DATABASE MANAGEMENT SYSTEM

REVISION NOTES

A database is an organized collection of data. It is considered as a container of information. In the manual system, you would maintain several files with different bits of information while in the computerized system you would use database programs such as Microsoft Access, OpenOffice.org Base, and MySQL, to organize the data as per your business need.

A database is basically a computerbased record/data/information keeping system. Data is raw, unorganised facts and entities relevant to the user need to be processed such as a digital representation of text, numbers, graphical images or sound. The data are stored in such a way that, they are independent of the programs used by the people for accessing the data.

Database can be created with the help of following structures

Database Structure

DATABASE MANAGEMENT SYSTEM (DBMS):
DBMS is a collection of programs that enables users to create, maintain database and control all the access to the database. It is a computer based record keeping system.
The primary goal of the DBMS is to provide an environment that is convenient and efficient for user to retrieve and store information. It acts as an interface between the application program and the data stored in the database.
DBMS is a software package that manages database. e.g. MySQL, INGRES, MS-Access, etc.
DBMS is actually a tool that is used to perform any kind of operation on data in database. It also maintains data consistency in case of multiple users. The purpose of a DBMS is to bridge the gap between information and data.

Data can be organized into two types:

- **Flat File:** Data is stored in a single table. Usually suitable for less amount of data.
- **Relational:** Data is stored in multiple tables and the tables are linked using a common field. Relational is suitable for medium to large amount of data.

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

ADVANTAGES OF A DATABASE/DBMS
The centralised nature of database system provides several advantages, which overcome the limitations of the conventional file processing system. These advantages are as follows

1. **Reduce Data Redundancy:** Redundancy means ‘duplication of data’. This eliminates the replication of data item in different files, extra processing required to face the data item from a large database. This also ensures data consistency and saves the storage space.
2. **Enforcing Data Integrity:** It means that, the data contained in the database is accurate and consistent. Integrity constraints or consistency rules can be applied to database, so that the correct data can be entered into the database.
3. **Data Sharing:** The data stored in the database can be shared among multiple users or application programs.

4. **Data Security:** The DBMS ensures that the access of database is done only through an authorised user.
5. **Ease of Application Development:** The application programmer needs to develop the application programs according to the user's needs.
6. **Backup and Recovery:** The DBMS provides backup and recovery sub-system that is responsible to recover data from hardware and software failures.
7. **Multiple Views of Data:** A view may be the subset of database. Various users may have different views of the database itself.
8. **Enforced Standards:** It can ensure that, all the data follow the applicable standards.
9. **Data Independence:** System data descriptions are independent from the application programs.

DISADVANTAGES OF A DATABASE/DBMS

There are many advantages of database, but database also have some minor disadvantages. These disadvantages are as follows

1. **Cost of Hardware and Software:** Through the use of a database system, new costs are generated due to additional hardware and software requirements.
2. **Complexity:** A database system creates additional complexity and requirements.
3. **Database Failures:** 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.
4. **Lower Efficiency:** A database system is a multi-user software, which is less efficient.

SOME KEY FEATURES OF A DATABASE:

1. A database can have one or many tables. An address book example is a very simple one, in real world there are many more details involved.
2. Each table in a database contains information about one type of item. So, a database is a container that holds tables and other objects and manages how they can be used.
3. A record uniqueness in every table. It is important to be able to distinguish between different items having duplicate values. Uniqueness helps to avoid accidental duplication of records caused by user or computer error.
4. Every database table should have one or more fields designated as key. You can assign a unique value to this key for differentiating records that may have similar names or addresses.

COMPONENTS OF A DATABASE

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

- **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.
- **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.
- **Hardware:** It is the physical aspect of computer, telecommunication and database, which consists of the secondary storage devices such as magnetic discs, optical discs, etc., on which data is stored.
- **Users:** It is the person, who needs information from the database to carry out its primary business responsibilities.

TYPES OF USERS

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

- **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.
- **Application Programmer:** A person, who writes application programs in programming languages to interact and manipulate the database are called application programmer.
- **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 is called end-user.

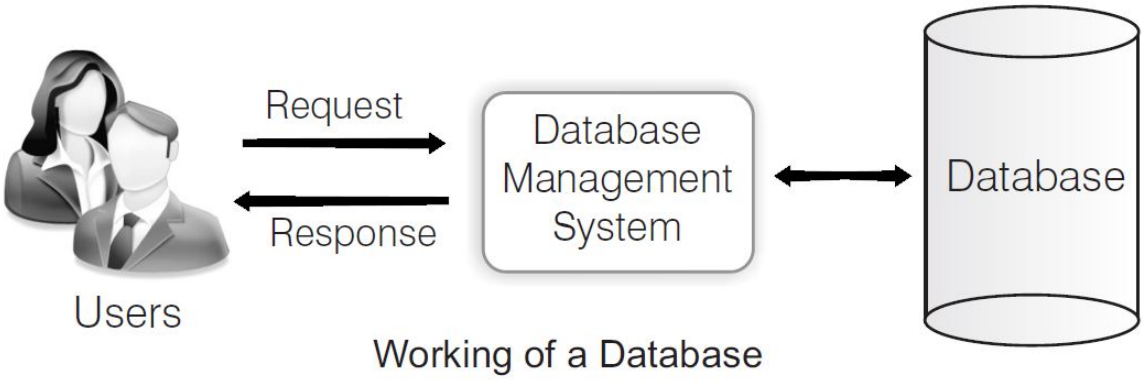
RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)

RDBMS is a type of DBMS that stores data in the form of relations (tables). Relational databases are powerful, so they require few assumptions about how data is related or how it will be extracted from the databases.

An important feature of relational database system is that a single database can be spread across several tables. Base, Oracle, DB2, SAP, Sybase, ASE, Informix, Access, etc., are the examples of RDBMS.

WORKING OF A DATABASE

Database is created to operate large quantities of information by input, store, retrieve and manage the information. It is a centralised location which provides an easy way to access the data by several users. It does not keep the separate copies of a particular data file still a number of users can access the same data at the same time.



Working of a Database

As the diagram shows, DBMS works as an interface between the user and the centralised database. First, a request or a query is forwarded to a DBMS which works (i.e. a searching process is started on the centralised database) on the received query with the available data and if the result is obtained, it is forwarded to the user.

If the output does not completely fulfill the requirements of the user, then a rollback (again search) is done and again search process is performed until the desired output is obtained.

DATA INTEGRITY

Data Integrity ensures the accuracy, reliability and consistency of the data during any operation.

Each type of data integrity are as follows

- **Entity Integrity:** It defines the primary key of a table. Entity integrity rule on a column does not allow duplicate and null values.
- **Domain Integrity:** It defines the type, range and format of data allowed in a column. Domain integrity states that all values in a column must be of same type.
- **Referential Integrity:** It defines the foreign key concepts. Referential integrity ensures that data in related tables remains accurate and consistent before and after changes.
- **User Defined Integrity:** If there is some business requirements which do not fit any above data integrity then user can create own integrity, which is called user defined integrity.

KEY FIELDS

The key is defined as the column or the set of columns of the database table which is used to identify each record uniquely in a relation. If a table has id, name and address as the column names, then each one is known as the key for that table. The key field is a unique identifier for each record.

TYPES OF KEY FIELDS

The following are the types of key fields available in the DBMS system

Primary Key: A field or a set of fields that uniquely identify each record in a table is known as a primary key. Each relation has atleast one column for which each row that must have a unique value. Only one column attribute can be defined as a primary key for each table.

