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| **SESSION** | **JUL - AUG 2024** |
| **PROGRAM** | **MASTER OF BUSINESS ADMINISTRATION (MBA)** |
| **SEMESTER** | **3** |
| **COURSE CODE & NAME** | **DISM302 DATABASE MANAGEMENT SYSTEMS** |
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**Assignment Set – 1**

**1.a) Explain the Concept of DBMS**

**b) Distinguish between DBMS VS FILE SYSTEM**

**Ans 1.**

**Database Management Systems (DBMS)**

A Database Management System (DBMS) is software that helps in managing, organizing, storing, and retrieving data in a structured way. It acts as an interface between the user and the database, providing mechanisms to store, retrieve, and manipulate data efficiently. DBMSs are used to handle large volumes of data, enabling multiple users to access and work on the data simultaneously without interference. Some of the primary functions of a DBMS include ensuring data security, enforcing data integrity, managing data transactions, and providing a mechanism to back up and recover data.

DBMS uses a structured approach to store data in a format that is easily accessible and

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**2.Explain the Entity-Relationship Model in Detail**

**Ans 2.**

**Entity-Relationship Model in Detail**

The Entity-Relationship (ER) Model is a widely used conceptual framework for designing and visualizing the structure of a database. It represents real-world entities and the relationships between them, serving as the foundation for designing a well-structured database. Introduced by Peter Chen in 1976, the ER model has become an essential tool in database design, allowing developers to conceptualize and communicate the data requirements of an application before

**3.a) Write a note on Hard Disk and its features**

**b) Briefly explain the term Non-Clustered Index**

**c) Explain the terms Primary Key and Foreign Key**

**d) Write a short note on Union**

**Ans 3.**

**a) Hard Disk and Its Features**

A hard disk, also known as a hard disk drive (HDD), is a storage device used to store and retrieve digital data. It consists of rotating platters coated with a magnetic material, and data is read and written using a read/write head. Hard disks are known for their large storage capacity and are widely used in personal computers, servers, and data centers.

Features of a hard disk include high storage capacity, mechanical components, and the ability

**Assignment Set – 2**

**1.a) Explain the Semantics of TRC Queries**

**b) Explain the process of declaring variables & exceptions**

**Ans 1.**

**a) Semantics of Tuple Relational Calculus (TRC) Queries**

Tuple Relational Calculus (TRC) is a non-procedural query language used to specify the conditions that the results of a database query must satisfy. Unlike SQL, which is procedural, TRC allows users to focus on what information they want rather than how to get it. In TRC, queries are expressed using variables that represent tuples in a database relation, along with predicates that specify the conditions those tuples must meet.

The semantics of TRC queries involve specifying the properties of the tuples that should be

**2a) Explain the Properties of Normalized Relations**

**b) Write a note on Transaction Processing**

**c) Explain Time-Stamp Based Protocols**

**Ans 2.**

**a) Properties of Normalized Relations**

Normalization is a process used in database design to minimize redundancy and dependency by organizing data into multiple tables. A normalized relation adheres to certain properties that enhance data integrity and reduce redundancy.

The main properties of normalized relations include:

* **Atomicity**: Each attribute in a normalized relation contains only indivisible values (atomic values), meaning that fields should not contain sets, lists, or any kind of groupings.
* **No Data Redundancy**: Normalized relations eliminate redundant data by dividing data

**3.a) Explain the Database Recovery Models**

**b) Explain the Functions of distributed DBMS**

**c) Write a note on Object Identity**

**d) Explain why data security is important**

**Ans 3.**

**a) Database Recovery Models**

Database recovery models are strategies used to define how transaction logs are managed to recover data in the event of a failure. The main recovery models are Full, Simple, and Bulk-Logged. The Full Recovery Model ensures that all transactions are logged, providing point-in-time recovery. It is suitable for databases requiring high availability and allows for complete data restoration. The Simple Recovery Model does not maintain a complete transaction log,