Database Management System

Fastrack Revision

- **Database:** A database is an organised collection of interrelated information of a specific type. In the database, the information is stored in a structured manner that makes it quick and easy to find information.
- **Features of Database:** Some features of database are as follows:
  - It creates and stores data in the form of tables. Tables are easy to work with.
  - It can handle a large number of records stored in the tables.
  - It is best used for a long-term data storage and/or data sharing.
  - It allows multiple users to use the database, simultaneously.
  - It is easier to understand and use.
- **Advantages of Database:**
  - DBMS offers a variety of techniques to store and retrieve data.
  - It reduces or eliminates data redundancy.
  - Data sharing is the primary advantage of DBMS. It serves as an efficient handler to balance the needs of multiple applications using the same data.
  - Searching and retrieving of data is very easy in DBMS systems.
  - It ensures uniform administration procedures for data.
- **Database Servers:** Database servers are dedicated computers that hold the actual databases and run only the DBMS and related software. Typically databases available on the database servers are accessed through command line or graphic user interface tools referred to as Frontends; database servers are referred to as Back-ends. Such type of data access is referred to as a client-server model.
- **DBMS:** A **Database Management System** is an application program that is used to create and maintain a database. It enables users to store, modify and view information from the database as per the requirements. It provides a systematic approach to create, retrieve, update and manage information in a database. DBMS also prevents database from unauthorised access. It is quite easy and simple to use DBMS.
- **Categories of DBMS:** Database management systems are categorised into different types, based on the database model used. A **database model** defines the method of collecting, storing, managing and controlling the data. The various database management systems, based on these data models, are as follows:
  - **Flat File Based DBMS:** Flat File Based **Database Management Systems**, also known as **flat models**, are the simplest database management systems. These store information in flat files having rows and columns to store data. Flat files cannot be linked to each other.
  - **Hierarchical DBMS:** Hierarchical **Database Management Systems** function on the **parent child tree-like model.** These store the data items along with the description of the data items, such as a book with information on chapters and verses.
  - **Network DBMS:** Network **Database Management Systems** use a data model similar to Hierarchical Database Management Systems. The major difference between the two is that the tree structure in the Network models can have a many parent to many child relational model. The Network model structure is based on records and sets.
  - **Object-oriented DBMS:** In these database management systems, the object and its data or attributes are seen as one and accessed through pointers. Object-oriented database models comprise varied structures and are quite extensible.
  - **Relational DBMS:** Relational **Database Management Systems** are the most widely used database management systems, today. These are relatively easy to use. These store the information in the form of tables. Relational Database Management Systems are named so because of the capability to link multiple data structures, *i.e.*, tables. MS Access, Oracle, MS SQLServer, IBM DB2, OpenOffice and MySQL are some of the commonly used Relational Database Management Systems.
- **Manipulating Data: Data manipulation** means to perform different operations such as to view the records, to edit and update the records and to delete the records stored in a database when needed. Four different computer languages are there, using the commands of which we can manipulate the data stored in databases. These are as follows:
  - **Data Definition Language (DDL):** The Data Definition Language (DDL) is used to create and modify the structure of database objects. This language basically contains commands that define the structure of a database object such as a table. This DDL is also known as Data Description Language.

- Some commonly used commands of DDL are as follows:
  - **CREATE command:** This command defines the structure of a table. It describes the kind of data to be stored in a table by declaring the number of fields, field names, field's length and the data type of fields of a table.
  - **ALTER command:** This command modifies the structure of an existing database table. For example, in case we want to add more fields or change the data type of an existing field, we will use this command.
  - **DROP command:** This command deletes a table, or other database objects such as index or view. For example, if we want to delete a table, we will use this command.
  - **TRUNCATE command:** This command removes all the table records including allocated table spaces.
  - **RENAME command:** This command is used to rename an object in the existing database or table.
- **Data Manipulation Language (DML):** The Data Manipulation Language (DML) is used to manipulate the data or records stored in the databases. For example, we can view, delete, and update the records saved in table using different DML commands. Some commonly used commands of DML are as follows:
  - **SELECT command:** This command is used to view or retrieve the data from the database.
  - **INSERT command:** This command is used to insert the data in a database. We can insert more records in a table using this command.
  - **UPDATE command:** This command is used to edit and update the records in a database.
  - **DELETE command:** This command is used to delete the data stored in a database.
- **Data Control Language (DCL):** The Data Control Language (DCL) is used to control the access and permission given to the users of a database. The examples of DCL commands are GRANT and REVOKE.
  - **GRANT command:** This command is used to provide access privileges to database.
  - **REVOKE command:** This command is used to withdraw user's access privileges to database.
- **Transaction Control Language (TCL):** The Transaction Control Language (TCL) is used to control the transactions within the database.
  - **COMMIT command:** This command is used to committing a transaction to database.
  - **ROLLBACK command:** This command is used to restore the transaction in the case of any error.
  - **SAVEPOINT command:** This command is used for setting a save point within a transaction.
  - **SET TRANSACTION command:** This command is used for specifying characteristics such as the read-write/read-only access, etc., for a transaction.
- **Keys in DBMS:** Keys play an important role in the relational database. It is used to uniquely identify any record or row of data from the table. It is also used to establish and identify relationships between tables. KEYS in DBMS is an attribute or set of attributes which helps you to identify a row (tuple) in a relation (table).
- **Why We Need a Key:** Here are some reasons for using SQL key in the DBMS system.
  - Keys help you to identify any row of data in a table. In a real-world application, a table could contain thousands of records. Moreover, the records could be duplicated. Keys in RDBMS ensure that you can uniquely identify a table record despite these challenges.
  - Allows you to establish a relationship between and identify the relation between tables.
  - Help you to enforce identity and integrity in the relationship.
- **Types of Keys in DBMS (Database Management System):**
  - **Super Key:** A super key is a group of single or multiple keys which identifies rows in a table.
  - **Primary Key:** It is a column or group of columns in a table that uniquely identify every row in that table.
  - **Candidate Key:** It is a set of attributes that uniquely identify tuples in a table. Candidate Key is a super key with no repeated attributes.
  - **Alternate Key:** It is a column or group of columns in a table that uniquely identify every row in that table.
  - **Foreign Key:** It is a column that creates a relationship between two tables. The purpose of foreign keys is to maintain data integrity and allow navigation between two different instances of an entity.
  - **Compound Key:** It has two or more attributes that allow you to uniquely recognise a specific record. It is possible that each column may not be unique by itself within the database.
  - **Composite Key:** It is a combination of two or more columns that uniquely identify rows in a table. The combination of columns guarantees uniqueness, though individual uniqueness is not guaranteed.
  - **Surrogate Key:** An artificial key which aims to uniquely identify each record is called a surrogate key. These kind of key are unique because they are created when you don't have any natural primary key.
- **Properties of Primary Key Field:** The properties of a Primary Key field, are as follows:
  - Since, it uniquely identifies a row/record, it does not accept duplicate values.
  - A Primary Key field cannot be left blank. So, it does not accept Null values.
- **Relationship between Tables:** A relationship works by matching data in key columns, usually columns (or fields) that have the same name in both the tables.
- **Types of Relationship:** There are three types of relationships. They are as follows:
  - **One-to-Many Relationships:** A one-to-many relationship is the most common kind of relationship. In this kind of relationship, a row in table A can have many matching rows in table B. However, a row in table B can have only one matching row in table A.
  - **Many-to-Many Relationships:** In a many-to-many relationship, a row in table A can have many

matching rows in table B, and *vice-versa*. We create such a relationship by defining a third table that is called a **junction** table. The primary key of the junction table consists of the foreign keys from both table A and table B.

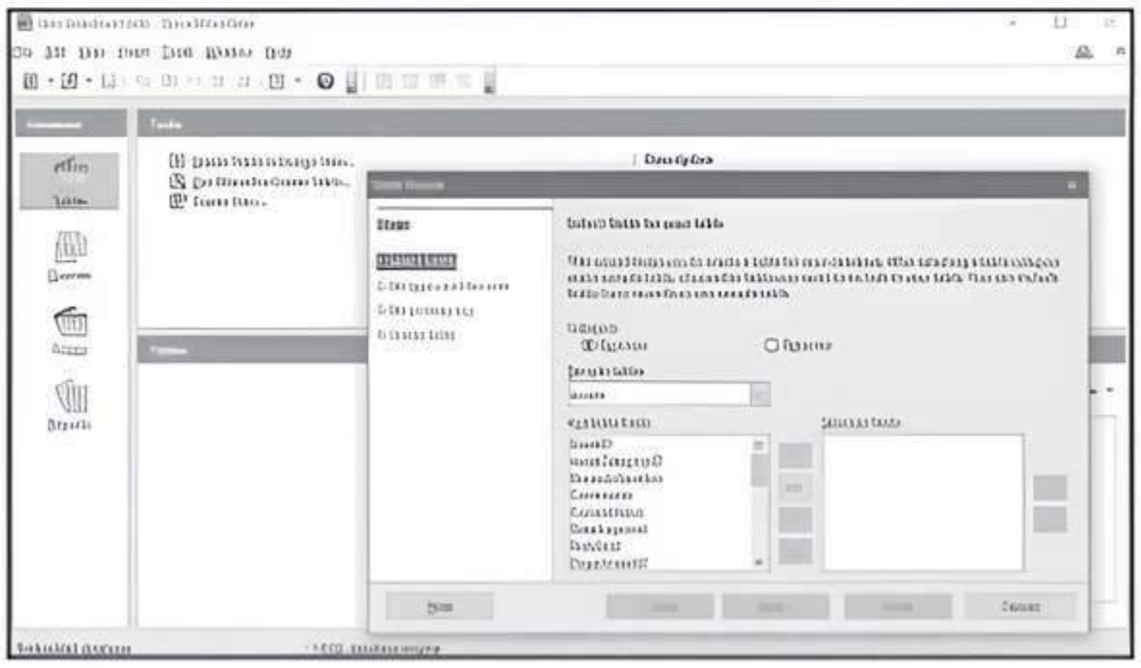
- **One-to-One Relationships:** In a one-to-one relationship, a row in table A cannot have more than one matching row in table B, and *vice-versa*. A one-to-one relationship is created if both of the related columns are primary keys or have unique constraints.

- **RDBMS:** A relational database is a collective set of multiple data sets organised by tables, records and columns. Relational database establish a well-defined relationship between database tables. Tables communicate and share information, which facilitates data searchability, organisation and reporting. A Relational database use Structured Query Language (SQL), which is a standard user application that provides an easy programming interface for database interaction

- **Database Object:**
  - **Tables:** A table is a set of data elements (values) that is organised using a model of vertical columns (which are identified by their name) and horizontal rows. A table has a defined number of columns, but can have any number of rows. Each row is identified by the values appearing in a particular column identified as a unique key index or the key field.
  - **Columns or Fields or Attributes:** A column is a set of data values of a particular simple type, one for each row of the table. The columns provide the structure according to which the rows are composed. For example, FirstName, or LastName are fields in a row.
  - **Rows or Records or Tuples:** A row also called a Record or Tuple represents a single, data item in a table. In simple terms, a database table can be visualised as consisting of rows and columns or fields. Each row in a table represents a set of related data, and every row in the table has the same structure.

- **Creating Database Using OpenOffice:**
  - Open the OpenOffice Base Application by Clicking on **Start > Programs > OpenOffice.org 4> OpenOffice.org Base.**
  - Create a new database by selecting the option Create a new database.
  - Database wizard appear. Click Finish. The Save As dialog box appears.
  - Specify a name for the database in the File name: field and click Save.

- **Create Tables:** Tables are the basic building blocks of a database. You store the data in the database in the form of tables. There are different ways to create a table:
  - **Use Wizard to Create Table:** The following are the steps to create a table:
    - Click on **Tables > Use Wizard** to Create Table.
    - Click the **Select Fields > Choose Category > Select the table > Click on Next Button.**
    - Select the fields as per the requirements. Click on Next button.
    - Set the data types and properties of the selected fields. Click on Next Button.
    - Set the Primary Key and Click on Next Button.
    - Window to rename the table will open. A user can either go ahead with the same table name or can change it.
    - Click on Finish to insert the data in the table.
  - **Creating Table Using Design View**
    - Click on Create Table in Design View.
    - Specify the field name and data type of the field.
    - Save the table by clicking on **File > Save.**
    - Specify the table name. The default name is Table1. Click OK.
    - An alert appears, if there is no primary key in the table.



- **Data Types:** Data types are used to identify which type of data (value) we are going to store in the database. Fields themselves can be of different types depending on the data they contain. Data types in OpenOffice base are broadly classified into five categories listed below:
  - **Numeric Types:** Numeric data types are used for describing numeric values for the field used in

the table of a database. Numeric data types in a database can be used for storing information such as mobile number, roll number, door number, year of school admission, true or false statements, statistical values, etc. The different types of numeric data types available are listed here.

Name	Data Type	Description
BOOLEAN	Yes / No	Values as 0 or 1. Example: True or False. Yes or No
TINYINT	Tiny Integer	Store integer range between 0 to 225
SMALLINT	Small Integer	Store integer range between -2^{15} to $+2^{15}-1$
INTEGER	Integer	Store integer range between -2^{31} to $+2^{31}-1$
BIGINT	Big Integer	Range between -2^{63} to $+2^{63}-1$
NUMERIC	Number	Maximum precision of $e^{(+/-231)}$
DECIMAL	Decimal	Maximum precision of $e^{(+/-231)}$
REAL	Real	2^{-1074} to $(2-2^{-52}) \cdot 2^{1023}$
FLOAT	Float	2^{-1074} to $(2-2^{-52}) \cdot 2^{1023}$
DOUBLE	Double	2^{-1074} to $(2-2^{-52}) \cdot 2^{1023}$

- **Alphanumeric Types:**

Name	Data Type	Description
LONGVARCHAR	Memo	Stores up to the max length or number indicated by user. It accepts any UTF 8 Character.
CHAR	Text (fix)	Stores exactly the length specified by user. Pads with trailing spaces for shorter strings. Accepts any UTF 8 Character.
VARCHAR	Text	Stores up to the specified length. No padding (Same as longvarchar)
VARCHAR_ IGNORE CASE	Text	Stores up the specified length. Comparisons are not case sensitive but stores capitals as you type them.