A primary key must possess the following properties

- It does not allow null values.
- It has a unique index.
- It allows numbers and text both.

e.g. In the student's table, StudentId works as a primary key because it contains Ids which are unique for each student. Note: Data cannot be primary key.

Candidate Key: The set of all attributes which can uniquely identify each tuple of a relation are known as candidate keys. Each table may have one or more candidate keys and one of them will become the primary key. The candidate key of a relation is always a minimal key. e.g. Column StudentId and the combination of FirstName and LastName work as the candidate keys for the student table.

A candidate key must possess the following properties

- For each row, the value of the key must uniquely identify that row.
- No attribute in the key can be discarded without destroying the property of unique identification.

Alternate Key: From the set of candidate keys after selecting one of the keys as a primary key, all other remaining keys are known as alternate keys. e.g. From the candidate keys (StudentId, combination of FirstName and LastName), if StudentId is chosen as a primary key, then the combination of FirstName and LastName columns work as alternate keys.

Foreign Key: A field of a table (relation) that references the primary key of another table is referred to as foreign key. The relationship between two tables is established with the help of foreign key. A table may have multiple foreign keys and each foreign key can have a different referenced table. Foreign keys play an essential role in database design, when tables are broken apart, then foreign keys make it possible for them to be reconstructed. e.g. CourseId column of student table (reference table) works as a foreign key as well as a primary key for course table (referenced table).

Data in a relational database management system (RDBMS) is organized in the form of tables.

DATABASE OBJECTS :

1) **Table:** A table is a set of data elements (values) that is organized using a model of vertical columns 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.
2) **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, cFirstName, or cLastName are fields in a row.
3) **Rows or Records or Tuples:** A row also called a Record or Tuple represents a single data item in a table. 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:

1) Open the OpenOffice Base Application by Clicking on Start>Programs>OpenOffice.org 4>OpenOffice.org Base.
2) Create a new database by selecting the option Create a new database
3) Database wizard appear. Click Finish. The Save As dialog box appears.
4) 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:

a) Use Wizard To Create Table:

The following are the steps to create a table:

1) Click on Tables > Use Wizard to Create Table
2) Click the Select Fields > Choose Category > Select the table > Click on Next Button.
3) Select the fields as per the requirements. Click on Next button
4) Set the data types and properties of the selected fields. Click on Next Button
5) Set the Primary Key and Click on Next Button
6) Window to rename the table will open. A user can either go ahead with the same table name or can change it.
7) Click on Finish to insert the data in the table.

b) Creating table using Design View

1) Click on Create Table in Design View.
2) Specify the field name and data type of the field.
3) Save the table by clicking on File > Save
4) Specify the table name. The default name is Table1. Click OK.
5) An alert appears, if there is no primary key in the table.
6) Click yes and set the primary key and finally save the table.

DATA TYPES:

Datatypes are used to identify which type of data (value) we are going to store in the database. Data types in OpenOffice base are broadly classified into five categories listed below.

- Numeric Types
- Alphanumeric Types
- Binary Types
- Date time
- Other Variable types

Numeric Types: Numeric data types in a database can be used for storing information such as mobile number, roll number, door number 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 255
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 $(2-2^{-52})* 2^{1023}$
FLOAT	Float	2^{-1074} to $(2-2^{-52})* 2^{1023}$
DOUBLE	Double	2^{-1074} to $(2-2^{-52})* 2^{1023}$

Alphanumeric Types: This data type is used to store information which has alphabets as well as numbers for example address, book summary field etc. The different types of Alphanumeric Types available are listed here.

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 long var char)
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.

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 in a database can be used for storing information such as date of birth, date of admission, date of product sale, etc.

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 date and time information	

OTHER DATA TYPES:

Name	Description
Other/Object	Stores serialized Java objects â€“ user application must supply serialization routines

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:
1) Select the table > Double click on it.
2) The table will open in Datasheet View.
3) Insert the required number of records in Datasheet View.

Editing Records In The Table:

To edit the data in the table, follow the steps:
1) Select the table > Double click on it.
2) The table will open in Datasheet View.
3) Edit the required record in Datasheet View.

Deleting Records From The Table:

To remove the data from the table, follow the steps:
1) Select the table > Double click on it.
2) The table will open in Datasheet View.
3) 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 is given below :
1) **AutoValue** – if set to yes then field will get the auto numeric values.
2) **AutoValue** – if set to yes then field will get the auto numeric values.
3) **Length** – By default length of the field is 10 but the size of the field can be set to maximum length.
4) **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.
5) **Format** – This property helps to set the format of the data entered in the field such as 91-222-333.

The properties of character type data is shown below :
1) **Entry Required** – if set to yes then it will be must to insert the value in the field.

2) **Length** – By default length of the field is 10 but the size of the field can be set to maximum length.
3) **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.
4) **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 of 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:
1) Adding records to a related table if there is no associated record available in the primary key table.
2) Changing values in a primary if any dependent records are present in associated table(s).
3) 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:
1) ONE to ONE Relationship: In this relationship, both the tables must have primary key columns.
2) One to Many Relationship: In this relationship, one of the table must have primary key column.
3) 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
A query is to collect specific information from the pool of data. A query helps us join information from different tables and filter that information
OR
Queries are commands that are used to define the data structure and also to manipulate the data in the database.

There are two types of languages:-
DDL (Data Definition Language)
DML (Data Manipulation Language)

DATA DEFINITION LANGUAGE (DDL)
DDL is used to define the structure of your tables and other objects in the database. In DBMS, it is used to specify a database schema as a set of definitions (expressed in DDL). In SQL, the Data Definition Language allows you to create, alter and destroy database objects. Basically, a data definition language is a computer language used to create and modify the structure of database objects in a database. These database objects include views, schemes, tables, indexes, etc.
This term is also known as data description language in some contexts, as it describes the fields and records in a database table.

Data definition language consists of various commands that lets you to perform some specified tasks as follows

1) CREATE: Uses to create objects in the database.

2) ALTER: Uses to alter the structure of the database table. This command can add up additional columns, drop existing columns and even change the data type of columns involved in a database table.

3) DROP: Uses to delete objects from the database.

4) TRUNCATE: Uses to remove all records from a table.

5) RENAME: Uses to rename an object.

DATA MANIPULATION LANGUAGE (DML)

DML provides various commands used to access and manipulate data in existing database. This manipulation involves inserting data into database tables, retrieving existing data, deleting data from existing tables and modifying existing data.

DML is mostly incorporated in SQL database. The basic goal of DML is to provide efficient human interaction with the system.

The DMLs are of two types

Procedural DMLs These require a user to specify what data is needed and how to get it.

Non-Procedural DMLs These require a user to specify what data is needed without specifying how to get it.

Various data manipulation language commands are as follows

1) SELECT: Used to retrieve data from a database.

2) INSERT: Used to insert data into a table.

3) UPDATE: Used to update existing data within a table.

4) DELETE: Used to delete all records from a table, the space of the records remains.

5) LOCK TABLE: Used to control concurrency.

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:

1) 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”;

2) 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”;
3) 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 :
1) 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”;

CREATE FORMS AND REPORTS USING WIZARD
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 :
1) Click Use Wizard to Create Form… option under Tasks group. The Form Wizard dialog box appears.
2) Select selective fields to be sent onto the form by selecting the field name and clicking >button and click Next.
3) Select the option Add Subform if you need to insert the contents in the table in a separate form and click Next.
4) Arrange selected fields in a form and click Next.
5) Select the data entry mode and click Next.
6) Specify the styles to be used in the form and click Next.
7) Specify the name of the form. Click Finish.

