliminating redundant data (for example, storing the same data in more than one table) and ensuring [data dependencies](https://www.lifewire.com/database-dependencies-1019727) make sense (only storing related data in a table).

It helps in decomposer large , complex table into simple and smaller ones. Basically move from lower normal form to higher normal form.

INF =First normal form

2NF ,3NF OR higher normal form.

**Ans 4**

Here are four types of database languages and their uses:

1. Data definition language (DDL)

Data definition language (DDL) creates the framework of the database by specifying the database schema, which is the structure that represents the organization of data. Its common uses include the creation and alteration of tables, files, indexes and columns within the database. Here's a list of DDL statements:

CREATE: Creates a new database or object, such as a table, index or column

ALTER: Changes the structure of the database or object

DROP: Deletes the database or existing objects

RENAME: Renames the database or existing objects

2. Data manipulation language (DML)

Data manipulation language (DML) provides operations that handle user requests, offering a way to access and manipulate the data that users store within a database. Its common functions include inserting, updating and retrieving data from the database. Here's a list of DML statements:

INSERT: Adds new data to the existing database table

UPDATE: Changes or updates values in the table

DELETE: Removes records or rows from the table

3. Data control language (DCL)

Data control language (DCL) controls access to the data that users store within a database. Essentially, this language controls the rights and permissions of the database system. It allows users to grant or revoke privileges to the database. Here's a list of DCL statements:

GRANT: Gives a user access to the database

REVOKE: Removes a user's access to the database

4. Transaction control language (TCL)

Transaction control language (TCL) manages the transactions within a database. Transactions group a set of related tasks into a single, executable task. All the tasks must succeed in order for the transaction to work. Here's a list of TCL statements:

COMMIT: Carries out a transaction

ROLLBACK: Restores a transaction if any tasks fail to execute

**Ans 5 MAIN key and composite key**

Main key is also known as primary key

While a primary key and a composite key might do the same things, **the primary key will consist of one column, where the composite key will consist of two or more columns**.

A file with name of (**assig1\_student)** attached for showing how to used them.

**Ans 6 A file with name** (students\_student\_info**) attached for showing table created**