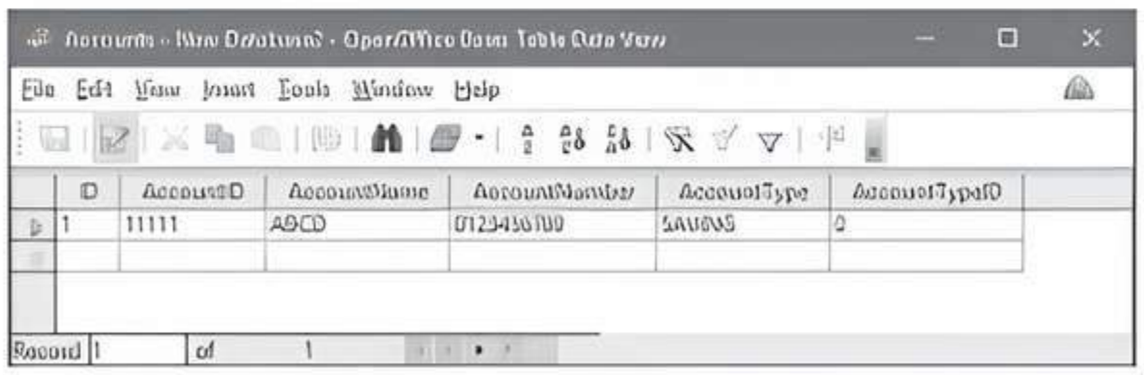
- **Binary Types:** Binary data types are used for storing data in binary formats. Binary data types in a database can be using for storing photos, music files, etc. In general, files of any format can be stored using the binary data type. The different types of binary data types available are listed here.

Name	Data Type	Description
LONGVARBINARY	Image	Stores any array of bytes (images, sounds, etc.). No validation required.
BINARY	Binary (fix)	Stores any array of bytes. No validation required.
VARBINARY	Binary	Stores any array of bytes. No validation required.

- **Date Time:** Date time data types are used for describing date and time values for the field used in the table of a database. Date time data types in a database can be used for storing information such as date of birth, date of admission, date of product sale, etc. The different types of date time data types available are listed here.

Name	Description	Format
Date	Stores month, day and year information	1/1/99 to 1/1/9999
Time	Stores hour, minute and second information	Seconds since 1/1/1970
Timestamp	Stores data and time information	

- **Table Data View Dialog Box:** Start typing the records in the table with the data provided in the excel sheet and select File > Save Current Record to save data in the table.



- **Perform Operations on Table:** In OpenOffice Base, data is stored in tables which can be inserted, modified and removed using appropriate options.
- **Inserting Data in The Table:** To insert the data in the table, follow the steps:
  - Select the table > Double click on it.
  - The table will open in Datasheet View.
  - Insert the required number of records in Datasheet View.
- **Editing Records in The Table:** To edit the data in the table, follow the steps:

- Select the table > Double click on it.
- The table will open in Datasheet View.
- Edit the required record in Datasheet View.

- **Deleting Records From The Table:** To remove the data from the table, follow the steps:
  - Select the table > Double click on it.
  - The table will open in Datasheet View.
  - Select the data > right click on selected data > select the Delete option.
- **Field Properties: To set the field properties:** Select the **table > Right click > Select the option Edit >** the table will open in design view. In design view there are different properties of fields according to the data type set for each field. The properties of numeric type data are given below:
  - **AutoValue:** if set to yes then field will get the auto numeric values.
  - **AutoValue:** if set to yes then field will get the auto numeric values.
  - **Length:** By default length of the field is 10 but the size of the field can be set to maximum length.
  - **Default Value:** A default value can be set for a field if user don't provide any value while entering the values in the table.
  - **Format:** This property helps to set the format of the data entered in the field such as 91-222-333.
- **Properties of Character Type Data**

  The properties of character type data are given below:
  - **Entry required:** if set to yes then it will be must to insert the value in the field.
  - **Length:** By default length of the field is 10 but the size of the field can be set to maximum length.
  - **Default Value:** A default value can be set for a field if user don't provide any value while entering the values in the table.
  - **Format:** This property helps to set the format of the data entered in the field such as 91-222-333.
- **Sorting Data:** Sorting means to arrange the data in either ascending order or descending order.
- **Referential Integrity:** Referential Integrity is used to maintain accuracy and consistency of data in a relationship. In Base, data can be linked between two or more tables with the help of primary key and foreign key.
- **Referential Integrity Helps to Avoid:**
  - Adding records to a related table if there is no associated record available in the primary key table.
  - Changing values in a primary if any dependent records are present in associated table(s).
  - Deleting records from a primary key table if there are any matching related records available in associated table(s).
- **Creating and Editing Relationships between Tables:** A relationship refers to an association or connection between two or more tables. Relationships between tables helps to:
  - Save time as there is no need to enter the same data in separate tables.
  - Reduce data-entry errors.
  - Summarize data from related tables.
- You can create a relationship between any two tables by selecting Relationships option from the Tools menu. There are three types of relationships which can be created in tables:
  - **ONE-to-ONE Relationship:** In this relationship, both the tables must have primary key columns.
  - **One-to-Many Relationship:** In this relationship, one of the table must have primary key column.
  - **Many-to-Many Relationship:** In this relationship, no table has the primary key column.
- **Remove the Relationships:** The relationships applied on the tables can be removed also with the help of Delete option. Right Click on the relationship thread and select Delete option.
- **Retrieve Data Using Query:**
  - **SELECT Statement:** A SELECT statement retrieves zero or more rows from one or more tables. SELECT is the most commonly used Data Manipulation Language (DML) command. To retrieve all the columns in a table the syntax is: SELECT * FROM <Table Name>;

    For example, if you want to display all the data from table emp (short form of employee), the command is **Select * from emp;**
  - The SELECT statement has many optional clauses:
    - **WHERE** specifies which rows to retrieve.
    - **ORDER BY** specifies an order in which to return the rows.
- **For example: Select * from emp where name = "Ravi";**
- The above query will show result of a particular employee named "Ravi".

  Select * from emp order by Salary;
- The above query will show all the records of table emp according to ascending order of column Salary.
- Performing calculations: In Base, simple calculations can be done on the data using arithmetic operators. **Example:**
  - To display the salary of all the employees after incrementing by 1000 then the following SQL command will be executed in Base. (Fields of table Employee are EmployeeID, FirstName, Salary)

    Select "EmployeeID", "FirstName", "Salary" +1000 from "Employee";
  - To display the salary of all the employees after decreasing by 10000 then the SQL command will be:

    Select "EmployeeID", "FirstName", "Salary"– 10000 from "Employee";
  - To display the salary of all the employees after incrementing it as twice the amount of present salary, then the SQL command will be .

    Select "EmployeeID", "FirstName", "Salary" * 2 from "Employee"
- **Update Statement:** Update statement is used for modifying records in a database. The general syntax of the update statement is as follows:

  UPDATE <table name> SET <Column name > = value [WHERE <Condition>];

- **For example:** To increase(update) the salary of employee "Ravi" by Rs 2000 (in table Employee)then the SQL command will be:

  Update Employee set Salary = Salary + 2000

  Where FirstName = "Ravi";

- **Form:** A form provides the user a systematic way of storing information into the database. It is an interface in a user specified layout that lets users to view, enter, and change data directly in database objects such as tables.
- **Creating Form Using Wizard:** Steps to create form using wizard are:
  - Click Use Wizard to Create Form... option under Tasks group. The Form Wizard dialog box appears.
  - Select selective fields to be sent onto the form by selecting the field name and clicking >button and click **Next.**
  - Select the option Add Subform If you need to insert the contents in the table in a separate form and click **Next**.
  - Arrange selected fields in a form and click **Next**.
  - Select the data entry mode and click **Next**.
  - Specify the styles to be used in the form and click **Next**.
  - Specify the name of the form. Click Finish.
- **Report:** A report helps to display the data in a summarised manner. It is used to generate the overall work outcome in a clear format.
- **Creating Reports Using Wizard:** Steps to **create** report using wizard are:
  - Click on Use Wizard to Create Report... option available under Tasks.
  - Select all the table fields by selecting the >> button.
  - Redefine the label of the fields in the reports or else you can set the default name and click **Next**.
  - Define grouping for the fields of the table if required and click **Next**.
  - Sort the field in the report by selecting the appropriate field name and sorting method (if required) and click **Next.**
  - Select the layout of the report and click **Next**.
  - Define a name for the report and click Finish.

Practice Exercise

Multiple Choice Questions

Q 1. Which one of the following is not an example of DBMS? *[CBSE 2023]*

a. PostgresSQL b. SQLite
c. FoxPro d. Impress

Q 2. Which of the following software is appropriate to store data about school students?

a. MS-Access b. Writer
c. Calc d. Impress

Q 3. Which of the following is not a database programs?

a. MySQL b. Oracle
c. Writer d. OObase

Q 4. ..... store data in Single table.

a. Flat File b. Relational
c. Single File d. One File

Q 5. ..... are dedicated computers that hold the actual databases and run only DBMS and related Software.

a. Main Server b. Web Server
c. Database Server d. Non Database Server

Q 6. GUI act as front end and database server act as .....

a. Container b. Back End
c. End d. None of these

Q 7. Duplication of data is called .....

a. Inconsistency
b. Consistency
c. Redundancy
d. Foreign Key

Q 8. Which of the following is not the advantage of database?

a. Sharing of Data
b. Reduce Data Redundancy
c. Increase Data Inconsistency
d. Data Security

Q 9. Which of the following will help to maintain unique record in the table?

a. Foreign Key b. Primary Key
c. Composite Key d. Alternate Key

Q 10. Which of the following field of table "Book" can act as Primary Key?

a. Book_number b. Subject
c. price d. Author_name

Q 11. When Primary Key is made up of two or more columns then it is called ..... Primary Key.

a. Mixed b. Reference
c. Composite d. Compost

Q 12. A key which is referring to the primary key of another table is called .....

a. alternate Key b. Primary Key
c. first Primary Key d. Foreign Key

Q 13. A field which is ..... for each and every record is called Primary Key.

a. Common
b. Same
c. Unique
d. None of the above

Q 14. When data is stored, maintained and retrieved from multiple tables then special database software are required called .....

a. DBMS b. RDBMS
c. Special DBMS d. All of these

Q 15. Identify the Foreign Key from table "Sales"

Table Client:
ClientID (Primary Key)
clientname
clientphone
Table Sales:
SalesID (Primary Key)
ClientID
Profit

a. SalesID b. Profit
c. Clientphone d. ClientID

Q 16. Which of the following is not valid field of table "Student"?

a. admno b. name
c. fees d. salary

Q 17. In RDBMS, data is organised in the form of .....

a. Table b. Record
c. Field d. None of these

Q 18. Which of the following is expanded form of SQL?

[CBSE 2023]

a. Systematic Query Language
b. Structured Query Language
c. Software Query Language
d. Structural Query Language

Q 19. All the values in ..... are of same type.

a. Records b. Table
c. Database d. Fields

Q 20. ..... represent a single data item in a table.

a. Tuples b. Attributes
c. Relation d. All of these

Q 21. Database servers are referred to as .....

[CBSE SQP 2021, Term-1]

a. front-ends b. back-ends
c. clients d. model

Q 22. A table is a set of data elements that is organised using a model of vertical ..... and horizontal .....

[CBSE SQP 2021, Term-1]

a. rows, tables b. columns, rows
c. rows, columns d. forms, reports

Q 23. Which one of the following is an example of RDBMS?

[CBSE SQP 2021, Term-1]

a. MongoDB
b. Windows registry
c. Publisher
d. Oracle

Q 24. The ..... has evolved since the 1960s to ease increasing difficulties in designing, building and maintaining complex information systems.

[CBSE SQP 2021, Term-1]

a. Knowledge concept
b. Formula concept
c. Database concept
d. Forms concept

Q 25. ..... are the basic building blocks of a database.

a. Tables b. Record
c. Fields d. All of these

Q 26. We can create table :

a. in design view b. use Wizard
c. Both a. and b. d. None of these

Q 27. By default data type of fields is:

a. Text(Varchar) b. Text(Char)
c. Int d. Long

Q 28. By default the length of Varchar data type is .....

a. 20 b. 30 c. 40 d. 50

Q 29. By default the name of the table is .....

a. Tab 1 b. Table 1
c. First Table d. Untitled 1

Q 30. ..... are used to identify which type of data we are going to store in the database.

a. Datatype b. Record
c. Table d. Attributes

Q 31. Which data type will be appropriate to store information such as Salary, Fees, Price, etc.?

a. Alphanumeric Data types
b. Numeric Data type
c. Binary Data types
d. Date Time

Q 32. Which of the following is not a numeric data type?

a. TInyInt b. SmallInt
c. Boolean d. Date

Q 33. Which of the following data types cannot store decimal values?

a. Decimal b. Real
c. Numeric d. Boolean

Q 34. Which of the following will occupy more space in computer memory?

a. Bigint b. Integer
c. Smallint d. Boolean

Q 35. Binary data types in a database can be using for storing .....