REPORT: A report helps to display the data in a summarized 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 :
1) Click on Use Wizard to Create Report… option available under Tasks.
2) Select all the table fields by selecting the >> button.
3) Redefine the label of the fields in the reports or else you can set the default name and click Next.
4) Define grouping for the fields of the table if required and click Next
5) Sort the field in the report by selecting the appropriate field name and sorting method(if required) and click Next.
6) Select the layout of the report and click Next.
7) Define a name for the report and click Finish.

DATABASE MANAGEMENT SYSTEM

NCERT/CBSE TEXTBOOK QUESTIONS

A. Fill in the Blanks

1. A **database** is an organized collection of data.
2. A **DBMS** is a software package that can be used for creating and managing databases.
3. A **RDBMS** is a database management system that is based on the relational model.
4. Three popular DBMS software are **Microsoft Access**, **OpenOfficeBase** & **MySQL**.
5. A **Primary Key** is a unique value that identifies a row in a table.
6. Composite Key is a combination of **one or more** columns.
7. A table is a set of data elements that is organized using a model of vertical **columns** and horizontal **rows**.
8. A **column** is a set of data values of a particular type, one for each row of the table.
9. A **row** represents a single, data item in a table.
10. **Datatypes** are used to identify which type of data we are going to store in the database.
11. **Create table** DDL command is used to create a table.
12. Common DDL statements are **create, alter** and **drop.**
13. The types of languages used for creating and manipulating the data in the Database are **DDL** & **DML**.
14. A **DDL** is a standard for commands that define the different structures in a database.
15. A **DML** is a language that enables users to access and manipulate data in a database.
16. A **Select** is a part of DML involving information retrieval only.
17. A popular data manipulation language is **SQL**.
18. **Tables** are the basic building blocks of a database.
19. There are **three** types of Relationships in a table.
20. A **form** helps the user to systematically store information in the database.

B. Subjective Questions

1. In how many ways tables can be created in Base?

Ans. Tables can be created in two ways.

1. In Design view
2. Using Wizard

2. List datatypes available in Numeric Datatype?

Ans. The different types of numeric data types are:

Boolean	Numeric
Tinyint	Decimal
Smallint	Real
Integer	Float
Bigint	Double

3. List datatypes available in Alphanumeric Data Type?

Ans. The different types of Alphanumeric Data Type are:

- Longvarchar
- Char
- Varchar
- Varchar_Ignore Case

4. Define the structure of a table.

Ans. A table is a set of data elements (values) that is organized in vertical columns and horizontal rows. A table has a defined number of columns, but can have any number of rows.

5. Differentiate between Tuples and Attributes of a table
Ans. A row also called a Record or Tuple represents a single, data item in a table. Whereas A column is a set of data values of a particular simple type, one for each row of the table.

6. Name different Binary data types.
Ans. The different Binary data types are:
- Longvarbinary
- Binary
- Varbinary

7. How many types of relationships can be created in Base? Explain each of them.
Ans. There are three types of relationship in OpenOffice Base.
- **ONE to ONE:** In this relationship, both the tables must have primary key columns. Example: In the given tables EMP and DEPT, EMP_ID in EMP table and DEPT_ID in DEPT table are the primary keys.
- **ONE to MANY:** In this relationship, one of the table must have primary key column. It signifies that one column of primary key table is associated with all the columns of associated table.
- **MANY to MANY:** In this relationship, no table has the primary key column. It signifies that all the columns of primary key table are associated with all the columns of associated table.

8. What do you mean by Sorting? In how many ways it can be done?
Ans. Sorting means arranging elements in particular sequence. It can be done in two ways.
- Increasing order
- Decreasing Order

OBJECTIVE QUESTIONS (SET 01)

1. What is the purpose of a form in a database?
a. Form is systematic way of storing information into the table.
b. Form is used to display information.
c. Both a) and b)
d. None of the above.
Ans: a. Form is systematic way of storing information into the table.

2. Which SQL command will increase the salary of all employees by 5000? (Table name is emp and column name is salary).
a. UPDATE emp SET sal = salary + 5000;
b. UPDATE SET sal = salary + 5000;
c. UPDATE emp SET salary = 5000;
d. None of the above.
Ans: a. UPDATE emp SET sal = salary + 5000;

3. What is the purpose of the SQL query: "SELECT * FROM Stud ORDER BY Rollno ASC;"?
a. Display all record in ascending order followed by Rollno
b. To display all the records of the table.
c. Both of the above.
d. None of the above.
Ans: a. Display all record in ascending order followed by Rollno

4. What does DML stand for?
a. Database Manipulation Language

b. Data Modification Language
c. Data Manipulation Language
d. None of the above
Ans: a. Data Manipulation Language

5. What does SQL stand for?
a. Structured Query Language
b. Structured Quality Language
c. Structural Query Language
d. None of the above
Ans: b. Structured Query Language

6. Which language is used to extract/fetch data from a table?
a. HTML
b. MySQL
c. OOBase
d. Python
Ans: b. MySQL

7. In Base, how can data be linked between two or more tables?
a. Foreign key
b. Primary key
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

8. In which view can the structure of a table be changed?
a. Design view
b. Structure view
c. Data view
d. All of the above
Ans: a. Design view

9. What data type is the Auto Value property used for?
a. Date
b. Character
c. Numeric
d. Binary
Ans: c. Numeric

10. Which data type is appropriate for storing information such as salary, fees, and price?
a. Binary data type
b. Alphanumeric data type
c. Date Time
d. Numerical data type
Ans: d. Numerical data type

11. In what ways can a table be created?
a. Using a Wizard
b. Using design view
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

12. What kind of field is a primary key?
a. Duplicate Data
b. Unique Data
c. Any Data
d. None of the above
Ans: b. Unique Data

13. Does data integrity mean that data is accurate and consistent in the database?
a. Yes
b. No
Ans: a. Yes

14. Which of the following is not a database program?
a. MySQL
b. Writer
c. Oracle
d. OpenOffice base
Ans: b. Writer

15. What is a database?
a. A collection of attributes
b. A collection of field
c. An organized collection of data
d. None of the above
Ans: c. An organized collection of data

16. Which field in the “Student” table can act as the primary key?
a. Roll_No
b. Fee
c. Student_name
d. Marks
Ans: a. Roll_No

17. Is Open Office base an open source software?
a. True
b. False
Ans: b. False

18. What is the default name of a table?
a. 1 Table
b. Table 1
c. Untitled 1
d. Tab 1
Ans: b. Table 1

19. Which of the following data types will occupy more space in computer memory?
a. Bigint
b. Smallint
c. Tinyint
d. Integer
Ans: a. Bigint

20. In which view can data be entered in a table?
a. Data view
b. Datasheet view
c. Both a) and b)
d. None of the above
Ans: b. Datasheet view

21. Can relationships be created between _____ tables in Base?
a. One table only
b. Two or more tables
c. Both a) and b)
d. None of the above
Ans: b. Two or more tables

22. Are queries commands that are used to define the structure and modify the data in a table?
a. True
b. False
Ans: a. True

23. Which SQL query will retrieve the details of all students whose favorite color is blue?
a. SELECT all FROM Stud WHERE fav_Color = 'Blue';
b. SELECT all FROM Stud WHERE fav_Color is 'Blue';
c. SELECT name FROM Stud WHERE fav_Color = 'Blue';
d. SELECT * FROM Stud WHERE fav_Color = 'Blue';
Ans: d. SELECT * FROM Stud WHERE fav_Color = 'Blue';

24. By default, data is arranged in _____ order using the ORDER BY clause.
a. Descending
b. Ascending
c. Both a) and b)
d. None of the above.
Ans: b. Ascending.

