UNIT-1

Q-1. DATA

Ans.- Data that is stored in a computer and organized into a structured collection of tables is referred to as a database.

Q-2. DATABASE

Ans.- A database is an organized collection of structured information, or data, typically stored electronically in a computer system.

Q-3. DBMS

Ans.- A Database Management System (DBMS) is software that provides an interface for interacting with databases and managing the data stored in them. It is a crucial component of modern computing and is used to store, organize, retrieve, and manage data in a structured way.

Q-4. SINGLE USER

Ans.- Single-user DBMS scenarios are typically found in small-scale applications or situations where the database workload is light, and the need for simultaneous access by multiple users is minimal. Some simple desktop database applications or personal database tools may operate as single-user DBMS.

Q-5. FULL NAME OF DBA

Ans.- The acronym "DBA" stands for "Database Administrator."

Q-6. METADATA

Ans.- Metadata in a Database Management System (DBMS) refers to data that describes the structure, content, and other characteristics of the data stored in the database. It essentially provides information about the data within the database. Metadata plays a crucial role in managing, understanding, and utilizing the data effectively.

Q-7. What is Key?

Ans.- A "key" is a field or a set of fields in a database table that uniquely identifies each record in that table. Keys play a crucial role in establishing relationships between tables, enforcing data integrity, and facilitating efficient data retrieval.

Q-8. Information

Ans.- "information" refers to the data that has been processed, organized, and presented in a meaningful way, providing value and insights to users. Information in a DBMS is the result of transforming raw data into a format that is useful for decision-making, analysis, and other business processes.

Q-9. Data Redundancy

Ans.- Data redundancy in a Database Management System (DBMS) refers to the situation where the same piece of data is stored in multiple places within a database. Redundancy can occur unintentionally or as a result of poor database design.

Q-10. What Is Primary Key?

Ans.- A Primary key is a special type of database constraint that uniquely identifies each record in a table. The primary key is used to enforce the entity integrity of a relational database by ensuring that each row in a table is uniquely identified.

Q-11 Data Inconsistency

Ans.- Data inconsistency in a Database Management System (DBMS) refers to a situation where the same piece of data exists in different places within a database but has different values or meanings in those locations.

Q-12. List out of Database User?

Ans.- 1) End Users 2) Application Programmer or Specialized users or Back-End Developer 3) System Analyst 4) Database Administrator (DBA) 5) Temporary Users or Casual Users

Q-13. What is Shared data?

Ans.- In a database management system (DBMS), shared data refers to data that is accessible and can be used by multiple users or applications simultaneously. This concept is fundamental to the idea of a database, where information is organized and stored centrally to be shared among different users and applications rather than being stored in separate files or systems.

Q-14. What is Data Integrity?

Ans.- In a Database Management System (DBMS), data integrity refers to the accuracy, consistency, and reliability of data stored in the database. It ensures that the data remains valid and reliable throughout its lifecycle, from initial entry to retrieval and modification. Data integrity is crucial for maintaining the quality of the database and ensuring that the information stored in it is trustworthy.

UNIT-2

Q-1. Foreign key

Ans.- A foreign key is a column or a set of columns in a relational database table that refers to the primary key or a unique key of another table. It establishes a relationship between the two tables, ensuring that the values in the foreign key columns of one table correspond to the values in the primary key or unique key columns of another table.

Q-2. Tuple

Ans.- In the context of a database management system (DBMS), a tuple refers to a row or record in a relational database table. A tuple is an ordered set of values, where each value represents the data for a specific attribute (or column) in the table. In simpler terms, a tuple is a collection of data fields that represent a single entity or record in the database.

Q-3. Attribute

Ans.- In the context of a database management system (DBMS), an attribute refers to a characteristic or property of an entity. In a relational database, an attribute corresponds to a column in a table, and it represents a specific type of data that can be stored for each record in that table.

Q-4. What Is Model?

Ans.- A model refers to a conceptual framework or representation that defines the structure, relationships, and rules governing the storage and manipulation of data in a database. There are several database models, each with its own approach to organizing and representing data. The three primary database models are the hierarchical model, the network model, and the relational model.

Q-5. What is Entity?

Ans.-An entity refers to a real-world object or concept that is represented in the database. Entities are the building blocks of a database model, and they can be tangible things like a person, place, or product, or intangible concepts like an event or order. Entities are used to model and store information about the different types of objects or concepts relevant to a particular domain.

Q-6. Data Administrator

Ans.- A Database Administrator is a professional responsible for managing and maintaining a database system. The role of a DBA includes a range of tasks related to the design, implementation, and maintenance of databases to ensure their efficient and secure operation.