[CBSE 2023]

a. photos, music files, etc.
b. integer values
c. only image files
d. only video files

Q 36. Char is a ..... length data type and Varchar is a ..... length data type.

a. fixed, variable b. variable, fixed
c. variable, variable d. fixed, fixed

Q 37. Which field is suitable for storing records of employees?

a. EmpNo b. Empname
c. Salary d. All of these

Q 38. Auto value is a property of ..... data type.

a. Numeric b. Character
c. Binary d. Date

Q 39. Which of the following property help to set the number of characters in Varchar type?

a. Auto Value b. Required
c. Default Value d. Length

Q 40. Which property ensures that field cannot be left blank?

a. Entry required b. Format
c. Required Entry d. Required

Q 41. By default the length of the Integer data type is .....

a. 10 b. 15 c. 20 d. 25

Q 42. Which of the following property to be turned "yes" so that value will be auto incremented?

a. Default b. Format
c. Auto value d. Length

Q 43. Which of the following is not the binary data types?

a. Longvarbinary b. Varbinary
c. Binary d. Charbinary

Q 44. Which of the following is not the date time data types?

a. Date b. Time
c. Datestamp d. Timestamp

Q 45. Which data type is used to store value of fields like "Date of Birth"?

a. Date Time b. Varchar
c. Integer d. Other

Q 46. We can ..... data in table.

a. modify b. insert
c. delete d. All of these

Q 47. In which view data can be entered in table?

a. Datasheet view b. Design view
c. Both a. and b. d. None of these

Q 48. In which mode we can change the structure of table?

a. Datasheet view b. Design view
c. Structure view d. All of these

Q 49. Sorting means to arrange data in ..... order.

a. increasing
b. decreasing
c. increasing or decreasing
d. None of the above

Q 50. In Base data can be linked between two or more tables with the help of .....

a. Primary Key
b. Foreign Key
c. Primary and Foreign Key
d. None of the above

Q 51. Relationship can be created between:

a. two tables only b. one table only
c. two or more tables d. None of these

Q 52. Relationship between tables can be created from ..... menu.

a. View b. Insert c. Windows d. Tools

Q 53. There are ..... types of relationship which can be created between tables.

a. three b. two c. four d. Infinite

Q 54. Which language help to extract/fetch data from table?

a. MySQL b. Python
c. OpenOffice Base d. HTML

Q 55. We can create query (in OpenOffice Base) .....

a. In design view b. Using wizard
c. Both a. and b. d. None of these

Q 56. ..... statement is used to retrieve data from table.

a. Delete b. Update
c. Print d. Select

Q 57. ..... is the most common DML command.

a. Delete b. Update
c. Select d. All of these

Q 58. ..... clause can be used with the SELECT statement in SQL to specify which rows to retrieve from the table. *[CBSE 2023]*

a. WHERE b. GROUP
c. SAME d. SIMILAR

Q 59. Which of the following clause return records in ascending order?

a. Order By b. Where
c. Order Asc d. Order Inc

Q 60. Command to display all the data in the table "emp" is:

a. Select * from emp b. Select * from emp:
c. Select all from emp d. Select all from emp:

Q 61. Which command is used to create table?

a. Select b. Create c. Open d. New

Q 62. Shortcut to execute query in Create Query in SQL View is .....

a. F7 Key b. F5 Key
c. F8 Key d. F6 Key

Q 63. Which command is used to display the salary of all the employees after incrementing by 1000?

a. Select b. Update
c. Modify d. Change

Q 64. Select "salary" from emp;

a. will display all the records of table emp
b. will display only particular columns of table emp;
c. will display only salary column of table emp:
d. None of the above

Q 65. Select "empname", "salary" " 3 from emp;

a. will Increase the salary three times of all employees in table

b. display name and three times salary

c. give error

d. None of the above

Q 66. To get details about the list of students whose favourite colour is blue. Query for this is :

a. select all from Stud where fav_Colour='Blue';

b. select name from Stud where fav_Colour='Blue';

c. select ° from Stud where fav_Colour='Blue';

d. select all from Stud where fav_Colour is 'Blue';

Q 67. Select " from Stud order by "Rollno" ASC;

a. display all the records of table.

b. display records in increasing order of roll number.

c. Both a. and b.

d. None of the above

Q 68. Which command is used to modify data in table?

a. Delete b. Select c. Modify d. Update

Q 69. Which command is used to delete data from table?

a. Select b. Delete

c. Insert d. Remove

Q 70. Command to increase the salary of all employees by 15000.(table name emp and column name sal)

a. update emp set sal = sal + 15000;

b. update emp set sal = 15000;

c. update set sal = sal + 15000;

d. None of the above

Q 71. By default data is arranged in ..... order using order by clause.

a. ascending b. descending

c. Primary Key d. None of these

Q 72. Which of the following is DML commands?

a. Insert b. Update

c. Delete d. All of these

Q 73. A ..... provides a systematic way of storing information into the database.

a. Report b. Query

c. Form d. None of these

Q 74. A ..... is an interface in a user specified layout that lets users to view, enter, and change data directly in database objects such as tables. *[CBSE 2023]*

a. frame b. form

c. relation d. report

Q 75. A ..... helps to display the data in a summarised data.

a. Report b. Form

c. Query d. None of these

Q 76. A.....helps to collect specific information from the pool of data.

a. Query b. Report

c. Form d. None of these

Q 77. Which of the following is to be created first?

a. Report b. Query

c. Form d. Table

Q 78. Which of the following fields is invalid for storing information of "Library" Table?

a. Cost b. Booknumber

c. Authorname d. Dateofbirth

Q 79. A foreign key is a reference of the ..... key in another table.

a. Alternate b. Primary

c. Candidate d. None of these

Fill in the Blanks Type Questions

Q 80. ..... is usually suitable for less amount of data. (Relational/Flat file) *(CBSE 2023)*

Q 81. A ..... is a software package that can be used for creating and managing databases.

Q 82. A ..... is a database management system that is based on the relational model.

Q 83. Three popular DBMS software are ....., ... and .....

Q 84. A ..... is a unique value that identifies a row in a table.

Q 85. Composite Key is a combination of ..... columns.

Q 86. A table is a set of data elements that is organised using a model of vertical ..... and horizontal .....

Q 87. A ..... is a set of data values of a particular type, one for each row of the table.

Q 88. A ..... represents a single, data item in a table.

Q 89. ..... are used to identify which type of data we are going to store in the database.

Q 90. ..... DDL command is used to create a table.

Q 91. Common DDL statements are ....., ... and .....

Q 92. The types of languages used for creating and manipulating the data in the Database are ..... and .....

Q 93. A ..... Is a standard for commands that define the different structures in a database.

Q 94. A ..... is a language that enables users to access and manipulate data in a database.

Q 95. A ..... is a part of DML involving information retrieval only.

Q 96. A popular data manipulation language is .....

Q 97. ..... are the basic building blocks of a database.

Q 98. There are ..... types of Relationships in a table.

Q 99. A ..... helps the user to systematically store information in the database.

Q 100. A ..... enables users to view, enter, and change data directly in database objects such as tables.

Q 101. ..... statement retrieves zero or more rows from one or more database tables or database views.

Q 102. By default, data is arranged in ..... order using ORDER BY clause.

Q 103. ..... statement is used for modifying records in a database.

Q 104. ..... statement is used to remove one or more records in a Database.

Q 105. To create a form you need to select the ..... option available under Database section.

Q 106. A ..... helps to collect specific information from the pool of data in the database.

Q 107. ..... is used to display the summary of data.

Q 108. ..... are the interfaces with which the user interacts.

Q 109. Data from multiple tables can be linked with the help of ..... and ..... constraints.

Assertion & Reason Type Questions

Directions (Q. Nos. 110-139): *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.*

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

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Q 110. Assertion (A): In database, the information is stored in a structured manner.
Reason (R): Database is an organised collection of interrelated information of specific type.

Q 111. Assertion (A): Databases can either be maintained manually or using the computers.
Reason (R): Flat File Based Database Management System is also known as Flat models.

Q 112. Assertion (A): DBMS prevents databases from authorised access attacks.
Reason (R): DML stands for Data Manipulation Language.

Q 113. Assertion (A): TCL stands for Transaction Control Language.
Reason (R): DCL stands for Data Control Language.

Q 114. Assertion (A): A Data manipulation language is used to create and modify the structure of database objects.
Reason (R): A database model defines the method of collecting, storing, managing and controlling the data.

Q 115. Assertion (A): Object-oriented database models comprise of varied structures.
Reason (R): A database is a collection of different objects.

Q 116. Assertion (A): Forms provide a quick and convenient way to enter, modify and view records in a database.
Reason (R): There are only one ways to make a report.

Q 117. Assertion (A): Forms can be created using the Form Wizard.
Reason (R): A report is a graphical object that presents data in a formatted layout.

Q 118. Assertion (A): No two fields can have the same data in the table.
Reason (R): Report presents your data in printed form.

Q 119. Assertion (A): Database allows outputting reports in a printed format.
Reason (R): The wildcard character that matches any single numeric character is '#'.

Q 120. Assertion (A): In addition to viewing data, queries can also be used to update and sum data in a database.
Reason (R): The most commonly used query in Access is the select query.

Q 121. Assertion (A): The create tab is used to create a query.
Reason (R): Top pane displays the table(s) to be used in a query.

Q 122. Assertion (A): Run option available under the result group is used to execute the query.
Reason (R): An update query is used to make changes in the stored in a database.

Q 123. Assertion (A): The Foreign Key field picks up data from a Primary Key field.
Reason (R): SQL view option is available under the Results group to open the SQL view in order to write SQL commands.

Q 124. Assertion (A): The index view is used to define the table structure.
Reason (R): You can establish a relationship between two tables of a database.

Q 125. Assertion (A): Relationships option is present on the formate tools tab.
Reason (R): Data sharing serves as an efficient handler to balance the needs of multiple applications using the same data.

Q 100. A ..... enables users to view, enter, and change data directly in database objects such as tables.

Q 101. ..... statement retrieves zero or more rows from one or more database tables or database views.

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Reason (R): Data sharing serves as an efficient handler to balance the needs of multiple applications using the same data.

Q 126. Assertion (A): Databases can either be maintained manually or using the computers.
Reason (R): Searching and retrieving of data is very difficult in DBMS systems.

Q 127. Assertion (A): DDL stands for Data Describing Language.
Reason (R): TCL stands for Transmission Control Language.

Q 128. Assertion (A): A database is a collection of different objects such as Table, Form, Query and Report.
Reason (R): We can browse through records in a table in Datasheet view using the record navigation buttons.

Q 129. Assertion (A): A table is an object of a database.
Reason (R): A query is a question put up on the database.

Q 130. Assertion (A): Query can be created using the Query Design and Query Wizard option.
Reason (R): Forms are used to enter data.

Q 131. Assertion (A): Form is a question put up on database tables to view data from a single or multiple tables at the same time.
Reason (R): Form provides a convenient way to enter records in a table.

Q 132. Assertion (A): Forms can be used for inputting data.
Reason (R): Reports are used to output data.

Q 133. Assertion (A): Reports can be viewed before final printing.
Reason (R): Records cannot be edited in a table.

Q 134. Assertion (A): Reports are used to format, summarise and compile data in a presentable manner.
Reason (R): Reports do not allow printing the data of a database.

Q 135. Assertion (A): The GRANT command is used to provide access privileges to database.
Reason (R): The select command is used to make changes in the data stored in a database.

Q 136. Assertion (A): The Insert Rows option is present in the Tools group of the Design tab.
Reason (R): Filters allow you to view only the records you want to see.

Q 137. Assertion (A): The Primary Key field can accept null values.
Reason (R): Referential integrity is a system of rules that MS Access uses to make sure that relationships between records in related tables are valid.

Q 138. Assertion (A): The Foreign Key field uniquely identifies the records of a table.
Reason (R): The Foreign Key field stores or picks up the values from a Primary Key field in another table to relate both table's records to each other.

Q 139. Assertion (A): Tables can be joined by establishing a relationship between the tables.
Reason (R): A Select query is used to make changes in the data stored in a database.

Answers

1. (d)	2. (a)	3. (c)	4. (a)	5. (c)
6. (b)	7. (c)	8. (c)	9. (b)	10. (a)
11. (c)	12. (d)	13. (c)	14. (b)	15. (d)
16. (d)	17. (a)	18. (d)	19. (d)	20. (a)
21. (b)	22. (b)	23. (d)	24. (c)	25. (a)
26. (c)	27. (a)	28. (d)	29. (b)	30. (a)
31. (b)	32. (d)	33. (d)	34. (a)	35. (a)
36. (a)	37. (d)	38. (a)	39. (d)	40. (a)
41. (a)	42. (c)	43. (d)	44. (c)	45. (a)
46. (d)	47. (a)	48. (b)	49. (c)	50. (c)
51. (c)	52. (d)	53. (a)	54. (a)	55. (c)
56. (d)	57. (c)	58. (a)	59. (a)	60. (b)
61. (b)	62. (b)	63. (a)	64. (c)	65. (b)
66. (c)	67. (b)	68. (d)	69. (b)	70. (a)
71. (a)	72. (d)	73. (c)	74. (b)	75. (a)
76. (a)	77. (d)	78. (d)	79. (b)	

80. Flat File
81. DBMS
82. RDBMS
83. Microsoft Access, OpenOffice Base, MySQL
84. Primary Key
85. one or more
86. columns, rows
87. column
88. row
89. Datatypes
90. Create table
91. create, alter, drop
92. DDL, DML
93. DDL
94. DML
95. Select
96. SQL
97. Tables
98. three
99. form
100. form
101. SELECT
102. ascending
103. UPDATE
104. DELETE
105. form
106. query
107. Report
108. Forms
109. Primary Key, Foreign Key

110. (b)	111. (b)	112. (d)	113. (b)	114. (d)
115. (b)	116. (c)	117. (b)	118. (d)	119. (b)
120. (d)	121. (b)	122. (b)	123. (b)	124. (d)
125. (d)	126. (c)	127. (d)	128. (d)	129. (d)
130. (b)	131. (d)	132. (b)	133. (c)	134. (c)
135. (c)	136. (b)	137. (d)	138. (d)	139. (c)

Case Study Based Type Questions

Case Study 1

Database: A database is an organised collection of interrelated information of a specific type. In the database, the information is stored in a structured manner that makes it quick and easy to find information. We use and maintain various databases in our day-to-day life. For example,

a telephone directory, in which we store contact details of our friends and relatives in an alphabetical order; a school diary, in which we keep a record of the daily homework assignments day and date-wise; and even a dictionary, in which meanings of the words are arranged alphabetically. Database can either be maintained manually or using the computers. In earlier times, many organisations used to create and maintain the database manually, but with the introduction of DBMS (a computerised way of creating and maintaining databases), the traditional way of creating and maintaining databases manually, is completely replaced by the computers. Some examples of computerised databases are computerised library systems, flight reservation systems, computerised inventory systems, etc.