26. Which of the following is NOT a SQL command?
a. DELETE
b. UPDATE
c. SELECT
d. CREATE
Ans: d. CREATE

27. What is a foreign key?
a. A key that can contain null values
b. A key that can contain Zero
c. A key that references another table's primary key
d. A key that uniquely identifies in table
Ans: c. A key that references another table's primary key

28. Which of the following field properties is for the Numeric data type in Base?
a. Default Value
b. AutoValue
c. Length
d. All of the above
Ans: d. All of the above

29. What is the default length of the Integer data type in Base?
a. 20
b. 40
c. 10
d. 50
Ans: c. 10

30. We can create a relationship between any two tables by selecting which option from the which menu?
a. Relationships
b. Filter
c. Sort
d. All of the above
Ans: a. Relationships

31. In which relationship, both the tables must have primary key columns?
a. One to Many
b. One to One
c. Many to Many
d. Many to All
Ans: b. One to One

32. What are the commands that define the data structure and manipulate the data in a database?
a. Reports
b. Queries
c. Forms
d. Tables
Ans: b. Queries

33. Which operators are used to perform simple calculations in Base?
a. Arithmetic Operators
b. Membership Operators
c. Logical Operators
d. Relational Operators
Ans: a. Arithmetic Operators

34. Can 'Where' and 'Order by' clauses be used together in a single query?
a. True
b. False
Ans: a. True

35. What is the purpose of the Update command in a database?
a. It is used to modify the data of the table.
b. It is used to delete the table.
c. It is used to modify the structure of the table.
d. It is used to insert data in the table.
Ans: a. It is used to modify the data of the table.

36. Which statement is used to remove one or more records from a database?
a. Erase
b. Delete
c. Remove

d. Del
Ans: b. Delete

37. Can we insert records into a table using a form in a database?
a. True
b. False
Ans: a. True

38. Which method is used to create a table step by step?
a. Use Wizard to Create Table
b. Create View
c. Create table in Design View
d. None of the above
Ans: a. Use Wizard to Create Table

40. Which of the following is not a Date Time data type?
a. Date
b. Stamptime
c. Time
d. Timestamp
Ans: b. Stamptime

41. Binary data types are used for storing data in _____ formats.
a. image
b. sound
c. boolean
d. binary
Ans: d. binary

42. Which of the following is not a category of Open Office data types?
a. Alphanumeric Types
b. Date time
c. Numeric Types
d. Bool Type
Ans: d. Bool Type

43. Which feature helps us get summarized data in a database?
a. Form
b. Query
c. Report
d. Table
Ans: c. Report

44. Which database feature helps users to systematically store information in a table?
a. Table
b. Report
c. Form
d. Query
Ans: c. Form

45. Rajesh wants to display the salary of all the employees after incrementing it by twice the amount of the present salary. Which query will help her achieve this task?
a. Select salary + 2 from employee;

b. Select salary / 2 from employee;
c. Select salary – 2 from employee;
d. Select salary * 2 from employee;
Ans: d. Select salary * 2 from employee;

46. Which feature is used to collect specific information from the pool of data?
a. Form
b. Query
c. Table
d. Report
Ans: b. Query

47. Which of the following relationships cannot be created in Open Office Base?
a. One to Many
b. Many to Many
c. One to One
d. Many to All
Ans: d. Many to All

48. Which property helps to set the value that is automatically inserted in a field when a new record is created?
a. Length
b. Entry Required
c. Format
d. Default Value
Ans: d. Default Value

49. Which field property in Base can be used to automatically increment the value of a field?
a. Format
b. Length
c. Auto Value
d. Default Value
Ans: c. Auto Value

50. In which view can data be entered in a table in Base?
a. Datasheet View
b. Design View
c. Both of the above
d. None of the above
Ans: a. Datasheet View

51. Which of the following is NOT a component of a database management system?
a. Data warehouse
b. Query language
c. Data dictionary
d. Database engine
Ans: a. Data warehouse

52. Which of the following is NOT a join type in SQL?
a. Outer join
b. Full join
c. Inner join
d. Circular join

Ans: d. Circular join

53. Which element in a table contains data of the same data type?
a. Column
b. Tuple
c. Record
d. All of the above
Ans: a. Column

54. A table has a fixed number of _____ but can have any number of _____
a. tuple, columns
b. columns, rows
c. rows, columns
d. tuple, degree
Ans: b. columns, rows

55. Which of the following acts as an interface to view, enter and change data in a database?
a. Report
b. Form
c. Table
d. Query
Ans: b. Form.

56. Which SQL command is used to delete data from a table?
a. INSERT
b. REMOVE
c. SELECT
d. DELETE
Ans: d. DELETE

57. Which is the most common DML command?
a. Delete
b. Select
c. Update
d. All of the above
Ans: b. Select

58. Which software is appropriate for storing data about school students?
a. Calc
b. MS-Access
c. Writer
d. Impress
Ans: b. MS-Access

59. What kind of data storage system stores data in a single table?
a. Only File
b. Relational
c. One File
d. Flat File
Ans: d. Flat File

60. What kind of computer holds the actual databases and runs only DBMS and related software?
a. Database Server

b. Web Server
c. SMPT Server
d. POP Server
Ans: a. Database Server

61. What is the role of the database server in relation to the GUI?
a. Back End
b. Front End
c. Both a) and b)
d. None of the above
Ans: a. Back End

62. What is duplication of data called?
a. Redundancy
b. Consistency
c. Foreign Key
d. Inconsistency
Ans: b. Redundancy

63. Which of the following is not an advantage of a database?
a. Increasing Data Inconsistency
b. Increasing Data Redundancy
c. Data Security
d. Sharing of Data
Ans: a. Increasing Data Inconsistency

64. Can a database have only one table?
a. Yes
b. No
Ans: b. No

65. Which of the following is used to maintain unique records in a table?
a. Composite Key
b. Primary Key
c. Alternate Key
d. Foreign Key
Ans: b. Primary Key

66. What is a primary key made up of two or more columns called?
a. Composite Primary Key
b. Alternate Primary Key
c. Foreign Primary Key
d. Reference Primary Key
Ans: a. Composite Primary Key

67. Can duplicate values be entered in a primary key?
a. Yes
b. No
Ans: b. No

68. What is a key that refers to the primary key of another table called?
a. Alternate Primary Key
b. Foreign Key

c. Primary Key
d. Alternate Key
Ans: b. Foreign Key

69. What kind of database software is required when data is stored, maintained, and retrieved from multiple tables?
a. SpreadSheet
b. RDBMS
c. DBMS
d. All of the above
Ans: b. RDBMS

70. Does every row in a table have the same structure?
a. True
b. False
Ans: a. True

71. What are the basic building blocks of a database?
a. Records
b. Tables
c. Fields
d. All of the above
Ans: b. Tables

72. What is the default data type of fields?
a. Int
b. Text[Memo]
c. Memo
d. Text[Varchar]
Ans: d. Text[Varchar]

73. Does Base automatically add a column as Primary Key if none is added?
a. True
b. False
Ans: a. True

74. What is the default length of the Varchar data type?
a. 10
b. 30
c. 50
d. 20
Ans: c. 50

75. What is used to identify the type of data that will be stored in a database?
a. Field
b. Data type
c. Table
d. Record
Ans: b. Data type

76. Which of the following is not a numerical data type?
a. Varchar
b. Tinyint

c. Boolean
d. Smallint
Ans: a. Varchar

77. Which of the following data types cannot store decimal values?
a. Boolean
b. Decimal
c. Numeric
d. Real
Ans: a. Boolean

78. Which data type is used for storing photos, music files, and other binary data?
a. Numeric
b. Varchar
c. Binary
d. Alphanumeric
Ans: c. Binary

