**Assignment 1**

**1. what is RDBMS? What are the advantages of DBMS over a file system?**

Relational Database Management system also called as RDBMS. It can be called as a system which organises the data into related rows and columns. It enables the user to query the data and receive the widest range of output.

**Advantages:**

**Data Redundancy and inconsistency** – DBMS maintain a repository of data and is accessed by many users. So, less redundancy, data remains consistent.

**Data sharing** – Shared easily due to centralized system

**Data Concurrency** – It provides a locking system

**Data searching** – It provides inbuilt search operation

**Data Integrity** – maintain by enforcing user defined constraints on data by itself

**System crashing** – In DBMS recovery manager which retrieves the data

**Data security** – In DBMS has specialized features that help provide shielding to its data.

**2. In DBMS, explain the ACID properties?**

ACID (Atomicity, Consistency, Isolation, Durability) is a set of properties of database transactions intended to guarantee validity even in the event of errors, power, failures, etc.

**Atomicity** - The entire transaction takes place at once or doesn’t happen at all.

**Consistency** – The database must be consistent before and after the transaction.

**Isolation** – Multiple transactions occur independently without interference.

**Durability** – The changes of a successful transaction occurs even if the system failure occurs.

**3. Explain the concept of normalization?**

**Normalization** is used to decompose a larger, complex table into simple and smaller ones. This helps us in removing all the redundant data.

**4. Explain many types of query language used in relational databases?**

**DDL** (Data Definition Language) – The creation of objects

**DQL** (Data Query Language) – Query the data

**DML** (Data Manipulation Language) – Manipulation of data

**DCL** (Data Control Language) – Assignment and removal of permissions

**TCL** (Transaction Control Language) – Saving and restoring changes to a database

**5. What is the difference between the primary key and composite key. Give instances of how this key used?**

A **Primary key** is used to ensure data in the specific column is Unique and Not Null.

CREATE Table dbo.Customer (

CustId INT NOT NULL,

CustName VARCHAR(150) ,

CustMailId VARCHAR(30)

PRIMARY KEY (custId)

)

A primary key is specifiedon column CustId, it means CustId column can not have null values also duplicate values cannot be allowed.

A **Composite Key** is a combination of two or more columns in a table that can be used to uniquely identify each row in the table when the columns are combined uniqueness is guaranteed, but when it taken individually it does not guarantee uniqueness.

CREATE TABLE Customer\_New (

CustName VARCHAR(150) ,

Cust\_bloodGroup VARCHAR(4),

CustMailId VARCHAR(30)

PRIMARY KEY(CustName, Cust\_bloodGroup, CustMailId)

)

In coustomer\_New table, there is no guarantee for not null and also unique. So we go for the composite key. Primary key with the combination of three columns.

**6. Create a table with a primary key, a column default value, and a column unique constraint in sql?**

Create table employee

(

EmpID int Not null Unique,

First\_name varchar(100),

Last\_name varchar(100),

City varchar(200) DEFAULT ‘Chennai’,

Primary key(EmpID)

)