Q 1. Which one of the following is used to define the structure of the relation, deleting relations and relating schemas?

a. DML(Data Manipulation Language)
b. DDL(Data Definition Language)
c. Query
d. Relational Schema

Q 2. Which one of the following provides the ability to query information from the database and to insert tuples into, delete tuples from, and modify tuples in the database?

a. DML(Data Manipulation Language)
b. DDL(Data Definition Language)
c. Query
d. Relational Schema

Q 3. CREATE TABLE employee (name VARCHAR, id INTEGER)
What type of statement is this?

a. DML b. DDL
c. View d. Integrity constraint

Q 4. SELECT * FROM employee
What type of statement is this?

a. DML b. DDL
c. View d. Integrity constraint

Q 5. The basic data type char(n) is a ..... length character string and varchar(n) is ..... length character.

a. fixed, equal b. equal, variable
c. fixed, variable d. variable, equal

Answers

1. (b) 2. (a) 3. (b) 4. (a) 5. (c)

Case Study 2

KEYS IN DBMS:

- **Primary Key:** A primary is a column or set of columns in a table that uniquely identifies tuples (rows) in that table.
- **Super Key:** A Super key is a set of one or more columns (attributes) to uniquely identify rows in a table.
- **Candidate Key:** A Super key with no redundant attribute is known as a Candidate key.
- **Alternate Key:** Out of all Candidate keys, only one gets selected as Primary key, remaining keys are known as alternate or secondary keys.
- **Composite Key:** A key that consists of more than one attribute to uniquely identify rows (also known as records & tuples) in a table is called composite key.
- **Foreign Key:** Foreign keys are the columns of a table that points to the Primary key of another table. They act as a cross-reference between tables.

Q 1. Which one of the following allows us to uniquely identify the entity in the entity set?

a. Domain b. Tuple
c. Row d. Key

Q 2. A ..... is a set of one or more attributes that, taken collectively; allow us to identify uniquely an entity in the entity set.

a. Primary Key b. Super Key
c. Candidate Key d. Foreign Key

Q 3. A Super keys for which no proper subset is a super key. Such a minimal Super keys are called .....

a. Primary Key b. Super Key
c. Candidate Key d. Foreign Key

Q 4. ..... is the columns of a table that points to the Candidate key of another table.

a. Primary Key b. Super Key
c. Candidate Key d. Foreign Key

Q 5. The ..... should be chosen such that its attributes are never, or very rarely changed.

a. Primary Key b. Super Key
c. Candidate Key d. Foreign Key

Answers

1. (d) 2. (b) 3. (c) 4. (d) 5. (a)

Case Study 3

Working with Queries: A Query is an Access object using which you can get answers to questions about the data. A query can involve a single table or multiple tables. Queries let you pick up data from one or more tables at the same time. In addition to viewing data, queries can also be used to update and add data in a database.

Types of Queries: The types of queries that can be created in MS Access, are as follows:

- **Update:** An Update query is used to make changes in the data stored in a database. An update query lets you update multiple records of a table at the same time.
- **Make Table:** A Make Table query works the same way as an Update query works but the only difference is that it puts the results in a new table.
- **Append:** An Append query lets you select records from one table and add them to the end of another table.
- **Delete:** A Delete query is extremely useful, but care needs to be taken while using it. This query lets you select and delete records from a table.
- **Select:** The most commonly used query in Access is the Select query. It allows you to view specific data either from one table or from multiple tables, simultaneously. Select query lets you view selected records satisfying a condition from a database.

Q 1. Table Employee has 10 records. It has a non-NULL SALARY column which is also UNIQUE. The SQL statement
SELECT COUNT(*) FROM Employee WHERE SALARY > ANY (SELECT SALARY FROM EMPLOYEE); prints

a. 10 b. 9 c. 5 d. 0

Q 2. The SQL statement - SELECT SUBSTR('abcdefghij', INSTR('123321234', '2', 3, 2), 2) FROM DUAL; Prints

a. gh b. 23 c. bc d. ab

Q 3. The SQL statement - SELECT ROUND(45.926, -1) FROM DUAL;

a. is illegal b. prints garbage
c. prints 045.926 d. prints 50

Q 4. In an SQL SELECT statement querying a single table, according to the SQL-92 standard the asterisk (*) means that:

a. all columns of the table are to be returned.
b. all records meeting the full criteria are to be returned.
c. all records with even partial criteria met are to be returned.
d. None of the above is correct.

Q 5. The HAVING clause does which of the following?

a. Acts EXACTLY like a WHERE clause.
b. Acts like a WHERE clause but is used for columns rather than groups.
c. Acts like a WHERE clause but is used for groups rather than rows.
d. Acts like a WHERE clause but is used for rows rather than columns.

Answers

1. (b) **2.** (a) **3.** (d) **4.** (a) **5.** (c)

Case Study 4

CREATE TABLE command: The CREATE TABLE command is used to create a table in a database. In addition to creating a table either in the Design view or in the Datasheet view, a table can also be created using the CREATE TABLE command of SQL.

- **INSERT command:** The INSERT command is used to add records to a table.
- **SELECT command:** It allows us to view the records from a table.
- **UPDATE command:** An UPDATE command is used to make changes in the data stored in a database. An UPDATE query lets us update multiple records of the table at the same time.
- **DELETE command:** The DELETE command query lets us select and delete records from a table.

Q 1. An SQL INSERT statement adds ..... records to any single table in a relational database.

a. one b. one or more
c. only two d. None of these

Q 2. The SELECT statement used in an INSERT SELECT can include a ..... clause to filter the data to be inserted.

a. where b. from
c. into d. Both a. and b.

Q 3. SELECT INTO copies data into a ..... table.

a. old b. new
c. only system table d. Both a. and b.

Q 4. The SQL ..... statement can be used to create backup copies of tables.

a. SELECT IN b. SELECT TO
c. SELECT IO d. SELECT INTO

Q 5. What is this below query doing:
select distinct e1."FirstName"
into NewTable
from "employee" e1

a. The query returns all names from the field "FirstName" including duplicates and places it inside a new table giving it name "NewTable".
b. The query returns all names from the field "FirstName" excluding duplicates and places it inside a new table giving it name "NewTable".
c. The query returns all names from the field "FirstName" excluding duplicates and places it inside a new table giving it name "mynewtable"
d. Both a. and b.

Answers

1. (b) **2.** (a) **3.** (b) **4.** (d) **5.** (b)

Case Study 5

Consider the table STUDENTS given below:

Roll No	Name	Class	DOB	Gender	City	Marks
1	Anand	XI	6/6/97	M	Agra	430
2	Chetan	XII	7/5/94	M	Mumbai	460
3	Geet	XI	6/5/97	F	Agra	470
4	Preeti	XII	8/8/95	F	Mumbai	492
5	Saniyal	XII	8/10/95	M	Delhi	360
6	Maakhiy	XI	12/12/94	F	Dubai	256
7	Neha	X	8/12/95	F	Moscow	324
8	Nishant	X	12/6/95	M	Moscow	429

Q 1. State the command that will give the output as:

Name
Anand
Chetan
Geet
Preeti

(I) select Name from STUDENTS where Class = 'XI' and Class = 'XII';

(II) select Name from STUDENTS where not Class = 'XI' and Class = 'XII';

(III) select Name from STUDENTS where city = "Agra" OR city = "Mumbai";

(IV) select Name from STUDENTS where city IN ("Agra", "Mumbai");

Choose the correct option:

a. I and II b. III and IV

c. I, III and IV d. Only III

Q 2. What will be the output of the following command?

Select °from student where gender = "F" order by marks;

(a)

Roll No	Name	Class	DOB	Gender	City	Marks
4	Preeti	XII	8/8/95	F	Mumbai	492
3	Geet	XI	6/5/97	F	Agra	470
7	Neha	X	8/12/95	F	Moscow	324
6	Maakhiy	XI	12/12/94	F	Dubai	256

(b)

Roll No	Name	Class	DOB	Gender	City	Marks
6	Maakhiy	XI	12/12/94	F	Dubai	256
7	Neha	X	8/12/95	F	Moscow	324
3	Geet	XI	6/5/97	F	Agra	470
4	Preeti	XII	8/8/95	F	Mumbai	492

(c)

Gender	Marks
F	256
F	324
F	740
F	492

(d)

Gender	Marks
F	492
F	470
F	324
F	256

Q 3. Prachi has given the following command to obtain the highest marks

Select max(marks) from student where group by class;

but she is not getting the desired result. Help her by writing the correct command.

a. Select max (marks) from student where group by class;

b. Select class, max (marks) from students group by marks;

c. Select class, max (marks) group by class from students;

d. Select class, max (marks) from student group by class;

Q 4. State the command to display the average marks scored by students of each gender who are in Class XI?

(I) Select gender, avg(marks) from student where class = "XI" group by gender;

(II) Select gender, avg(marks) from student where group by gender where class = "XI";

(III) Select gender, avg(marks) group by gender from student having class = "XI";

(IV) Select gender, avg(marks) from student group by gender having class = "XI";

Choose the correct option:

a. II and III b. II and IV

c. I and III d. Only III

Answers

1. (b) **2.** (b) **3.** (d) **4.** (b)

Case Study 6

Tejasvi Sethi, a car dealer has stored the details of all cars in her showroom in a table called CARMARKET. The table CARMARKET has attributes CARCODE which is a primary key, CARNAME, COMPANY, COLOR, COST (in lakh rupees) of the car and DOM which is the Date of Manufacture of the car.

Answer any four questions based on the table CARMARKET from the below mentioned questions:

Table: CARMARKET

Carcode	Carname	Company	Colour	Cost	DOM
C01	BALENO	SUZUKI	BLUE	5.90	2019-11-07
C02	INDIGO	TATA	SILVER	12.90	2020-10-15
C03	GLC	MERCEDES	WHITE	62.38	2020-01-20
C04	A6	AUDI	RED	58.55	2018-12-29
C05	INNOVA	TOYOTA	BLACK	32.82	2017-11-10
C06	WAGON-R	SUZUKI	WHITE	12.11	2016-11-11
C07	BREZZA	SUZUKI	GOLDEN	9.80	2016-10-03

Choose the correct SQL query to do the following:

Q 1. Display the carname along with the charges rounded off to 1 digit after decimal place.

a. Select Carname, round (Cost) from CARMARKET;
b. Select Carname, round.Cost (1) from CARMARKET;
c. Select Carname, round.Cost () from CARMARKET;
d. Select Carname, round (Cost,1) from CARMARKET;

Q 2. Display the carname, colour and position of the character 'E' in the colour of all the cars.

a. Select Carname, Colour from CARMARKET where Colour like "%E%";
b. Select Carname, Colour, Instr(Colour, 'E') from CARMARKET;
c. Select Carname, Colour from CARMARKET where Colour = "%E%";
d. Select Carname, Colour, substr (Colour, 1, 'E') from CARMARKET;

Q 3. Display the Carname, Name of the company in lower case of all cars whose year (of DOM) is 2020.

a. Select Carname, lcase (Company) from CARMARKET where year (DOM) = 2020;
b. Select Carname, lcase (Company) from CARMARKET where year of (DOM) like '2020%';
c. Select Carname lower (Company) from CARMARKET where DOM from "2020-01-01" to "2020-12-31";
d. Select Carname, lower (Company) from CARMARKET where year from (DOM) = 2020;

Q 4. Display the number of cars manufactured each year.

a. select count (*), year (DOM) from CARMARKET where year (DOM) = distinct;
b. select count (*), year (DOM) from CARMARKET group by year (DOM);
c. select count (Carmarket), year (DOM) from CARMARKET group by year (DOM);
d. select count (distinct (*), year (DOM) from CARMARKET group by year (DOM);

Answers

1. (d) 2. (b) 3. (a) 4. (b)

Case Study 7

Write the queries for the following table: Emp

Emp_id	Ename	Salary
1	Suman	20000
2	Sanjay	32000
3	Ravi	30000

Q 1. Display the salary of all the employees after incrementing by ₹ 1000.
Q 2. Display the Employee id and salary of all the employees after decreasing by ₹ 500.
Q 3. Display the name and salary of all the employees after incrementing it as thrice the amount of present salary.
Q 4. Display the Employee id, Name and salary of all the employees after decrementing it as half the amount of present salary.

Answers

1. Select Salary +1000 from Emp;
2. Select Emp_id, Salary – 500 from Emp;
3. Select Ename, Salary * 3 from Emp;
4. Select Emp_id, Ename, Salary/2 from Emp;

Case Study 8

Write the queries for the following table: Student

Admno	Name	Class	House
1001	Sonam	9	Blue
1002	Ravi	10	Yellow
1003	Poonam	10	Green

Q 1. Display the entire table.
Q 2. Display the list of students whose house colour is blue.
Q 3. Display the admission number of students whose house colour is green.
Q 4. To view records in ascending order of Admission Number.