79. Is Char a fixed-length data type and Varchar a variable-length data type?
a. Yes
b. No
Ans: a. Yes

80. What operations can be performed on data in a table?
a. Insert
b. Delete
c. Modify
d. All of the above
Ans: d. All of the above

81. After inserting records in a table, can the structure of the table be modified?
a. True
b. False
Ans: b. False

82. What does sorting mean?
a. Arranging data in decreasing order
b. Arranging data in increasing order
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

83. Is Referential Integrity used to maintain accuracy and consistency of data in a relationship?
a. True
b. False
Ans: a. True

84. From which menu a relationship can be created in Base?
a. View
b. Tools
c. Insert
d. Windows
Ans: b. Tools

85. How many types of relationships can be created between tables in Base?
a. Four
b. Five
c. Three
d. Two
Ans: c. Three

86. In Open Office Base, in which view can a query be created?
a. Using wizard
b. Design view
c. Both a) and b)
d. None of the above
Ans: c. Both of the above

87. Can data be deleted using queries in Base?
a. True
b. False
Ans: b. False

88. Which statement is used to retrieve data from a table?
a. Print
b. Select
c. Delete
d. Update
Ans: b. Select

89. What is the purpose of the SQL query: “SELECT empname, salary * 3 FROM emp;”?
a. Display only name and salary
b. It will give an error.
c. Display empname and three times of the salary of all employees.
d. None of the above.
Ans: c. Display empname and three times of the salary of all employees.

90. Which SQL command is used to modify data in a table?
a. SELECT
b. MODIFY
c. DELETE
d. UPDATE
Ans: d. UPDATE

91. Which of the following SQL commands are considered as DML commands?
a. UPDATE
b. DELETE
c. INSERT
d. All of the above.
Ans: d. All of the above.

92. What is another name for a tuple in a table?
a. Record
b. Column
c. Both of the above
d. Attribute

Ans: a. Record

93. Which element in a table represents a single data item?
a. Rows
b. Attribute
c. Columns
d. Field
Ans: c. Columns

94. Which of the following is NOT a standard SQL data type?
a. Float
b. Boolean
c. Integer
d. String
Ans: b. Boolean

95. Which of the following is NOT a function of a database management system?
a. Data retrieval
b. Data manipulation
c. Data storage
d. Data transmission
Ans: d. Data transmission

96. Which of the following is NOT a type of data manipulation language (DML)?
a. SELECT
b. UPDATE
c. INSERT
d. DELETE
Ans: a. SELECT

97. What can you do with data in a table created in Base?
a. Modify it
b. Insert it
c. Delete it
d. All of the above
Ans: d. All of the above

98. In which view can the structure of a table be changed in Base?
a. Design View
b. Datasheet View
c. Both of the above
d. None of the above
Ans: a. Design View

99. Which field property in Base can be used to store data in a specific format, such as a phone number?
a. Auto Value
b. Length
c. Default Value
d. Format
Ans: d. Format

100. What is the default value of the field property ‘Entry Required’ in Base?

a. Yes
b. No
Ans: b. No

101. To arrange the data in ascending or descending order, first select the column(s) and then click on which button?
a. View
b. Save
c. Arrange
d. Sort
Ans: d. Sort

102. When a primary key from one table appears in another table, it is called a _____.
a. Composite Primary Key
b. Secondary Key
c. Foreign Key
d. Main Key
Ans: c. Foreign Key

103. In which relationship, one of the table must have primary key column?
a. One to Many
b. One to One
c. Many to Many
d. Many to All
Ans: a. One to Many

104. Once the relationships applied on the tables cannot be removed.
a. True
b. False
Ans: b. False

105. To remove the relationship between tables, right-click on the relationship thread and select which option?
a. Delete
b. Remove
c. Edit
d. Clear
Ans: a. Delete

106. Which language is used to write a query in Open Office Base?
a. VB
b. SQL
c. C
d. Python
Ans: b. SQL

107. Which command is used to retrieve data from a table?
a. Delete
b. Create
c. Select
d. Insert
Ans: c. Select

108. Can SELECT statement retrieve data from multiple tables?
a. True
b. False
Ans: a. True

109. Rajesh wants to display all the records from the table ‘student’.
a. Select * student;
b. Select # from student;
c. Select from student;
d. Select * from student;
Ans: d. Select * from student;

110. Which clause can be used with the SELECT SQL command to display records containing the same type of values?
a. Order By
b. Where
c. Both a and b
d. None of the above
Ans: b. Where

111. Which commands are used to add, modify, and delete records in a database table?
a. Insert, Update, and Remove
b. Insert, Update, and Delete
c. Insert, Modify, and Delete
d. Add, Update, and Delete
Ans: b. Insert, Update, and Delete

112. By default, in which order is data arranged using the ORDER BY clause in a database?
a. Decreasing
b. Alphabetical
c. Increasing
d. Descending
Ans: c. Increasing

113. Which clause of the SELECT statement helps to display specific data in a database?
a. Where
b. Between
c. Order By
d. None of the above
Ans: a. Where

114. What is the name of the interface in a user-specified layout that lets users view, enter, and change data directly in database objects such as tables?
a. Query
b. Form
c. Report
d. Table
Ans: b. Form

115. Aman created an object ‘X’ in Base to store the value in the form of rows and columns. What is ‘X’?
a. Table
b. Row

c. Column
d. Database
Ans: a. Table

116. Which of the following contains data of the same data type?
a. Record
b. Tuple
c. Column
d. All of the above
Ans: c. Column

117. Give an example of an open-source RDBMS.
a. Microsoft SQL Server
b. Microsoft Access
c. Oracle
d. OpenOffice Base
Ans: d. OpenOffice Base

118. What is the default length of the TINYINT data type?
a. 1
b. 2
c. 3
d. 4
Ans: c. 3

119. Which data type can store character/data up to the length specified by the user?
a. Varchar
b. Char
c. Varchar_IgnoreCase
d. All of the above
Ans: d. All of the above

120. Dhriti wants to store the details of students as well as their pictures in a table named “school”. Which data type is suitable for storing pictures?
a. Boolean
b. Binary
c. Memo
d. Varchar
Ans: b. Binary

121. Which data type stores hours, minutes, and second information?
a. Date
b. Time
c. Stamptime
d. Timer
Ans: b. Time

OBJECTIVE QUESTIONS (SET 02)

1. A _____ is an organized collection of data.
a. Database
b. Digital Document
c. Spreadsheet

d. None of the above
Ans: a. Database

2. A _____ is a software package that can be used for creating and managing databases.
a. Database Management System
b. Basedata Management System
c. Database Manage System
d. None of the above
Ans: a. Database Management System

3. A_____ database management system is referred to as a relational model.
a. DBMS
b. RDBMS
c. DB
d. None of the above
Ans: b. RDBMS

4. Example of the database _____.
a. Microsoft Access
b. OpenOffice Base
c. MySQL
d. All of the above
Ans: d. All of the above

5. The database concept has evolved since the _____.
a. 1980
b. 1960
c. 1955
d. 1950
Ans: b. 1960

6. DBMS Stands for _____.
a. Database Management System
b. Database Manage System
c. Data Manage System
d. None of the above
Ans: a. Database Management System

7. A database management system is a software package with computer programs that controls the _____.
a. Creation
b. Maintenance
c. Use of Database
d. All of the above
Ans: d. All of the above

8. A database is an integrated collection of _____.
a. Data records
b. Files
c. Objects
d. All of the above
Ans: d. All of the above