Q-7. Scheme

Ans.- a schema is a collection of database objects, including tables, views, indexes, and other elements, that are logically grouped together. It defines the structure and organization of the

database and provides a framework for how data is stored, accessed, and manipulated. There are two main types of schemas: the logical schema and the physical schema.

Q-8. What is Degree?

Ans.- the term "degree" is often used to describe the number of attributes (columns) in a relation (table). It refers to the number of fields or properties associated with a record in a table. The degree of a relation is essentially the count of attributes it contains.

Q-9. Mapping

Ans.- Mapping in the context of Database Management Systems (DBMS) generally refers to the process of establishing a connection or relationship between two sets of data. There are different types of mappings in a DBMS context, and they serve various purposes.

Here are a few common types:1) ER Mapping 2) OR Mapping 3) Data Mapping 4) Scheme Mapping

Q-10. Domain

Ans.- a domain refers to the set of possible values that an attribute (or column) in a database table can have. It defines the range of valid data that can be stored in a particular attribute.

Q-11. Cardinality

Ans.- "Cardinality" refers to the number of instances of one entity that can be associated with a single instance of another entity within a relationship. Cardinality is an essential concept in the Entity-Relationship (ER) model, which is a popular way to represent the structure of a database.

UNIT-3

Q-1. Normalization

Ans.- Normalization in Database Management Systems (DBMS) is a process of organizing and structuring a relational database to minimize data redundancy and dependency. The goal is to design a database schema that reduces the chances of data anomalies, ensures data integrity, and simplifies data maintenance and querying. Normalization is typically applied during the database design phase.

The normalization process involves decomposing tables into smaller, well-organized structures called normal forms. The most common normal forms are the First Normal Form (1NF), Second Normal Form (2NF), Third Normal Form (3NF), and Boyce-Codd Normal Form (BCNF). Each normal form builds on the previous one, introducing additional rules and dependencies.

Q-2. E-R Diagram

Ans.- An Entity-Relationship (ER) diagram is a visual representation of the data model that represents entities, the relationships between them, and the attributes associated with both entities and relationships in a database. The ER diagram is an essential tool in the database design process as it helps to visualize and communicate the structure of the database.

Here are key components and definitions related to ER diagrams:1) Entity 2) Attribute 3) Relationship etc…

Q-3. Relationship

Ans.- A relationship refers to an association between entities. Entities are objects or concepts that exist and are distinguishable in the real world, and relationships describe how these entities interact or are related to each other. Relationships are a fundamental concept in database design and are represented in Entity-Relationship (ER) diagrams.

Q-4. Full Form of ANSI model?

Ans.- ANSI stands for the American National Standards Institute,

In the context of Database Management Systems (DBMS), the ANSI model is commonly associated with the ANSI/SPARC three-level architecture. Here, ANSI stands for the American National Standards Institute, and SPARC stands for the Standards Planning And Requirements Committee.

The ANSI/SPARC three-level architecture is a conceptual model that describes the design and organization of a database system. It was developed to provide a framework for understanding and designing database systems with clear separation of concerns. The three levels are:

1)External Level 2) Conceptual level 3) Internal level

Q-5. What is Denormalization?

Ans.- Denormalization in Database Management Systems (DBMS) is the process of intentionally introducing redundancy into a database by adding duplicate data or by grouping data that was previously separated. The goal of denormalization is to improve query performance and simplify data retrieval at the cost of increased data redundancy and potential update anomalies.

Normalization, on the other hand, is the process of organizing data to minimize redundancy and dependency. Normalization usually involves breaking down large tables into smaller ones to eliminate redundant data and reduce the risk of anomalies. However, highly normalized databases can sometimes result in complex queries with multiple joins, potentially affecting query performance.

Q-6. What is functional dependency

Ans.- Functional dependency is a fundamental concept in the theory of database normalization within Database Management Systems (DBMS). It describes the relationship between attributes (columns) in a relational database table. Specifically, it indicates how the values of one attribute are functionally dependent on the values of another attribute.

Q-7. Full form of MVD

Ans.- MVD stands for "Multivalued Dependency."

A multivalued dependency is a specific type of dependency that exists between attributes in a relational database. It represents a relationship in which the presence of certain values in one attribute uniquely determines the set of values in another attribute.

Q-8. List out type of attributes.

Ans.-

In Database Management Systems (DBMS), attributes are the properties or characteristics of entities in a database. Attributes describe the data that can be stored in a database, and they are associated with specific data types.

Here are common types of attributes in DBMS:

1) **Simple Attribute**
2) **Composite Attribute:**
3) **Derived Attribute:**
4) **Multi-valued Attribute:**
5) **Key Attribute:**
6) **Single-valued Attribute:**
7) **NULL Attribute:**
8) **Multi-Attribute (or Composite) Key:**
9) **Foreign Key:**
10) **Candidate Key:**
11) **Primary Key:**

UNIT-4

Q-1. Define: MS-Access.