Answers

1. Select * from Student
2. Select * from Student where House = "Blue"
3. Select Admno from Student where House = 'Yellow'
4. Select * from Student order by Admno Asc;

Case Study 9

Write the queries for the following table: Student

RollNo	Name	Class	House
7001	Himanshu	8	Blue
7002	Rohit	7	Yellow
7003	Gaurav	9	Green

Q 1. Display the records of Class 9 Students.

Q 2. Display the class of 'Rohit'.

Q 3. Insert the given record: 7004, "Aman", 11, "Blue"

Q 4. Display the Roll number of students whose house colours is Blue.

Answers

1. Select * from Students where Class = 9;
2. Select Class from Student where Name = 'Rohit'.
3. Insert into Student values(7004, "Aman", 11, "Blue").
4. Select RollNo from Student where House = "Blue"

Case Study 10

Write the queries for the following table: Item

Itemno	Iname	Price	Qty
12	Pen	10	17
13	Eraser	5	15
14	Notebook	15	20

Q 1. Write a query to insert a new record of following details 15, "Pencil", 20, 10.

Q 2. Write a query to display detail of items whose quantity is more than 10.

Q 3. Write a query to change the quantity of Item number 13 to 25.

Q 4. Display the total amount of each item. The amount must be calculated as the price multiplied by quantity for each item.

Answers

1. Insert into Item values(15, "Pencil", 20, 10).
2. Select * from Item where Qty > 10.
3. Update Item set Qty = 25 where Itemno = 13.
4. Select Price * Qty from Item.

Very Short Answer Type Questions

Q 1. What is a database?

Ans. A database is an organised collection of interrelated information of a specific type. In the database, the information is stored in a structured manner that makes it easy to find information.

Q 2. Name any four categories of DBMS.

Ans. The four categories of DBMS are as follows:

(i) Flat file based DBMS.

(ii) Hierarchical database management system.

(iii) Network database management system.

(iv) Relational database management system.

Q 3. What do you mean by Flat File DBMS?

Ans. Flat File Based Database Management Systems, also known as flat models, are the simplest database management systems. These store information in flat files having rows and columns to store data. Flat files cannot be linked to each other.

Q 4. Write one example each of Flat File DBMS and Hierarchical DBMS.

Ans. Flat File DBMS example: **MS Excel**

Hierarchical DBMS example: **XML document**.

Q 5. What is the use of a Flat File based database?

Ans. Flat File based database stores information in flat files having rows and columns to store data. Flat files cannot be linked to each other.

Q 6. Discuss object-oriented DBMS.

Ans. In object-oriented database management systems, the object and its data or attributes are seen as one and accessed through pointers. Object-oriented database models comprise varied structures and are quite extensible.

Q 7. Name the database model which are used rarely because of complex data structure and also write the name of database model by which it is replaced.

Ans. Network database management system model are rarely used because of the complex data structure and have been replaced by Relational Database Management System.

Q 8. Write some examples of object-oriented DBMS and Relational DBMS.

Ans. Object-oriented DBMS examples: IBM db40 and DTS/S1.

Relational DBMS examples: MS Access, Oracle, MS SQL Server and MYSQL.

Q 9. What is the most commonly used SQL command? What is it used for?

Ans. The most commonly used SQL command is the SELECT command. It allows us to view the records from a table. It also lets us view selected records satisfying a condition from a table.

Q 10. What do you mean by the term data manipulation?

Ans. Data manipulation means to perform different operations such as to view the records, to edit and update the records and to delete the records stored in a database when needed.

Q 11. Mention any two integer data types of a table field in database. *[CBSE SQP 2022, Term-2]*

Ans. TINYINT, SMALLINT, INTEGER, NUMERIC, BIGINT

Q 12. Name the relationship in which one column of the primary key table is associated with all the columns of the associated table and *vice-versa*.

Ans. One to Many Relationship or Many to One Relationship. *[CBSE SQP 2022, Term-2]*

Q 13. Define Reports of a database.

[CBSE SQP 2022, Term-2]

Ans. A report helps to display the data in a summarised manner. It is used to generate the overall work outcome in a clear format. You can create reports in the database.

Q 14. When the primary key constraint is applied to one or more columns in a table is known as .....

Ans. Composite Primary Key *[CBSE SQP 2022, Term-2]*

Q 15. A row that represents a single, data item in a table is known as .....

Ans. record or tuple *[CBSE SQP 2022, Term-2]*

Q 16. Explain the term sorting.

Ans. Sorting refers to arranging the table data in increasing or decreasing order. *[CBSE SQP 2022, Term-2]*

Q 17. Describe CREATE command.

Ans. This command defines the structure of a table. It describes the kind of data to be stored in a table by declaring the number of fields, field name, field length and the data type of fields of a table.

Q 18. Differentiate between TRUNCATE command and DROP command.

ANS. TRUNCATE command: This command removes all the table records including allocated table spaces.

DROP command: This command deletes a table or other database objects such as index or view.

Q 19. What do you mean by SET TRANSACTION command?

Ans. SET TRANSACTION command is used for specifying characteristics such as the read-write/read-only access, etc., for a transaction.

Q 20. What is a record?

Ans. A row containing all the data about a single item of the object is called a record.

Q 21. Define table. Also write its characteristics.

Ans. A table is a grid made up of rows and columns that stores all the data about a single object.

Characteristics of a Table:

(i) Each table must have a unique name.

(ii) Each field of table must have unique name and data type.

Q 22. Name the two views for table.

Ans. The two views for the table are as follows:

(i) Design view (ii) Datasheet view

Q 23. Write rules and regulations for the table name.

Ans. A table name should not exceed 64 characters. A table name can only includes spaces, letters and numbers.

Q 24. What is a query?

Ans. A query is a question put up on the database to view the records, matching the criteria defined by us.

Q 25. What are the two methods to create a query?

Ans. A query can be created using either of the following methods:

(i) Using Query Wizard

(ii) Using Query Design

Q 26. Name the two panes of the Query Design window.

Ans. The Query Design window is divided into two panes: Top pane and Bottom pane.

Q 27. What is the use of the Field option present on the Query Design grid?

Ans. Field option displays the field of a table to be included in the query.

Q 28. What is a report?

Ans. A report is a graphical object that presents data in a formatted layout. This is useful for displaying data in an organised manner and for printing.

Q 29. Write any two characteristics of report.

Ans. The two characteristics of report are as follows:

(i) Access enables us to create a report either from table or query.

(ii) Reports can be viewed before final printing.

Q 30. What is a wizard?

Ans. A wizard consists of a sequence of screens through which we navigate in order to achieve a specific task, such as, creating a query.

Q 31. Define the following terms:

(i) Macro (ii) Code

Ans. (i) Macro: A set of actions created to automate common tasks is known as Macro.

(ii) Code: A code refers to the declarations, statements and procedures written in the programming language.

Q 32. How is database maintained?

Ans. Database can be maintained either manually or by using the computers using DBMS (Database Management System).

Q 33. Write some examples of computerised databases.

Ans. Some examples of computerised databases are computerised library system, flight reservation system, computerised inventory system, etc.

Q 34. What does a database model defines?

Ans. A database model defines the method of collecting, storing, managing and controlling the data.

Q 35. What is the purpose of Title bar?

Ans. Title bar is present at the top of the window that displays the name of the current database.

Q 36. Write the steps to close a database.

Ans. Perform the below mentioned steps to close a database file:

Step 1: Click on **File** tab and click on **Close database** option.

Step 2: The current database gets closed and the new option becomes selected on the File tab.

Q 37. Define how to switch between the Design view and the Datasheet view.

Ans. To switch between the Design view and the Datasheet view, click on the **View** arrow on the **Home** tab and click on either **Datasheet view** or **Design view**, to select a view to work.

Q 38. What do you mean by Rich text data type?

Ans. Rich text is used to store text or combinations of text and numbers that can be formatted using colour and font options.

Q 39. Explain Memo datatype.

Ans. Memo is used to store long block of text. It can store upto 65,535 characters.

Q 40. Differentiate between Validation Text and Validation Rule.

Ans. Validation Rule: It limits the value that the field will accept.

Validation Text: It is the error message that appears when we enter the wrong value.

Q 41. What do you mean by Toggle filter?

Ans. Toggle Filter option allows us to turn the filter on and off. To view records without the filter, simply click on the **Toggle Filter** option. To restore the filter, click it again.

Q 42. Explain how can you remove a filter.

Ans. To remove a filter, click on the **Toggle filter** option in the **Sort and Filter** group to remove a filter.

Q 43. Describe the [] character and ! character.

Ans. [] character: It matches characters within the brackets.

! character: It excludes characters inside the brackets.

Q 44. Define wildcards.

Ans. Wildcards are special characters that can stand in for unknown characters in a text value.

Q 45. What is the purpose of Status bar?

Ans. The Status bar is present at the bottom of the window. On its right side, four view buttons are present—datasheet view, design view, pivot table view, pivot chart view.

Q 46. Name the two types of fields that are used to join two tables.

Ans. Primary Key field and Foreign Key field are used to join two tables.

Q 47. Define Foreign key.

Ans. The Foreign key field is a field that stores or picks up the values from a Primary key field in another table to relate both tables' records to each other.

Q 48. How can you establish a relationship between two tables?

Ans. We can establish a relationship between two tables of a database using a common field that exists in both the tables.

Q 49. What are the different kinds of relationships between tables?

Ans. There are three kinds of relationships between tables:

(i) One-to-many relationships

(ii) Many-to-many relationships

(iii) One-to-one relationships

Q 50. Write the correct syntax of SELECT command.

Ans. The syntax of the SELECT command is as follows:

SELECT column 1, column 2 ..... , column N from <table_name> ;

Q 51. Write the correct syntax of DELETE command.

Ans. The syntax of the SQL DELETE command is as follows:

DELETE FROM <table_name>
WHERE [condition];

Q 52. Write the keyboard shortcut keys for the following:

(i) To move the previous field.

(ii) To open the help window.

Ans. (i) Press Shift + Tab keys to move to the previous field.

(ii) Press F1 key to open the Help window.

COMMON ERROR

Students give incorrect syntax of commands so they should learn all the commands thoroughly.

Q 53. Write the purpose of DBMS.

Ans. DBMS is used to store logically related information at a centralised location. It facilitates data sharing among all the applications requiring it.

Q 54. Write the relationship between a database and a table.

Ans. A database contains multiple tables whereas, a table cannot exist outside a database.

Q 55. Give any one use of database.

Ans. A database is used to store logically related information in table.

Q 56. What is field in database? Give an example.

Ans. A field is an area, reserved for a specific piece of data. It is also known as attribute, *e.g.*, Customer_Name.

Q 57. State the primary goal of a DBMS.

Ans. To provide a convenient and efficient environment in which we can store and retrieve information.

Q 58. Write any two uses of database management system.

Ans. (i) DBMS is used to store data at a centralised location.

(ii) It is used to minimize data redundancy and data inconsistency.

Q 59. Give any two disadvantages of the database.

Ans. (i) High complexity (ii) Database failure

Q 60. Write any two advantages of using database.

Ans. (i) Can ensure data security.

(ii) Reduces the data redundancy.

Q 61. What is a primary key?

Or

Define primary key with an example.

Or

What is primary key? Give an example.

Or

What is a primary key in database? Give an example.

Ans. A field which uniquely identifies each record in a table is known as primary key. *e.g.* empId is the primary key of the Employee table.

Q 62. Give one advantage of using primary key.

Ans. A primary key uniquely identifies the record in the table.

Q 63. What is the significance of a primary key?

Ans. A primary key cannot allow null values and must have a unique index.

Q 64. Name two possible primary keys for an Employee table.

Ans. Possible primary keys for an Employee table are empcode, empphonenumber.

Q 65. Write the significance of a foreign key.

Ans. A foreign key is used to establish relationship between any two tables of RDBMS.

Q 66. Name two DBMS Software.

Ans. Two DBMS Software are:

(i) MySQL (ii) Oracle

(iii) Microsoft SQL Server (iv) Microsoft Access

Q 67. What do you mean by database servers?

Ans. Database servers are dedicated computers that hold the actual databases and run only the DBMS and related software.

Q 68. Write four advantages of database.

Ans. Four advantages of database are:

(i) It reduces data redundancy.

(ii) It allows sharing of data.

(iii) It help to maintain data integrity.

(iv) It provides data security.

Q 69. What do you mean by data type?

Ans. Datatypes are used to identify which type of data (value) we are going to store in the database.

Q 70. What do you mean by data redundancy?

Ans. Duplication of data in a database is known as data redundancy.

Q 71. What is the difference between Char and Varchar data type?

Ans. Char is a fixed length data type and Varchar is a variable length data type.

Q 72. Data in a (RDBMS) is organised in the form of .....

Ans. Tables

Q 73. What do you mean by data integrity?

Ans. Data integrity means that the data is accurate and consistent in the database.

Q 74. What is data consistency?

Ans. Data consistency means there should be multiple mismatching copies of the same data in a database.

Q 75. Write two features of database.

Ans. Two features of database are:

(i) A database can have one or many tables.

(ii) Every table in a database has a primary key field which ensures 00% unique values in the database.

Q 76. What is primary key?

Ans. A field which is unique for each and every record in a table is called primary key.

Q 77. What do you mean by composite primary key?

Ans. When primary key constraint is applied on one or more columns then it is known as composite primary key.

Q 78. Write rules and regulations for the table name.

Ans. A table name should not exceed 64 characters. A table name can only include spaces, letters and numbers.

Short Answer Type Questions ↘

Q 1. Discuss some features of database.