9. A DBMS enables several user application programs to access the _____ database.
a. Other Database
b. Same Database
c. Both a) and b)
d. None of the above
Ans: b. Same Database

10. Data can be organized into _____.
a. Flat File
b. Relational
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

11. Data stored in a single table is known as _____.
a. Flat File
b. Relational
c. Both a) and b)
d. None of the above
Ans: a. Flat File

12. Data is stored in multiple tables, which are connected together via a common field.
a. Flat File
b. Relational
c. Both a) and b)
d. None of the above
Ans: b. Relational

13. _____ are dedicated computers that hold the actual databases and run only the DBMS and related software.
a. Database Server
b. Decided Server
c. Web Server
d. None of the above
Ans: a. Database Server

14. What are the advantages of database _____.
a. Reduces Data Redundancy
b. Sharing of Data
c. Data Integrity
d. All of the above
Ans: d. All of the above

15. When the same piece of data is stored in two or more locations, it is called _____.
a. Data Redundancy
b. Data Integrity
c. Data Consistency
d. None of the above
Ans: a. Data Redundancy

16. _____ prevents creating multiple copies in the database.
a. Data Redundancy
b. Data Integrity

c. Data Consistency
d. None of the above
Ans: a. Data Redundancy

17. _____ means that the data is accurate and consistent in the database.
a. Data Redundancy
b. Data Integrity
c. Data Consistency
d. None of the above
Ans: b. Data Integrity

18. Only authorized users should be allowed to access the database and their identity should be authenticated using a username and password known as _____.
a. Data Redundancy
b. Data Consistency
c. Data Security
d. None of the above
Ans: c. Data Security

19. Database Management System automatically takes care of _____.
a. Data Redundancy
b. Backup and Recovery
c. Data Security
d. None of the above
Ans: b. Backup and Recovery

20. _____ prevent multiple mismatching copies of the same data in the database and only valid data will be added in the database.
a. Data Redundancy
b. Backup and Recovery
c. Data Consistency
d. None of the above
Ans: c. Data Consistency

21. _____ in a table represents a set of information with the same structure in every row.
a. Tuples
b. Record
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

22. A _____ is the actual text, number, or date that you enter when adding data to your database.
a. Values
b. Table
c. Boolean
d. None of the above
Ans: a. Values

23. The unique field present in the table is called _____.
a. Primary Key
b. Candidate Key
c. Foreign Key

d. None of the above
Ans: a. Primary Key

24. When the primary key is applied on multiple columns is known as _____.
a. Primary Key
b. Composite Primary Key
c. Foreign Key
d. None of the above
Ans: b. Composite Primary Key

25. By default if the primary key is not defined that column is known as _____.
a. Primary Key
b. Candidate Key
c. Foreign Key
d. None of the above
Ans: c. Foreign Key

26. _____ key can store multiple same records in the table.
a. Primary Key
b. Candidate Key
c. Foreign Key
d. None of the above
Ans: c. Foreign Key

27. The relationship between two tables where one table has one record and another table has many records is known as _____.
a. One-to-Many
b. Many-to-Many
c. Many-to-One
d. None of the above
Ans: a. One-to-Many

28. SQL stands for _____.
a. Single Query Language
b. Structured Query Language
c. Semantic Query Language
d. None of the above
Ans: b. Structured Query Language

29. A _____ is a collection of data components organized in the form of vertical columns and horizontal rows.
a. Table
b. Fields
c. Attributes
d. None of the above
Ans: a. Table

30. A row also called a Record or _____ represents a single, data item in a table.
a. Column
b. Tuples
c. Fields
d. None of the above
Ans: b. Tuples

31. You can create tables in the database using _____.
a. Wizard
b. SQL
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

32. _____ are the basic building blocks of a database.
a. Table
b. Query
c. Database
d. None of the above
Ans: a. Table

33. _____ are used to define the type of data that will be stored in the database.
a. Data Types
b. Data field
c. Key Data
d. None of the above
Ans: a. Data Types

34. What are the different types of data type available in OpenOffice base?
a. Numeric Types
b. Alphanumeric Types
c. Binary Types & Date time
d. All of the above
Ans: d. All of the above

35. _____ types are used for describing numeric values for the field used in the table of a database.
a. Numeric Type
b. Alphanumeric Type
c. Boolean Type
d. Date & Time
Ans: a. Numeric Type

36. _____ data type can store 0 or 1 in the database.
a. Boolean
b. TinyInt
c. Smalint
d. BigInt
Ans: a. Boolean

37. What are the different numerical data types?
a. Boolean
b. Tinyint & Smallint
c. Integer & Bigint
d. All of the above
Ans: d. All of the above

38. _____ data type can store UTF 8 Characters in the database.
a. Longvarchar

b. Char
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

39. _____ is case sensitive data type in the database.
a. Longvarchar
b. Varchar_Ignorecase
c. Varchar
d. All of the above
Ans: b. Varchar_Ignorecase

40. _____ data types in a database can be used for storing photos, music, video or any file format.
a. Numerical Type
b. Alphanumeric Type
c. Binary Type
d. Date & Time
Ans: c. Binary Type

41. Which datatype is used for storing date and time both in the database.
a. Date
b. Time
c. Timestamp
d. None of the above
Ans: c. Timestamp

42. A table is a collection of data elements that are organized using a vertical _____ and horizontal _____ model.
a. Column & Row
b. Row & Column
c. Column & Column
d. Row & Row
Ans: a. Column & Row

43. A _____ is a collection of data values of a specific type, one for each row of a table.
a. Column
b. Row
c. Cell
d. None of the above
Ans: a. Column

44. In a table, a _____ represents a single data item.
a. Row
b. Truple
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

45. _____ are used to identify which type of data we are going to store in the database.
a. Datatype
b. DataItem
c. DataValue

d. DataCat
Ans: a. Datatype

46. There are _____ ways to create a table.
a. 1
b. 2
c. 3
d. 4
Ans: b. 2

47. Field properties can be set in both the _____ and _____ .
a. Length & Default Value
b. Length & Entry
c. Both a) and b)
d. All of the above
Ans: c. Both a) and b)

48. By default the length of the numerical data type is _____.
a. 05
b. 10
c. 20
d. 30
Ans: b. 10

49. If the user does not specify a value for a field while putting values into the table, a _____ value can be assigned to it.
a. Default Value
b. Length
c. Format
d. None of the above
Ans: a. Default Value

50. _____ means to arrange the data in either ascending order or descending order.
a. Filter
b. Sorting
c. Arrangement
d. None of the above
Ans: b. Sorting

51. _____ is used to maintain accuracy and consistency of data in a relationship.
a. Referential data
b. Referential Integrity
c. Referential Value
d. None of the above
Ans: b. Referential Integrity

52. In base, data can be linked between two or more tables with the help of _____.
a. Primary Key
b. Foreign Key
c. Both a) and b)
d. None of the above
Ans: c. Both a) and b)

53. Referential Integrity helps to avoid _____.
a. If you want to add a record in the related table and if there is no associated record available in the primary key table.
b. Changing values in a primary if there are any dependent records in the related table.
c. Deleting records from a primary key table if there are any matching related records available in the associated table.
d. All of the above
Ans: d. All of the above

54. The connection or association between two or more table is known as _____
a. Connection
b. Relationship
c. Connector
d. None of the above
Ans: b. Relationship

55. Relationships between tables help to _____.
a. Save time
b. Reduce data-entry errors
c. Summarize data from related tables
d. All of the above
Ans: d. All of the above

56. What are the different types of relationships which can be created in table_____.
a. One to One
b. One to Many or Many to One
c. Many to Many
d. All of the above
Ans: d. All of the above