Ans.- Microsoft Access, often referred to as MS Access, is a relational database management system (RDBMS) from Microsoft that is part of the Microsoft Office suite. It provides a user-friendly interface for designing, creating, and managing databases.

Here are key features and aspects of Microsoft Access:

1. **Relational Database Management System (RDBMS):**
   - Microsoft Access is designed as a relational database management system, which means it allows users to create and manage relational databases. Data is organized into tables, and relationships between tables can be established.

2. **User-Friendly Interface:**
   - MS Access provides a graphical user interface that allows users to design database structures, create forms for data entry, design reports, and write queries without needing extensive programming knowledge. This makes it accessible to users with varying levels of technical expertise.

3. **Tables, Queries, Forms, and Reports:**
   - Access organizes data into tables, and users can create queries to retrieve specific data. Forms allow for user-friendly data entry, and reports facilitate the presentation of data in a structured and formatted way.

4. **Data Import and Export:**
   - Access supports the import and export of data from and to various formats, including Excel, text files, and other database systems. This enables data integration and sharing between different applications.

5. **Integration with Other Microsoft Office Applications:**
   - Access is part of the Microsoft Office suite, and it integrates seamlessly with other Office applications such as Excel, Word, and Outlook. This integration allows users to use Access data in conjunction with other Office tools.

6. **VBA (Visual Basic for Applications) Support:**
   - Users can extend the functionality of Access by writing custom code using VBA. This allows for automation, the creation of custom forms, and the implementation of more advanced business logic.

7. **Security and Access Control:**
   - Access provides features for securing databases, including user-level security to control access to specific tables, queries, and forms. Users can set permissions and implement security measures to protect sensitive data.

8. **Web Database Templates:**
   - Access includes templates for creating web databases, enabling users to build and publish databases on the web. This facilitates online collaboration and access to data.

9. **Data Analysis and Reporting:**
   - Access provides tools for data analysis and reporting, including the ability to create charts and graphs. Users can analyze trends and patterns within their data.

Q-2. Define: Auto number

Ans.- In Microsoft Access, "AutoNumber" is a data type used for a field (column) in a table. An AutoNumber field is designed to automatically generate a unique, incremental number for each record added to a table. This number serves as a primary key or identifier for the records in the table.

Q-3. Define: Memo

Ans.- In Microsoft Access, "Memo" is a data type used for fields (columns) in a table. The Memo data type is designed to store large amounts of text, making it suitable for fields that may contain lengthy descriptions, notes, or paragraphs. Memo fields can store up to 65,536 characters of text.

Q-4. What is Input Mask?

Ans.- In Microsoft Access, an "Input Mask" is a feature that allows you to define a template or pattern for data entry in a field. It is used to guide users in entering data in a specific format, making it easier to ensure consistency and accuracy of the entered information. Input masks are commonly used for fields that require a specific pattern, such as phone numbers, zip codes, or social security numbers.

Example:

Let's say you have a field for entering a phone number, and you want the format to be (XXX) XXX-XXXX. You can set the following input mask for the field:

!(999) 000-0000;0;_

Q-5. Write a default format Date and Time?

Ans.- In Microsoft Access, the default format for Date and Time is determined by the regional settings of your operating system. However, you can explicitly set the format for a Date/Time field in Access to ensure consistency in the display of dates and times. The format is specified using predefined format codes.

For example, if you want a Date/Time field to display both date and time in the short format, you can set the Format property to **Short Date: Short Time**. This will display dates and times like "mm/dd/yyyy hh:mm AM/PM."

Q-6. What is Use of Append Query?

Ans.- In Microsoft Access, an "Append Query" is a type of query that is used to add new records to an existing table. The purpose of an Append Query is to insert data from one or more source tables or queries into a destination table. This can be useful in various scenarios, such as importing data from external sources, consolidating data from different tables, or archiving records.

Example:

Suppose you have a table named "Sales" with columns such as "OrderID," "ProductID," "Quantity," and "OrderDate." If you receive new sales data in a spreadsheet, you can create an Append Query to add the new sales records from the spreadsheet to the "Sales" table.

The SQL statement for an Append Query might look like this:

INSERT INTO Sales (OrderID, ProductID, Quantity, OrderDate)
SELECT NewOrders.OrderID, NewOrders.ProductID, NewOrders.Quantity, NewOrders.OrderDate
FROM NewOrders
WHERE NewOrders.OrderDate >= #01/01/2023#;

Q-7. What is macro?