Ans. Some features of database are as follows:

(i) It creates and stores data in the form of tables. Tables are easy to work with.

(ii) It can handle a large number of records stored in the tables.

(iii) It is best used for a long-term data storage and/or data sharing.

(iv) It allows multiple users to use the database, simultaneously.

Q 2. Write any two advantages of database.

Ans. Two advantages of database are:

(i) Database provides a strong framework to protect data privacy and security.

(ii) Database provides the capability to access the frequently accessed data as quickly as possible.

Q 3. What is Database Management System (DBMS)?

Ans. A Database Management System (DBMS) is an application program that is used to create and maintain the database. It enables users to store, modify and view information from a database as per the requirements. It provides a systematic approach to create, retrieve, update and manage information in a database. DBMS also prevents databases from unauthorised access. It is quite easy and simple to use DBMS.

Q 4. Differentiate between Hierarchical DBMS and Network DBMS.

Ans. **Hierarchical DBMS:** Hierarchical Database Management Systems function on the parent child tree-like model. These store the data items along with the description of the data items, such as a book with information on chapters and verses.

Network DBMS: Network Database Management Systems use a data model similar to Hierarchical Database Management Systems. The major difference between the two is that the tree structure in the Network models can have a many parent to many child relational model. The Network model structure is based on records and sets.

Q 5. What do you mean by RDMS?

Ans. Relational Database Management Systems are the most widely used database management systems, today. These are relatively easy to use. These store the information in the form of tables. Relational Database Management Systems are named so because of the capability to link multiple

data structures, *i.e.*, tables. MS Access, Oracle, MS SQLServer, IBM DB2 and MySQL are some of the commonly used Relational Database Management Systems.

Q 6. How Entry Required and Default Value properties of a table field in a database are different from each other? *[CBSE SQP 2022, Term-2]*

Ans. Entry Required: If set to yes then it will be necessary for the user to insert the value in the field which means that field cannot be left blank.

Default Value: A default value can be set for a field if user don't provide any value while entering the values in the table.

Q 7. What is Referential Integrity? Explain its two (any) purposes. *[CBSE SQP 2022, Term-2]*

Ans. Referential Integrity is used to maintain accuracy and consistency of data in a relationship. In Base, data can be linked between two or more tables with the help of primary key and foreign key constraints.

Referential integrity helps to avoid:

(I) Records can be added to a related table, if there is no associated record available in the primary key table.

(ii) The values can be modified in a primary if any dependent records are present in the associated table(s).

(iii) Deleting records from a primary key table if there are any matching related records available in associated table(s).

Q 8. What is the difference between forms and reports? *[CBSE SQP 2022, Term-2]*

Ans. Forms provides an interface to users to view, add, modify in both table and queries.

Reports are presented forms used to present formatted summaries or lists of the data from one or more tables or queries.

Q 9. Identify the columns and data types of a table: Airlines. Mention at least four columns with data type. *[CBSE SQP 2022, Term-2]*

Ans.

Columns	Data Type
Flight No	Text
No. of Passengers	Integer
Airlines	Text
Arrival Time	Date/ Time
Departure Time	Date/Time
Fares	Float

Q 10. Explain any two types of relationships that can be created in tables. *[CBSE SQP 2022, Term-2]*

Ans. OpenOffice base support 3 types of relationships:
(I) One-to-One (II) One-to-Many or Many-to-One
(iii) Many-to-Many

(i) **One-to-One:** In this relationship both tables must have primary key columns. **Example:** In the given tables emp and dept, empno and deptno is primary key in dept table. So, in relationship these two fields are used for one-to-one relationship.

(ii) **One-to-Many or Many-to-One:** In this kind of relationship one of the table must have primary key column. It means that one column of primary key table is associated with all the columns of associated table. As above example, emp and dept tables, empno is primary key for the emp table.

(iii) **Many-to-Many Relationship:** In this kind of relationship no table has primary key column. It means that all the columns of primary key table are associated with all the columns of associated table.

Q 11. Identify any two column name/attribute and their data types from a given table: PLAYER

PID	PNAME	RUNS	GENDER	DOB
P101	Sachin	13000	M	10/04/2001
P102	Kapil	7000	M	12/02/1998
P103	Saurabh	12000	M	13/04/2001
P104	Virat	12500	M	17/03/2005

[CBSE SQP 2022, Term-2]

Ans. PID – Char(4), Primary Key
Pname – varchar(10)
Runs – int(5)
Gender – cahr(1)
DOB – Date

Q 12. Give the disadvantages of a database system.

Ans. The disadvantages of a database system are as follows:

(I) **Cost of Hardware and Software:** Through the use of a database system, new costs are generated due to additional hardware and software requirement.

(ii) **Database Failure:** If database is corrupted due to power failure or it is corrupted on the storage media, then our valuable data may be lost or the system will stop working.

Q 13. What are the four different computer languages that are used to manipulate the data stored in a database?

Ans. The four different types of computer language that are used to manipulate the data stored in a database are as follows:

(i) Data Definition Language (DDL)
(ii) Data Manipulation Language (DML)
(iii) Data Control Language (DCL)
(iv) Transaction Control Language (TCL)

Q 14. Distinguish between DDL and DML.
Ans. Difference between DDL and DML.

S.No.	Basis of Difference	DDL	DML
(i)	Abbreviation	DDL is the abbreviation of Data Definition Language.	DML is the abbreviation of Data Manipulation Language.
(ii)	Purpose	It is used to create and modify the structure of database objects in database.	It is used to retrieve, store, modify, delete, insert and update data in database.
(iii)	Benefits	DDL commands allows us to perform tasks related to data definition.	DML commands are used for manipulation of data.
(iv)	Example	For example: CREATE, ALTER, and DROP commands.	For example: SELECT, UPDATE, and INSERT commands.

TiP

Give the difference in tabular form and provide examples of both types of commands.

Q 15. Define CREATE Table command.

Ans. The **CREATE TABLE** command is used to create a table in a database. In addition to creating a table either in the Design view or in the Datasheet view, a table can also be created using the **CREATE TABLE** command of SQL in MS Access 2010.

Q 16. Describe the following commands:

(i) ROLLBACK command
(ii) SAVEPOINT command
(iii) UPDATE command
(iv) DELETE command

Ans. (i) **ROLLBACK command:** This command is used to restore the transaction in the case of any error.

(ii) **SAVEPOINT command:** This command is used for setting a savepoint within a transaction.

(iii) **UPDATE command:** This command is used to edit and update the records in a database.

(iv) **DELETE command:** This command is used to delete the data stored in a database.

Q 17. What is Data Control Language?

Ans. The Data Control Language (DCL) is used to control the access and permission given to the users of a database. The examples of DCL commands are GRANT and REVOKE.

(i) GRANT command: This command is used to provide access privileges to database.

(ii) REVOKE command: This command is used to withdraw user's access privileges to database.

Q 18. Define any two types of users which can access the database system.

Ans. The two types of users which can access the database system are as follows:

(i) Database Administrator (DBA): A person, who is responsible for managing or establishing policies for the maintenance and handling the overall database management system is called DBA.

(ii) Application Programmer: A person, who writes application programs in programming language to interact and manipulate the database are called application programmer.

Q 19. Write the steps to use wildcard characteristics in queries.

Ans. Perform the below-mentioned steps to use wildcard characters in queries:

Step 1: Open the query in the **Design** view.

Step 2: In the **Criteria** row of the field that we want to use, type the operator **Like** in front of our criteria.

Step 3: Replace one or more characters in the criteria with a wildcard character. for example Like R?308 will return RA308, RB308 and so on.

Step 4: On the **Design** tab, click on the **Run** button to get the output.

Q 20. Discuss any two options in the picture type property.

Ans. The two options in the picture type property are as follows:

(i) **Shared Property:** The picture will add the image to gallery.

(ii) **Linked Property:** The image will not get displayed on changing the path of the picture.

Q 21. Differentiate between Design View and Datasheet View.

Ans. Design View: It is used to define the table structure. We can define the data types, insert or delete fields and set the Primary Key, in this view.

Datasheet View: It is used to enter and view the data for the records, to be saved in a table.

Q 22. Write characteristics of a query.

Ans. Characteristics of a query are as follows:

(i) After creating a query, we can run it to view the selected data from the database. Thus, running a query is like asking a question on a database.

(ii) At the time of query creation, we can define the search criteria to find the specific records.

(iii) Access enables us to either design queries on our own or it also offers the wizard feature using which we can create a query by following a sequence of steps.

(iv) Different types of queries can be defined to view, update, insert or delete data.

Q 23. What is the use of Macros in a Spreadsheet?

Ans. Macros help in saving time in cases when the same set of tasks are to be done repeatedly like formatting or applying a similar formula in a similar range of data. It can be used to name and record a set of actions.

Q 24. Distinguish between a record and a field in a table, with an example.

Ans. Distinguish between a record and a field in a table are as follows:

S.No.	Basis of Difference	Record	Field
(i)	Definition	It is a collection of data items, which represent a complete unit of information about a thing or a person.	It is an area within the record reserved for a specific piece of data.
(ii)	Concept	A record refers to a row in the table.	A field refers to a column in the table.
(iii)	Other name	Record is also known as tuple.	Field is also known as attribute.
(iv)	Example	*e.g.*, if Employee is a table, then entire information of an employee is called a record.	*e.g.*, if Employee is a table, then empId, empName, department, salary are the fields.

Q 25. Write the steps to move a field.

Ans. Perform the below mentioned steps to move a field:

Step 1: Open the table in the **Design view.**

Step 2: Select the row that contains the field to be moved.

Step 3: Drag the field to the new place. A line appears between the fields as we drag over them. It specifies the position where the field will be placed.

Step 4: The selected field will be placed at the new position after releasing the mouse button.

TiP

Students should go through the steps properly in a sequential order.

Q 26. Write the steps to edit the records.

Ans. Perform the below mentioned steps to edit the records:

Step 1: Click inside the cell where we need to edit the data in the **Datasheet view**.

Step 2: A **pencil icon** indicating the **Edit** mode appears.

Step 3: Enter the new data.

Step 4: Click outside the cell to apply the change.

Q 27. Write the steps to sort records in a table.

Ans. Perform the below mentioned steps to sort records in a table:

Step 1: Place the cursor in the field that we wish to sort, by clicking on any record in the table.

Step 2: Click either the **sort Ascending** or **sort Descending** icon on the **Home** tab in the **Sort and Filter** group, to sort the database as per the specific field.

Q 28. Write the steps to delete a row or record.

Ans. Perform the below mentioned steps to delete a row or a record.

Step 1: Select the entire row or a column that needs to be deleted.

Step 2: Press the **Delete** key on the keyboard to delete the unwanted column or row.

Step 3: Access confirms the deletion by displaying the message.

Step 4: Click on the **Yes** button to confirm deletion of the selected record.

Q 29. Write the steps to delete a record.

Ans. Perform the below-mentioned steps to delete a record:

Step 1: Open the form in the **Form view**.

Step 2: Select the record or records that we want to delete. To select a record, click on the record selector next to the record, if the record selector is available.

Step 3: To extend or reduce the selection, drag the record selector, or press the **Shift + Down** arrow keys or the **Shift + Up** arrow keys.

Step 4: Now press the **Delete** key or select the **Delete** option on the **Records** group in the **Home** tab, or press the **Ctrl + minus sign (–)**.

Q 30. What is a Primary Key? How is it different from Foreign Key?

Ans. A Primary Key is a column or group of columns in a table that uniquely identify every row/record in that table.

	Primary Key	Foreign Key
(i)	A table cannot have more than one primary key.	A table can have more than one foreign key.
(ii)	Primary key can't accept null values.	Foreign key can accept multiple null values.

Q 31. Explain referential integrity.

Ans. Referential integrity is a system of rules that MS Access uses to make sure that relationships between records in related tables are valid and we do not accidentally delete or change related data. Referential integrity relationships help make sure that the information in one table matches the information in another.

Q 32. Mention the use of referential integrity between tables.

Ans. Referential integrity is used between tables for the following purposes:

(i) To make sure that the data stays synchronised.

(ii) To make sure that relationships between records in related tables are valid and the related data is not accidentally deleted or changed.

Q 33. Differentiate between one-to-many relationship and many-to-many relationship.

Ans. **One-to-Many Relationship:** A one-to-many relationship is the most common kind of relationship. In this kind of relationship, a row in table A can have many matching rows in table B. However, a row in table B can have only one matching row in table A.

Many-to-Many Relationship: In a many-to-many relationship, a row in table A can have many matching rows in table B, and *vice-versa*. We create such a relationship by defining a third table that is called a junction table. The primary key of the junction table consists of the foreign keys from both table A and table B.

Q 34. What are the main purposes of a database system?

Ans. The main purposes of a database system are as follows:

(i) Storage of information.

(ii) Retrieval of information quickly.

(iii) Sorting, selecting data that satisfies certain criteria (filtering).

(iv) Produce the report in some standardised and readable format.

Q 35. What is the difference between 'Rows' and 'Columns' in a table?

Ans. In a table, rows are called records and columns are termed as fields. A row stores complete information of a record whereas column stores only similar data values for all records.

Q 36. Define query in the context of database.

Ans. A query is an inquiry into the database using the SELECT statement. These statements give you filtered data according to your conditions and specifications indicating the fields, records and summaries which a user wants to fetch from a database.

Q 37. Define forms and what is the need of using them?

Ans. In a database, a form is a window or a screen that contains numerous fields or spaces to enter data. Forms can be used to view and edit your data. It is an interface in user specified layout.

e.g., a user can create a data entry form that looks exactly like a paper form. People generally prefer to enter data into a well-designed form, rather than a table.

Q 38. What do you understand by report?

Ans. When you want to print those records which are fetched from your database, design a report. It is an effective way to present data in a printed format. It allows you to represent data retrieved from one or more tables, so that it can be analysed.