57. _____ is the relationship, where both the tables must have primary key columns.
a. One to One
b. One to Many or Many to One
c. Many to Many
d. All of the above
Ans: a. One to One

58. _____ in this relationship, one of them must have a primary key column.
a. One to One
b. One to Many or Many to One
c. Many to Many
d. All of the above
Ans: b. One to Many or Many to One

59. A _____ is a standard for commands that define the different structures in a database.
a. Data Manipulation Language (DML)
b. Data Definition Language (DDL)
c. Both a) and b)
d. None of the above
Ans: b. Data Definition Language (DDL)

60. A _____ is a language that enables users to access and manipulate data in a database.

a. Data Manipulation Language (DML)
b. Data Definition Language (DDL)
c. Both a) and b)
d. None of the above
Ans: a. Data Manipulation Language (DML)

61. A _____ is a subset of DML that just deals with information retrieval.
a. Query Language
b. Structure Language
c. Both a) and b)
d. None of the above
Ans: a. Query Language

62. A popular data manipulation language is _____.
a. Structured Query Language
b. Machine Level language
c. Low level language
d. None of the above
Ans: a. Structured Query Language

63. There are _____ types of Relationships in a table.
a. 2
b. 3
c. 4
d. 5
Ans: b. 3

64. _____ means that the query hides certain data and displays only what you want to see based on the criteria you provided.
a. Filtering
b. Sort
c. Query
d. All of the above
Ans: a. Filtering

65. A _____ statement used to display the zero record or multiple record from the database.
a. Select
b. Order By
c. Where
d. None of the above
Ans: a. Select

66. To retrieve all the columns in a table the syntax is _____.
a. Select $ from <tablename>;
b. Select * <tablename>;
c. Select * from <tablename>;
d. Select % <tablename>;
Ans: c. Select * from <tablename>;

67. To display the records containing the same type of values _____ clause can be used with the Select SQL Command.
a. Where
b. More

c. Order
d. None of the above
Ans: a. Where

68. Shortcut key for executing query in OpenOffice base.
a. F2
b. F3
c. F4
d. F5
Ans: d. F5

69. To view records in ascending order from a database.
a. Unorder by
b. Order by
c. Acc by
d. Decc by
Ans: b. Order by

70. _____ statement is used for modifying records in a database.
a. Modify
b. Update
c. Delete
d. Select
Ans: b. Update

71. The syntax of the update statement is _____.
a. Update <tablename> set <columnname = value> where <condition>;
b. Update <tablename> set <condition> where <condition>;
c. Modify <tablename> set < value> where <condition>;
d. Modify <tablename> set <columnname = value> where <condition>;
Ans: a. Update <tablename> set <columnname = value> where <condition>;

72. A _____ helps the user to systematically store information in the database.
a. Form
b. Table
c. Report
d. None of the above
Ans: a. Form

73. A _____ enables users to view, enter, and change data directly in database objects such as tables.
a. Table
b. Form
c. Report
d. None of the above
Ans: b. Form

74. _____ statement retrieves zero or more rows from one or more database tables or database views.
a. Select
b. Update
c. Delete

d. None of the above
Ans: a. Select

75. By default, data is arranged in _____ order using ORDER BY clause.
a. Ascending
b. Descending
c. Both a) and b)
d. None of the above

Ans:
a. Ascending
76. _____ statement is used for modifying records in a database.
a. Select
b. Update
c. Delete
d. None of the above
Ans: b. Update

77. To remove one or more records from a database, use the _____ statement.
a. Select
b. Update
c. Delete
d. None of the above

Ans:
c. Delete
Session 5: Create Forms and Reports using Wizard
78. A _____ provides the user a systematic way of storing information into the database.
a. Query
b. Form
c. Table
d. None of the above
Ans: b. Form

79. _____ will help you to display summarized data from the database.
a. Report
b. Form
c. Table
d. None of the above
Ans: a. Report

80. To create a form you need to select the _____ option available under the Database section.
a. Form
b. Query
c. Report
d. All of the above
Ans: a. Form

81. A _____ helps to collect specific information from the pool of data in the database.
a. Form
b. Query
c. Report
d. All of the above

Ans: b. Query

82. _____ is used to display the summary of data.
a. Form
b. Query
c. Report
d. All of the above
Ans: c. Report

83. _____ are the interfaces with which the user interacts.
a. Form
b. Query
c. Report
d. All of the above
Ans: a. Form

84. Data from multiple tables can be stored in _____.
a. Data system
b. Database
c. Datatype
d. None of the above
Ans: b. Database

85. Which data type is suitable for storing values for 'date of birth' field?
a. Time
b. Date
c. Both of the above
d. Timestamp
Ans: b. Date

86. Which data type is most suitable for storing a very large amount of data?
a. LongVarchar or Memo
b. Char
c. Varchar
d. Varchar_IgnoreCase

Ans:
a. LongVarchar or Memo
87. Identify the odd one out.
a. Binary Types
b. Date & Day Type
c. Numeric Types
d. Alphanumeric Types
Ans: b. Date & Day Type

88. What does a single data item in a table represent?
a. Columns
b. Attribute
c. Rows
d. Field
Ans: c. Rows

89. Which toolbar helps us move from one record to another in a form in a database?

a. Formatting Toolbar
b. Image Toolbar
c. Standard Toolbar
d. Form Navigation Toolbar
Ans: d. Form Navigation Toolbar

90. What is the correct query to increase the salary of all employees by Rs.10000 in a table named Employee with a column name of Salary?
a. Update Employee set Salary = Salary + 10000;
b. Update * Employee set Salary = Salary + 10000.
c. Update table Employee set Salary = Salary + 10000;
d. Update table Employee set Salary = 10000;
Ans: a. Update Employee set Salary = Salary + 10000;

91. Which query will display the details of all the students in increasing order of Roll number?
a. Select * from student order by 'Rollno';
b. Select * student order by 'Rollno';
c. Select all from student order by 'Rollno';
d. Select * from student orderby 'Rollno';
Ans: a. Select * from student order by 'Rollno';

92. Which clauses can be used with the SELECT statement?
a. Order by Clause
b. Where clause
c. Both a) and b)
d. None of the above

Ans:
c. Both a) and b)
93. In which relationship, no table has the primary key column?
a. Many to One
b. One to One
c. Many to Many
d. One to Many
Ans: c. Many to Many

94. Referential integrity refers to the _____ between tables.
a. communication
b. consistency
c. relationship
d. joining
Ans: c. relationship

95. Which field property in Base must be set to "Yes" in order to require a value to be entered in a field?
a. Entry Required
b. Auto Value
c. Format
d. Length

Ans:
a. Entry Required
96. In which view can field properties be set in Base?

a. Design View
b. Datasheet View
c. Both of the above
d. None of the above
Ans: a. Design View

97. Which of the following is a benefit of using a database management system?
a. Improved data security
b. Improved data accessibility
c. Improved data consistency
d. All of the above
Ans: d. All of the above

98. Which of the following is NOT a type of database model?
a. Relational
b. Object-oriented
c. Hierarchical
d. Procedural
Ans: d. Procedural

99. Which of the following is an example of an open-source RDBMS?
a. Oracle
b. Microsoft Access
c. OpenOffice Base
d. Microsoft SQL Server
Ans: c. OpenOffice Base

100. What is the purpose of a report in a database?
a. Report is used to display information.
b. Report is systematic way of storing information into the table.
c. Both a) and b)
d. None of the above.
Ans: a. Report is used to display information.

SHORT ANSWER TYPE QUESTIONS

1. **What is database? Give an example. What does DBMS stand for?**
   Ans. A collection of related information organised as tables is known as database e.g. INGRES, MySQL etc. DBMS stands for DataBase Management System. It is a computer-based record keeping system.