Ans.- In Microsoft Access, a "macro" refers to a set of actions or instructions that can be created and executed to automate tasks within a database. Macros are a way to automate common actions or sequences of actions, allowing users to perform complex tasks with a single click or event trigger. Access macros are often used to automate tasks such as opening forms, running queries, or navigating through records.

Q-8. List out object of Ms-Access?

Ans.- Here is a list of some of the key objects in Microsoft Access:

1. **Tables:**
   - Tables are the fundamental building blocks in a database. They store data in rows and columns and define the structure of the database. Each table typically represents a specific entity, such as customers, products, or orders.

2. **Queries:**
   - Queries are used to retrieve, filter, and manipulate data stored in tables. They can be designed to extract specific information based on criteria or to combine data from multiple tables.

3. **Forms:**
   - Forms are user interfaces that allow users to interact with the data in a more user-friendly way. They provide a structured layout for data entry, viewing, and editing. Forms can be customized to include various controls, such as text boxes, buttons, and combo boxes.

4. **Reports:**
   - Reports are used to present data in a printable or readable format. They are designed to generate formatted and organized outputs for printing or viewing. Reports can include headers, footers, and groupings for organizing data.

5. **Pages:**
   - Data Access Pages (or Pages) are a way to create web-based forms and reports that can be viewed in a web browser. While Data Access Pages are an older technology, they were used in earlier versions of Access.

6. **Macros:**
   - Macros are sets of actions that can be defined to automate tasks within the database. They provide a way to perform sequences of actions without writing code. Macros can be triggered by events such as button clicks or form openings.

7. **Modules:**
   - Modules are containers for storing Visual Basic for Applications (VBA) code. VBA is a programming language used for creating custom functionality and automating tasks in Access. Modules allow developers to write code that extends the capabilities of Access.

8. **Relationships:**
   - Relationships define the connections between tables based on common fields. They ensure data integrity and enforce referential integrity rules. Relationships are essential for maintaining the consistency and accuracy of data.

9. **Indexes:**
   - Indexes are used to improve the performance of queries by providing a quick way to look up data in a table. They can be created on one or more columns in a table, allowing for faster retrieval of records.

10. **Data Types:**
    - Data Types define the type of data that can be stored in a field. Common data types include Text, Number, Date/Time, Memo, and others. Data types help enforce data integrity by specifying the kind of data allowed in a field.

11. **Primary Keys:**
    - Primary Keys uniquely identify each record in a table. They ensure the uniqueness of records and are often used as a reference in relationships between tables.

12. **Foreign Keys:**
    - Foreign Keys establish relationships between tables by linking a field in one table to the primary key of another table. They help maintain referential integrity in a relational database.

Q-9. List out types of Query?
Ans.- Here is a list of common types of queries in MS Access:

1. **Select Query:**
   - A Select Query is the most basic type of query. It is used to retrieve and display data from one or more tables. Select queries allow you to specify the columns you want to see and filter the results based on certain criteria.

2. **Parameter Query:**
   - A Parameter Query prompts the user for input before running the query. It allows you to create flexible queries where the criteria can be provided at runtime. For example, you can create a parameter query that asks the user for a date range.

3. **Action Query:**
   - Action Queries are used to perform operations on the data, such as adding, updating, or deleting records. There are several types of Action Queries:
     - **Append Query:** Adds records from one table to another.
     - **Update Query:** Modifies existing records based on specified criteria.
     - **Delete Query:** Removes records from a table based on specified criteria.
     - **Make-Table Query:** Creates a new table and inserts records based on specified criteria.

4. **Crosstab Query:**
   - A Crosstab Query is used to summarize data by aggregating values based on two sets of criteria—usually row headings and column headings. It is useful for creating pivot-table-like summaries.

5. **Totals Query:**
   - A Totals Query allows you to perform aggregate functions (such as Sum, Count, Avg) on selected fields. It groups records based on specified criteria and displays the calculated totals.

6. **Find Duplicates Query:**
   - This type of query is used to identify duplicate records in a table. It can be used to find and eliminate redundancy in the database.

7. **Find Unmatched Query:**
   - A Find Unmatched Query identifies records in one table that do not have corresponding records in another table. It helps find records with no matching values in related tables.

8. **SQL Pass-Through Query:**
   - This type of query is used when you want to send SQL statements directly to an external database server without using the Access database engine. It's often used in scenarios where the database server supports direct SQL execution.

9. **Data Definition Query (DDL):**
   - DDL queries are used to define or modify the structure of the database. Examples include creating tables, adding or modifying fields, and defining indexes.

10. **Multi-table Query:**
    - Multi-table queries involve selecting data from multiple tables. This could be accomplished through Join operations, where related data from different tables is combined in the result set.

11. **Union Query:**
    - A Union Query combines the results of two or more queries into a single result set. It is used when you want to combine records from different tables or queries with similar structures.