Q 39. How are fields, record and a table related to each other? Explain with the help of an example.

Ans. Fields are one type of information. A record contains logically related fields. A table Emp name contains logically related records.

EmpNo	Name	Salary
1	Shridhar	20000
2	Raghav	40000

Here, EmpNo, Name and Salary are three different fields. 1, Shridhar, 20000 represents one complete record.

Q 40. Distinguish between data and information.

Ans. Distinguish between data and information are as follows:

Data	Information
It is a raw facts.	It is a process form of data.
It considers facts symbols, images for reference or analysis.	It considers knowledge derived from study, experience or instruction.
e.g., 23 is a data.	*e.g.*, age = 23 is information.

Q 41. A table named School (containing data of students of the whole school) is created, where each record consists of several fields including AdmissionNo (Admission Number), RollNo (Roll Number), Name. Which field out of these three should be set as the primary key and why?

Ans. AdmissionNo should be set as primary key because admission numbers are unique for each and every students of the school, which is not possible in the case with RollNo and Name.

Q 42. What is the difference between Flat file and Relational file?

Ans. The difference between Flat file and Relational file as follows:

Flat File	Relational
Data is stored in a single table.	Data is stored in multiple tables.
It is suitable for less amount of data.	It is suitable for large amount of data.

Q 43. Identify the data type in which we can store the decimal value:

(i) Boolean (ii) TinyInt (iii) Decimal
(iv) Real (v) Double (vi) Smallint

Ans. Data types in which we can store the decimal value are:

(iii) Decimal (iv) Real (v) Double

Q 44. Write the data type suitable for the following fields.
(i) Date of Birth
(ii) Name

Ans. (i) Date of Birth – Date
(ii) Name – Char or Varchar

Q 45. Write four appropriate field names and their data types to store record of student.

Ans. Four appropriate field names and their data types to store record of students are:
(i) Name ..... Char / Varchar
(ii) Admno..... Integer
(iii) Fees ..... Float/Double
(iv) DOB ..... Date

Q 46. Write four appropriate field names and their data types to store record of book.

Ans. Four appropriate field names and their data types to store record of book are:
(I) Author_name ..... Char / Varchar
(ii) Price ..... Float / Decimal / Double
(iii) Class ..... Char / Varchar
(iv) Subject ..... Char / Varchar

Q 47. Answer the following questions on the basis of following table:

Table: Student

Stud_id	Stud_name	Class	Fees
1	Aman	IX	3000
2	Anil	X	3200

Table: Teacher

T_Id	T_name	T_Sal	Stud_Id
3210	Mr. Kumar	60000	1
3211	Mr. Sethi	70000	2

(i) Identify the primary key in Student and Teacher table.
(ii) Identify the foreign key in Teacher table.

Ans. (I) Primary key in Student table : Stud_Id
Primary key in Teacher table is : T_Id
(ii) Foreign key in Teacher table is : Stud_id

Q 48. Write the data type suitable for the following fields:
(i) Rollno **(ii) Class**
(iii) Email **(iv) City**

Ans. (I) Rollno – TinyInt / SmallInt / Integer
(ii) Class – Char / Varchar
(iii) Email – Char or Varchar
(iv) City – Char or Varchar

Q 49. Consider the following table:

Table: Employee

EmpNo.	EmpName	Designation
1	Sahil	A
2	Anup	B
3	Mansi	A
4	Pooja	B

(i) Which of the above field can be selected as a primary key?
(ii) EmpName field also has unique values for all the records. Can it be made primary key? Give answer with reason.

Ans. (i) EmpNo can be selected as a primary key.
(ii) EmpName is having unique values, but there is no guarantee that if more employees are included then there would not be multiple people with similar names. So, in future its values may be duplicate. Thus, it cannot be made as a primary key.

Q 50. Sanchita is working for a nationalised bank and is in the process of creating a table to store the details of customers of the bank.
Find out, which of the following fields of table Bank can be selected as primary key, candidate key and alternate key?
Account No, Customer Name, Date of Birth, PAN Number, Opening Balance

Ans. Primary key - AccountNo
Candidate key - AccountNo and PAN Number
Alternate key - PAN Number

Q 51. Identify the columns out of the given three, which should not be present in each of the following tables:

(i) Table 1: Stock

ItemNo.	DateofBirth	Itemquantity

(ii) Table 2: Book

Admno	Price	AccessNo

(iii) Table 3: Firmotire

F_No	DesignCat	Phonenumber

Ans. (i) DateofBirth (ii) Admno (iii) Phonenumber

Q 52. Write SQL commands for the following:

Table: Graduate

SNo.	Name	Stipend	Subject	Average	Div
1.	Karan	400	Physics	68	1
2.	Divakar	450	Computers	68	1
3.	Divya	300	Chemistry	62	2
4.	Arun	350	Physics	63	1
5.	Sabina	500	Mathematics	70	1
6.	John	400	Chemistry	55	2
7.	Robert	250	Physics	64	1
8.	Rubina	450	Mathematics	68	1
9.	Vikas	500	Computers	62	1
10.	Mohan	300	Mathematics	57	2

(i) **List the name of those students who obtained DIV 1 sorted by NAME.**

(ii) **Display a report, listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the STIPEND is paid every month.**

Ans. (i) SELECT name FROM graduate WHERE div=1 ORDER BY name;

(ii) SELECT name, stipend, subject, stipend*12 FROM graduate;

Q 53. Write the output of the following on the basis of given:

Table: Product

Pid	P_name	Price	Qty
1	p1	240	23
2	p2	300	24
3	p3	320	43
4	p4	130	32
5	p5	100	17

(i) **Select max(price) from product;**

(ii) **Select avg(price) from product;**

Ans. (i) 320

(ii) 218

Q 54. Write the output of the following on the basis of given:

Table: Product

Pid	P_name	Price	Qty
1	p1	240	23
2	p2	300	24
3	p3	320	43
4	p4	130	32
5	p5	100	17

(i) **Select min(qty) from product;**

(ii) **Select count(*) from product;**

Ans. (i) 17

(ii) 5

Long Answer Type Questions

Q 1. What is DBMS? Explain any two advantages of DBMS.

Ans. A database management system is a software package with computer programs that controls the creation, maintenance, and use of an integrated collection of data records, files, and other objects. It allows organisations to conveniently develop databases for various applications.

Advantages:

(i) **Data Integrity:** It means the data is accurate and consistent in the database. It is very important as there are multiple databases in a DBMS so it helps to produce the correct result.

(ii) **Data Sharing:** In a database, the users can share the data among themselves. Data can be shared for multiple purposes with the users located at different geographical locations and then remote users can also access the database simultaneously.

Q 2. State the difference between Flat File based database management systems and Hierarchical database management systems along with the help of examples.

Ans. Flat File Based Database Management Systems, also known as Flat models, are the simplest database management systems. These store information in flat files having rows and columns to store data. Flat files cannot be linked to each other. Thus, data cannot be viewed from multiple files at the same time. Spreadsheet software such as MS Excel is the most common example of a Flat File Based Database Management System.

Hierarchical Database Management Systems function on the parent child tree-like model. These store the data items along with the description of the data items, such as a book with information on chapters and verses. These can also be used to store a database of songs, recipes, models of phones and anything that can be stored in a nested format. An XML document is an example of a Hierarchical Database Management System.

Q 3. Explain any four data types of DBMS. *[CBSE 2023]*

Ans. The four data types of DBMS are as follows:

(i) **Numeric data types:** They are used for describing numeric values for the field used in the table of a database. These data types in a database can be used for storing information such as mobile number, roll number, door number, year of school admission, true or false statements, statistical values, etc.

(ii) **Alphanumeric data types:** They refer to a description of data comprising of both letters and numbers. For example, "1a2b3c" is a short string of alphanumeric characters. Alphanumeric is commonly used to help explain the availability of text that can be entered or used in a field, such as an alphanumeric password field.

(iii) **Binary data types:** They are used for storing data in binary formats. Binary data types in a database can be used to store photos, music files, etc. In general, files of any format can be stored using the binary data type.

(iv) **Data-Time data types:** They are used to describe the data and time values for the field used in the table of a database. Data-time types in a database can be used to store information such as date of birth, date of admission, date of product sale, etc.

Q 4. What are the objects? Explain.

Ans. The objects are as follows:

Query: A query is a question put up on the database to view the records, matching the criteria defined by us. Using a query, we can view or manipulate a selected set of the data stored in a single table or multiple related tables.

Form: A form is a graphical object that acts as an interface between a user and the tables, where the data is stored. With forms, we can view, edit, input and delete records stored in the tables. Forms allow us to deal with one record at a time.

Report: A report is a graphical object that presents data in a formatted layout. This is useful for displaying data in an organised manner and for printing.

Macros and Code: A set of actions created to automate common tasks is known as a macro. A code refers to the declarations, statements and procedures written in the programming language.

Q 5. Discuss the difference between a Form and a Report in detail.

Ans. Form: A form is a graphical object that acts as an interface between a user and the tables, where data is stored. With forms, we can view, edit, input and delete records stored in the tables. Forms allow us to deal with one record at a time.

Characteristics of a Form:

(i) Form provides a quick and convenient way to enter, modify and view records in a database.

(ii) It also enables a database designer to ensure that data entered through form is saved into desired tables, not any where else.

Report: A report is a graphical object that presents data in a formatted layout. This is useful for displaying data in an organised manner and for printing.

Characteristics of a Report:

(i) Access enables us to create a report either from a table or query.

(ii) Reports can be viewed before final printing.

(iii) If forms are for input purposes, then reports are for output purposes.

(iv) Reports enable us to present components of our database in an easy-to-read format.

(v) We can even customise a report's appearance to make it visually appealing.

Q 6. (a) Structure of a table "Orders" is given below. Suggest suitable data type of each column.

Table: Orders

Order_ID	Order_data	Customer_ID	Amount
A_101	12/12/19	C3445	1200.00
A_202	11/09/19	C1245	3456.00
A_402	09/07/19	C2121	2312.00

(b) Consider the following table "Books".

BkID	BkName	Author	Qty	Price
B_101	Learning with Fun	Jacobins	5	355.00
B_103	How I Live Now	Meg Rosoff	4	400.00
B_104	I Capture the Castle	Dodie Smith	5	520.00
B_106	Mortal Engines	Philip Reeve	4	260.00
B_110	The Kite Rider	Geraldine McCaughrean	3	270.00

Write SQL queries to

(i) Display data of all books whose quantity is more than 3.

(ii) Display total amount of all books whose price is less than 500.

(Hint : amount = Qty × Price) *[CBSE 2023]*

Ans. (a) Order_ID → Char data type
Order_date → date data type
Customer_ID → char data type
Amount → decimal data type

(b) (i) Select* from Books where Qty > 3;

(ii) Select Qty* Price from Books where Price <500;

Q 7. Consider the following table: Student

ADM-NO	NAME	GRADE	DOB	MARKS	HOUSE	GEN-DER
1001	RUPAL	9	10/04/2006	76	GREEN	M
1002	RASHMI	9	08/12/2005	87	RED	F
1003	ARNAV	10	25/05/2004	81	GREEN	M
1004	SUMONA	9	23/08/2005	68	RED	F
1005	ARUN	9	16/07/2005	72	GREEN	M
1006	TIA	9	22/09/2005	91	BLUE	F
1007	ROSHAN	10	26/08/2005	89	BLUE	M

Write SQL Commands:

(i) To display the details of all students of Green House.

(ii) To increase marks by 5 whose ADMNO is 1005.

(iii) To display details of all students whose MARKS are less than 80.

(iv) Display the list of all students in descending order of MARKS. *[CBSE SQP 2022, Term-2]*

Ans. (i) Select * from Student where HOUSE = 'GREEN';

(ii) Update Student set MARKS = MARKS + 5 from Student where ADMNO = 1005;

(iii) Select * from Student where MARKS < 80;

(iv) Select * from Student order by MARKS desc;

Q 8. Write the steps to add a record to a form.

Ans. The steps to add a record to a form are:

Step 1: Open the form in the **Form view**.

Step 2: Click on the **New** option on the **Records** group in the **Home** tab, or press the **Ctrl + plus sign (+)**.

Step 3: Find the record with an asterisk in the record selector, and enter the new information.

Step 4: To move to the next field in the same row, press the **Tab** key, use the Right or Left arrow keys, or click on the cell in the next field.

Step 5: When we view another record or close the form, MS Access saves the new record that we have added. To explicitly save changes to the current record, press the **Shift + Enter** keys.

Q 9. Write the steps to establish a relationship between two tables.

Ans. Perform the below mentioned steps to establish a relationship between two tables:

Step 1: Click on the Relationships in the **Relationships** group on the **Database Tools** tab. The **Show Table** dialog box automatically appears.

Step 2: Double-click the names of the tables that we want to relate, and then close the **Show Table** dialog box by clicking on the **Close** button.

Step 3: Drag the Primary Key field from one table to a similar field that is called the Foreign key in the other table. The Edit Relationships dialog box appears.

Step 4: Click on the **Create** button to create the relationship. A black line appears between both the fields to denote that the relationship is established.

Q 10. (i) The structure of a table 'ITEM' is given below. Suggest suitable data type and size of each column.

Column name	Type	Size
Itemno	.....	.....
Iname	.....	.....
Price	.....	.....
Quantity	.....	.....

(ii) Consider the following table 'ITEM':

Table: Item

Itemno	Iname	Price	Quantity
11	Soap	40	80
22	Powder	80	30
33	Face cream	250	25
44	Shampoo	120	100
55	Soap box	20	50

Write queries to:

(a) Display the total amount of each item. The amount must be calculated as the price multiplied by quantity for each item.