2. **What is the difference between 'Rows' and 'Columns' in a table?**
   Ans. In a table, rows are called records and columns are termed a fields. A row stores complete information of a record whereas column stores only similar data values for all records.

3. **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.

4. **Define forms and what is the need of using them?**
   Ans. A form is a window or 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.

5. **What does RDBMS stand for?**
Ans. RDBMS stands for Relational Database Management System. It is a type of DBMS that stores data in the form of relations (tables).

6. **How is data organized in a RDBMS?**
Ans. A relational database is a type of database. It uses a structure that allows us to identify and access datain relation to another piece of data in the database. Data in a relational database is organized into tables.

7. **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.

8. **Write any two uses of database management system.**
Ans. The two uses of database management system are as follows
(i) DBMS is used to store data at a centralised location.
(ii) It is used to minimise data redundancy and data inconsistency.

9. **Write any two advantages of using database.**
Ans. The two advantages of using database are as follows
(i) It can ensure data security.
(ii) It reduces the data redundancy.

10. **Give any two disadvantages of the database.**
Ans. The two disadiantages of the database are as follows
(i) A database system creates additional complexity and requirements.
(ii) A database system is a multi-user software, which is less efficient.

11. **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.

12. **Why Memo data type is preferred over Text data type for a field?**
Ans. When the length of the field is more than 255 characters. Text data type is not capable to store the project description because its length cannot be more than 255 characters so, Memo data type is preferred over Text data type.

13. **What happens when text is entered in a Number type field?**
Ans. When we enter text in a Number field and press Enter or press Tab key, it displays a message that ‘‘The value you entered does not match the Number data type in this column.’’

14. **Damini is a programmer in an institute and is asked to handle the records containing information of students. Suggest any 5 fields name and their data type of students database.**
Ans.

Field Name	Data Type
RollNo	Number
Name	Text
Class	Text
Section	Text
Gender	Text

15. Create a table of Student based on the following table instance.

Column Name	Data Type	Length
ID	integer	
Name	varchar	15
Stream __Id	integer	

Ans. CREATE TABLE STUDENT (ID Integer, Name varchar (15), Stream_Id Integer);

16. Write a SQL command to create the table BANK whose structure is given below.

Table : BANK

Field Name	Datatype	Size	Constraint
ID__Number	integer	10	Primary key
Name	varchar	20	
B_date	date		
Address	varchar	50	

Ans. The SQL command to create a table as per given structure is as follows Mysql> CREATE TABLE BANK (ID Number integer (10) PRIMARY KEY, Name varchar (20), B date Date, Address varchar (50));

17. List datatypes available in Numeric data type.

Ans. Datatypes available in numeric data type are TINYINT, SMALLCINT, MEDIUMINT, INT and BIGINT.

18. Write one example of data field for which you would set the Required property to Yes.

Ans. In a table, when we declare a field as a primary key, then the field's Required property must be set to yes because in a primary key field, we need to enter data always.

19. What is the purpose of Default Value field property?

Ans. If there is a situation when you want to enter same value for all records. Then, to avoid typing the same thing many times, you can set as a Default Value property.

20. Insert some information into a table COLLEGE, whose structure is given below.

ROLL_NO	NAME	CLASS	BRANCH

Ans. (i) Mysql>INSERT INTO COLLEGE (ROLL_NO, NAME, CLASS, BRANCH) VALUES (2, 'VIKAS',12, 'SCIENCE'); (ii) Mysql>INSERT INTO COLLEGE (ROLL_NO, NAME, CLASS, BRANCH) VALUES (3, 'RAJ', 10, 'SCIENCE');

21. What is the value of Entry Required field?

Ans. The value of this property can be Yes or No. If entry required is Yes, the field cannot be absent i.e. should be necessarily present with a value.

22. What is table? Also, define Candidate Key.

Ans. A table consists of a number of rows and columns. Each record contains values for the attributes. A candidate key is the smallest subset of the super key for which there does not exist a proper subset that is super key. Any candidate key can be choosen to uniquely identify the records, it is called primary key.

23. What is Data Control Language?

Ans. Data Control Language is used to create roles, permissions, and referential integrity as well it is used to control access to the database by securing it. These SQL commands are used for providing security to database objects. These commands are GRANT and REVOKE.

24. What is Data Transaction Control Language?

Ans. Transaction control commands manage changes made by DML commands. These SQL commands are used for managing changes affecting the data. These commands are COMMIT, ROLLBACK, and SAVEPOINT.

LONG ANSWER TYPE QUESTIONS

25. Describe any four major problems associated with sustainable development.

Ans. Four problems associated with sustained development are as follows

(i) The concept of sustainable development is subject to criticism. What, exactly, is to be sustained in a sustainable development? Any positive rate of exploitation of a non-renewable resource will eventually lead to exhaustion of Earth's final stock.

(ii) Turning the concept of sustainability into policy raises questions about how to assess the well-being of present and future generations. The issue is more complicated because our children do not just inherit environmental pollution and resource depletion, but also enjoy the fruits of our labour, in the forms of education, skills, and knowledge (i.e. human capital), as well as physical capital.

(iii) Poor management of natural resources, combined with growing economic activities, will continue to pose serious challenges to environment. The problem arises because people, institutions and governments have failed to evolve mechanism and policies to strike a balance between development and conservation of resources and preservation of environment.

(iv) The commonly held view that greater economic activity necessarily hurts the environment, is based on static assumptions about technology, tastes and environmental investments. In reality, the relationships between inputs and outputs and the overall effects of economic activities on the environment, are continually changing.

26. Mention the main principles of sustainable development.

Ans. Main principles of sustainable development are

(i) Respect and care for all forms of life.

(ii) Improving the quality of human life.

(iii) Minimising the depletion of natural resources.

(iv) Conserving the Earth's vitality and diversity.

(v) Enabling communities to care for their own environment.

(vi) Changing personal attitude and practices towards the environment.

27. Why is it important to adopt sustainable development? Explain.

Ans. A three-year study using satellites and aerial photography undertaken by the United Nations long ago warned that the environment had deteriorated so badly that it was 'critical' in many of eighty-eight countries, investigated. In view of all these findings and problems, sustainable development acquires much importance.

Nature and mankind live and die together.

The Earth's vital signs reveal a patient in declining health. We need to realise our ethical and moral obligations to the mother Earth. Human beings are caretakers of the planet and responsible trustees of the legacy of future generations.

Due to the realisation of importance of sustainable development, now there is a transcending concern for survival of the people and planet. We need to take a holistic view of the very basis of our existence. The environmental problem does not necessarily signal our demise, rather it is our passport for the future. To save ourselves and our future generations from catastrophe, we require to take a holistic view, an ecological view, seeing the world as an integrated whole, rather than a dissociated collection of parts.

28. Describe the meaning and importance of sustainable development.

Ans. Sustainable development refers to the process of economic development where resources are used judiciously to satisfy needs of not only present generation but also to conserve them for the use of future generations. Sustainable development takes place without depleting the present natural resources.

The importance of sustainable development is discussed below

(i) It helps to conserve and make use of means and resources for the maximum benefit without wastage.

(ii) It awares the people about the responsibility to use and preserve natural resources.

(iii) It creates the feeling that natural resources are the common property of all and nobody can use the property according to his personal will. It helps to conserve natural and social environment.

(iv) People's participation is to be given priority in development work in order to achieve the aim of sustainable development.

(v) It attempts to create the concept of maintaining the present work for the future and conserving natural resources for future generation.