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| **SESSION** | **FEB-MAR 2025** |
| **PROGRAM** | **MASTER OF BUSINESS ADMINISTRATION (MBA)** |
| **SEMESTER** | **3** |
| **COURSE CODE & NAME** | **DITF301 DATABASE MANAGEMENT SYSTEMS** |
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**Assignment Set – 1**

**Q1. a. Write a note on Data Abstraction.**

**b. Explain the DBMS Components.**

**Ans 1.**

**a. Data Abstraction in DBMS**

Data abstraction is a critical concept in database management systems that allows the separation of data descriptions from the actual data stored in the database. It simplifies complex data by hiding unnecessary details from users and focuses only on essential aspects. This approach enhances usability and ensures that users can interact with the database without needing to understand all its internal structures.

**Levels of Data Abstraction**

Data abstraction in a DBMS is categorized into three primary levels: physical level, logical level, and view level. The physical level describes how data is physically stored in the

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**Q2. a. Describe the Sequential File Organization.**

**b. Write a note on Unique Indexes with their benefits and limitations.**

**Ans 2.**

**a. Describe the Sequential File Organization**

Sequential file organization is a traditional method where records are stored one after the other in a specific, sorted order—typically based on a primary key. This organization is simple and efficient for applications where data access follows a predictable, sequential pattern.

**Structure and Working**

In this method, when a file is created, records are arranged in ascending order of a particular key field. To access data, the system begins at the start of the file and reads through each

**Q3. a. Discuss an overview Of Relational Query Optimization. 3**

**b. Explain the Intersection (∩) operation. 4**

**c. Write a short note on Domain Relational Calculus. 3**

**Ans 3.**

**a. Discuss an Overview of Relational Query Optimization**

Relational query optimization is a crucial aspect of database management systems that focuses on improving the efficiency of executing queries. The goal is to find the most efficient strategy or execution plan for a given high-level SQL query, considering factors such as computation time, disk I/O, and memory usage.

**How Query Optimization Works**

When a query is submitted to a DBMS, it goes through several internal stages before

**Assignment Set – 2**

**Q4. a. Write a note on Categories of SQL Commands.**

**b. Describe First Normalization.**

**Ans 4.**

**a. Write a Note on Categories of SQL Commands**

**Overview of SQL Command Categories**

Structured Query Language (SQL) commands are divided into several categories based on their purpose and function. These categories define how users interact with the database to perform tasks like creating tables, inserting records, updating data, and managing access.

**Data Definition Language (DDL)**

DDL commands are used to define and manage database schema objects. Common

**Q5. a. Explain Transaction Processing.**

**b. Discuss the Timestamp-Based Protocols.**

**c. Describe the Types of Failures in Data Transactions.**

**Ans 5.**

**a. Explain Transaction Processing**

Transaction processing in database systems refers to the execution of a sequence of operations that perform a logical unit of work on the database. These operations are grouped as a transaction, which must either be fully completed or not executed at all to maintain data integrity. The concept is built on the ACID properties—Atomicity, Consistency, Isolation, and Durability.

**Importance of Transactions**

Transactions are essential for ensuring that database operations are reliable and secure,

**Q6. a. Explain the Functions of distributed database management system.**

**b. Write a note on Object Oriented Data Model.**

**c. Discuss the Database Security Common Threats and Challenges.**

**Ans 6.**

**a. Explain the Functions of Distributed Database Management System**

**DDBMS Functions**

A Distributed Database Management System (DDBMS) manages a database that is distributed across multiple locations or systems. Each site can process local queries independently while coordinating with others for global tasks.

**Data Distribution and Transparency**

DDBMS ensures data distribution transparency, allowing users to access data without needing to know where it is stored. It manages data fragmentation, replication, and allocation