(b) Display the details of items whose price is less than 50.

Ans. (i)

Itemno	Integer (10)
Iname	Varchar (15)
Price	Decimal (5. 2)
Quantity	Integer (3)

(ii)(a) Select price ° Quantity from item;

(b) Select ° from item where price <50;

Q 11. Consider the following table: STUDENT.

REGD.NO	NAME	BRANCH
0001	Ram	CSE
0002	Hari	MECH
0003	Pradeep	EEE
0004	Deepak	ETC

(i) Write a SQL command which will show the entire STUDENT table.

(ii) Write down the SQL command which will show the REGD. NO of Pradeep.

(iii) Write down the SQL command which will show the Name and Branch column.

(iv) Write a SQL command which will count the number of rows existing in STUDENT table.

(v) I want to add another column in the STUDENT table as"address". How can I do that?

Ans. (i) The SQL command which will show all the information in STUDENT table is:

SELECT ° from STUDENT;

(ii) The SQL command which will show the REGD.NO of Pradeep is:

SELECT REGD.NO from STUDENT WHERE NAME=Pradeep;

(iii) The SQL command which will show the NAME and BRANCH column is:

SELECT NAME, BRANCH from STUDENT;

(iv) The SQL command which will count the number of rows present in STUDENT table is:

SELECT COUNT(°) from STUDENT;

(v) To add another column in STUDENT table, we can use ALTER command as:

ALTER TABLE STUDENT ADD address Varchar2(30);

Q 12. (i) Create a table SHOP with the following fields:

Column Name	Data Type
Code	Varchar(5)
Name	Char(50)
Type	Varchar(3)
Cost	Int
Margin	Float
Qty	Int

(ii) **Consider the following table Employee Salary and write the queries (a) and (b).**

Table: EmployeeSalary

LastName	FirstName	Dept	PayrollNumber	Salary (₹)	JobTitle
Shen	James	Finance	A621	19500	Payroll Clerk
Gupta	Shruthi	Finance	M502	35000	Accountant
Bedi	Reeta	Human Resource	M421	18500	Secretary
Walker	Tia	Sales	W815	24000	Sales Representative
Shafia	Ahmed	Factory	H219	39000	Factory Manager
Mittal	Chavi	Purchasing	M134	20000	Purchasing Clerk

(a) Write a command to update the salary of the employee to 25000, whose job title is secretary.

(b) List all data of table EmployeeSalary.

Ans. (i) CREATE TABLE SHOP (Code Varchar(5), Name Char(50), Type Varchar(3), Cost Int, Margin Float, Qty Int);

(ii) (a) UPDATE EmployeeSalary SET Salary = 25000 WHERE JobTitle = 'Secretary';

(b) SELECT * FROM EmployeeSalary;

Q 13. Discuss the components of a database.

Ans. A database consists of several components. Each component plays an important role in the database system environment.

The major components of database are as follows:

(i) Data: It is raw numbers, characters or facts represented by value. Most of the organisations generate, store and process large amount of data. The data acts as a bridge between the hardware and the software. Data may be of different types such as User data, Metadata and Application Metadata.

(ii) Software: It is a set of programs that lies between the stored data and the users of database. It is used to control and manage the overall computerised database. It uses different types of software such as MySQL, Oracle, etc.

(iii) Hardware: It is the physical aspect of computer, telecommunication and database, which consists of the secondary storage devices such as magnetic disks, optical discs etc., on which data is stored.

(iv) Users: It is the person, who needs information from the database to carry out its primary business responsibilities.

The various types of users which can access the database system are as follows:

(a) Database Administrator (DBA): A person, who is responsible for managing or establishing policies for the maintenance and handling the overall database management system is called DBA.

(b) Application Programmers: The people, who write application programs in programming languages to interact and manipulate the database are called application programmers.

(c) **End-user:** A person, who interacts with the database system to perform different operations on the database like inserting, deleting etc., through menus or forms.

Q 14. Write the steps to design a database.

Ans. Steps to Design a Database: There are various steps to design a database which are as follows:

Step 1: Determine the Purpose of your Database: The first step of designing a database is to determine the purpose and mechanism to design and use it.

Step 2: Determine the Tables: Tables are one of the most important elements of a database, consist of rows and columns. To create a well-defined database, you have to keep some conditions which are as follows:

- A table should not contain duplicate information.
- Each table should contain information about one subject.

E.g., one table is used to contain the personal information of the students and the other is used to contain the marks scored by the student.

Step 3: Determine the Fields: After creating a table, you need to decide the type and number of fields required for the tables in your database. Each field in a table contains individual facts about the table's subject.

e.g., A customer table may include company name, address, city, state and phone number fields.

Step 4: Identify the Primary Key in a Table: From the fields of table, you need to identify a primary key which uniquely identifies each individual record of the table. The primary key helps you to reduce data duplication in the table.

Step 5: Determine the Relationship between Tables: In this step, you need to determine relationship between two or more tables in your database. You can set-up a relationship between tables on the basis of common field between them. Establishing a relationship allows you to fetch any information from both the tables.

Step 6: Refine the Design: After you have designed the tables, fields and relationships, its time to study the design and detect any faults that might remain.

Step 7: Enter Data and Create other Database Objects: When you are satisfied that the database structure meets the goals you needed, add all your existing data to the tables.

Q 15. Consider the following database Student:

Student

Roll No.	First Name	Last Name	Class	Marks Obtained (%)	Scholarship Awarded (₹)
1205	Mohan	Garg	12th	99.9	50000
1009	Dushyant	Singh	10th	98.7	45000
1101	Swati	Rana	11th	95.4	30000
945	Ravindra	Saini	9th	97.5	35000
1015	Ritika	Thakur	10th	98.6	40000

(i) Find the marks obtained by the student with Roll No. 1101.

(ii) What is the name of the student, who has got the highest marks and what is the amount of scholarship awarded to him/her?

(iii) How many records are there in the table?

(iv) How many fields are there in the table?

Ans. (i) 95.4

(ii) Mohan Garg and scholarship awarded is 50000.

(iii) 5

(iv) 6

Q 16. The director of a company uses a database to store data about job title. This is a part of the database given below:

Student

Last Name	First Name	Dept.	Payroll Number	Salary (₹)	Job Title
Shen	James	Finance	A621	19500	Payroll Clerk
Gupta	Shruthi	Finance	M502	35000	Accountant
Bedi	Reeta	Human Resource	M421	18500	Secretary
Walker	Tia	Sales	W815	24000	Sales Representative
Shafia	Ahmed	Factory	H219	39000	Factory Manager
Mittal	Chavi	Purchasing	M134	20000	Purchasing Clerk

(i) How many records are there in this part of the database?

(ii) How many fields are there in this part of the database?

(iii) What is the job title of the employee with Payroll Number M421?

(iv) Which department has maximum employees and what are their Payroll Numbers?

Ans. (i) 6

(ii) 6

(iii) Secretary

(iv) Finance department and their Payroll Numbers are A621 and M502.

Q 17. (i) Create a table customer with following details:

Column Name	Data Type
CustNo	Varchar(5)
Name	Char(20)
Address	Char(50)

(ii) Consider the following table MASTER and write the queries (i) and (ii).

Table: Summer Camp

Child ID	First Name	Last Name	DOB	Gender	Group
109	Vedansh	Gupta	30/06/10	M	2A
214	Mack	Tyagi	09/12/08	M	1B
115	Aditi	Thakur	13/04/09	F	1A
108	Vikrant	Chauhan	02/02/09	M	2A
141	Swati	Saini	06/05/10	F	2B
233	Vishakha	Tyagi	01/08/10	F	3A
274	Madhur	Gupta	06/03/10	M	3B

(a) Write a command to insert a new record with the following values:

(105, 'Shyam', 'Sharma', 07/09/10, 'M', '1A')

(b) Write a query to display all the records of table SummerCamp whose DOB lies between 02/02/09 and 06/03/10.

Ans. (i) Create Table customer (CustNo Varchar(5), Name Char(20), Address Char(50));

(ii) (a) insert into SummerCamp VALUES (105, 'Shyam', 'Sharma', 07/09/10, 'M', '1A');

(b) SELECT *FROM SummerCamp where dob between 02/02/09 and 06/03/10;

Chapter Test

Multiple Choice Questions

Q 1. Cascade delete option:

a. is used to delete all the records of all tables in a database

b. will repeat the recent delete operation to all the records of current table

c. is available in Edit relationship dialog box which makes sure that all the related records will be deleted automatically when the record from parent table is deleted

d. None of the above

Q 2. This data type allows alphanumeric characters and special symbols.

a. Text b. Memo

c. Auto number d. None of these

Q 3. Query design window has two parts. The upper part shows:

a. name of fields, field type and size

b. tables with fields and relationships between tables

c. criteria

d. sorting check boxes

Q 4. In a database table, the category of information is called:

a. tuple b. field c. record d. All of these

Q 5. To create a new table, in which method you don't need to specify the field type and size?

a. Create Table in Design View
b. Create Table using Wizard
c. Create Table by Entering Data
d. All of the above

Q 6. Which of the following is not a database object?

a. Tables b. Queries
c. Relationships d. Reports

Fill in the Blanks Type Questions

Q 7. ..... database models comprise of varied structures.

Q 8. A ..... is a collection of different objects.

Q 9. ..... is a relational database management system.

Assertion and Reason Type Questions

Directions (Q. Nos. 10-12): *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.*

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
c. Assertion (A) is true, but Reason (R) is false.
d. Assertion (A) is false, but Reason (R) is true.

Q 10. Assertion (A): Forms can be used for inputting data.

Reason (R): Reports are used to output data.

Q 11. Assertion (A): Reports can be viewed before final printing.

Reason (R): Records cannot be edited in a table.

Q 12. Assertion (A): Reports are used to format, summarise and compile data in a presentable manner.

Reason (R): Reports do not allow printing the data of a database.

Case Study Based Questions

Q 13. A School in Delhi uses database management system to store student details. The school maintains a database 'school_record' under which there are two tables.

Student Table: Maintains general details about every student enrolled in school.

StuLibrary Table: To store details of issues books. BookID is the unique identification number issued to each book. Minimum issue duration of a book is one Day.

Student	
Field	**Type**
StuID	numeric
StuName	varchar(20)
StuAddress	varchar(50)
StuFather-Name	varchar (20)
StuContact	numeric
StuAadhar	numeric
StuClass	varchar (5)
StuSection	varchar (1)

StuLibrary	
Field	**Type**
BookID	numeric
StuID	numeric
Issued_date	Date
Return_ date	Date

(i) Identify the SQL Query which display the data of StuLibrary table in ascending order of Student-ID.

(I) Select * from StuLibrary Order By BookID
(II) Select * from StuLibrary Order By StuID
(III) Select * from StuLibrary Order By StuID ASC
(IV) Select * from StuLibrary Order By StuID DESC

Choose the correct option:

a. Query (I) and (IV) will display the desired data.
b. Query (I) and (II) will display the desired data.
c. Query (III) and (IV) will display the desired data.
d. Query (II) and (III) will display the desired data.

(ii) The primary key for StuLibrary Table is/are .....

a. BookID b. BookID, StuID
c. BookID, Issued_date d. Issued_data

(iii) Which of the following SQL Query will fetch ID of those issued books which have not been returned?

a. SELECT BookID from StuLibrary where BookID is NULL;
b. SELECT BookID from StuLibrary where StuID is NULL;
c. SELECT BookID from StuLibrary where Issued_ date is NULL;
d. SELECT BookID from StuLibrary where Return_date is NULL;

(iv) The alternate key for Student Table will be .....

a. StuName b. StuContact
c. StuAadhar d. StuClass

Very Short Answer Type Questions

Q 14. What is a report?

Q 15. What do you mean by datasheet view?

Q 16. What do you mean by design view?

Q 17. Write steps to open table in design view.

Short Answer Type Questions

Q 18. Write the output of the following on the basis of given:

Table: Product

Pid	P_name	Price	Qty
1	p1	240	23
2	p2	300	24
3	p3	320	43
4	p4	130	32
5	p5	100	17

(i) Select count(Qty) from product;

(ii) Select distinct(price) from product;

Q 19. Write the output of the following on the basis of given:

Table: Product

Pid	P_name	Price	Qty
1	p1	240	23
2	p2	300	24
3	p3	320	43
4	p4	130	32
5	p5	100	17

(i) Select count(distinct(price)) from product;

(ii) Select price * Qty from product;

Long Answer Type Questions

Q 20. (i) Create a table Student with following fields:

Column Name	Data Type
Reg_No	Char(15)
Reg_Date	Date
Owner_Name	Varchar(20)
Address	Varchar(40)

(ii) Consider the following table MASTER and write the queries (a) and (b).

Table: MASTER

S.No.	Name	Age	Department	Group
1.	Shyam	21	Computer	12000
2.	Shiv	25	Maths	15000
3.	Rakesh	31	Hindi	14000
4.	Sharmila	32	History	20000
5.	Dushyant	25	Software	30000

(a) Write a command to update the Salary of the employee to 40000, whose S.No. is 3.

(b) Write a query to add a column Date_of_ Joining to the table MASTER.

Q 21. Consider the following database Student:

Students

Roll No.	First Name	Last Name	Class	Marks Obtained (%)	Scholarship Awarded (₹)
1205	Mohan	Garg	12th	99.9	50000
1009	Dushyant	Singh	10th	98.7	45000
1101	Swati	Rana	11th	95.4	30000
945	Ravindra	Saini	9th	97.5	35000
1015	Ritika	Thakur	10th	98.6	40000

(i) Find the marks obtained by the student with Roll No. 1101 ?

(ii) What is the name of the student, who has got the highest marks and what is the amount of scholarship awarded to him/her?

(iii) How many records are there in the table?

(iv) How many fields are there in the table?