

Class - Tenth

Subject -> IT (Code-402)

Questions & Answers

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PART B: Vocational Skills

Chapter: Database Development (Basic)

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 **MS. Access, OO Base, & SQL Server.**
5. A **Table** is a set of data elements that is organized using a model of vertical columns and horizontal rows.
6. A **Column** is a set of data values of a particular simple type, one for each row of the table.
7. A **row** represents a single, data item in a table.
8. **Datatypes** are used to identify which type of data we are going to store in the database.
9. A **Primary Key** is a unique value that identifies a row in a table.
10. The types of languages used for creating and manipulating the data in the Database are **DDL & DML.**
11. A **DDL** is a standard for commands that define the different structures in a database.
12. A **DML** is a language that enables users to access and manipulate data in a database.
13. A **Query Language** is a part of DML involving information retrieval only.
14. A popular data manipulation language is **SQL.**
15. Common DDL statements are **CREATE, ALTER** and **DROP.**
16. **Tables** are the basic building blocks of a database.
17. To design a table, you need to select **Create Table** in **Design View** option available under Task.
19. A **Form** helps the user to systematically store information in the database.
20. A **Form** enables users to view, enter, and change data directly in database objects such as tables.
21. To create a form you need to select **Forms** option available under Database section.
22. A **query** is helps to collect specific information from the pool of data in the database.
23. **SELECT** statement retrieves zero or more rows from one or more database tables or database views.
24. **INSERT** statement is used to add one or more records to a database.
23. **UPDATE** statement is used for modifying records in a database.
24. **DELETE** statement is used to remove one or more records in a database.
25. **CREATE** statement is used for creating a database or a table in any RDBMS Software.
26. A **Report** is used to generate the overall work outcome in a clear format.
27. To create reports you need to select **Use Wizard to Create Report** option available under Tasks.

28. **Select** statement is used to retrieve records in a database.
29. Composite Key is a combination of **Primary Key** columns.
30. **CREATE** DDL command is used to create a table.
31. There are **three** types of Relationships in a table.
32. By default, data is arranged in **ascending** order using ORDER BY clause.

Answer the following:

Q1. What does DBMS stand for? Explain it.

Ans. -> DBMS stands for Data Base Management System. A database management system is a software package with computer programs that controls the creation, maintenance, and use of a database. It allows organizations to conveniently develop databases for various applications. A database is an integrated collection of data records, files, and other objects. A DBMS allows different user application programs to concurrently access the same database.

Well known DBMSs include Oracle, IBM DB2, Microsoft SQL Server, Microsoft Access, PostgreSQL, MySQL, FoxPro, and SQLite.

Q2. What does RDBMS stands for? Explain it.

Ans. -> RDBMS stands for Relational Data Base Management System. A relational database management system (RDBMS) is a database management system that is based on the relational model as introduced by E. F. Codd, of IBM's San Jose Research Laboratory. Most popular databases currently in use are based on the relational database model.

Q3. How is data organized in a RDBMS?

Ans. -> The relational model for database management is a database model based on first-order predicate logic, first formulated and proposed in 1969 by Edgar F. Codd. In the relational model of a database, all data is represented in terms of tuples, grouped into relations. A database organized in terms of the relational model is a relational database.

Q4. List the data types used in a DBMS /RDBMS?

Ans. -> Data types in OpenOffice base is broadly classified into five categories listed below.

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

Q5. State the relationship and difference between a primary and foreign key?

Ans. -> The unique field is called the **primary key (PK)**. A primary key is a unique value that identifies a row in a table. Primary Keys are also indexed in the database, making it faster for the database to search for a record.

The foreign key identifies a column or set of columns in one (referencing) table that refers to a column or set of columns in another (referenced) table. The "one" side of a relation is always the parent, and provides the PK attributes to be copied. The "many" side of a relation is always the child, into which the FK attributes are copied. Memorize it: one, parent, PK; many, child, FK.

Q6. List datatypes available in Numeric Datatype?

Ans. -> 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 -215 to +215-1 |
| INTEGER | Integer | Store integer range between -231 to +231-1 |

| | | |
|---------|-------------|--------------------------------|
| BIGINT | Big Integer | Range between -263 to +263-1 |
| NUMERIC | Number | Maximum precision of e(+/-)231 |
| DECIMAL | Decimal | Maximum precision of e(+/-)231 |
| REAL | Real | 2-1074 to (2-2-52)* 21023 |
| FLOAT | Float | 2-1074 to (2-2-52)* 21023 |
| DOUBLE | Double | 2-1074 to (2-2-52)* 21023 |

Q7. List datatypes available in Alphanumeric Datatype?

Ans. ->

| <u>Name</u> | <u>Data type</u> | <u>Description</u> |
|---------------------|------------------|--|
| 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. |

Q8. List datatypes available in Binary Datatype?

Ans. -> 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.

| <u>Name</u> | <u>Data type</u> | <u>Description</u> |
|---------------|------------------|---|
| 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. |

Q9. List datatypes available in Date Time Datatype?

Ans. -> 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 using 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.

| <u>Name</u> | <u>Description</u> | <u>Format</u> |
|-------------|--|------------------------|
| 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 | |

Q10. What is the file extension for databases created using OpenOffice.Org Base?

Ans. -> .odb

Q11. What is Tuple?

Ans. -> 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 visualized 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.

Q12. Differentiate between DDL and DML.

Ans. -> In a database you can define the structure of the data and manipulate the data using some commands. There are two types of languages for this task. These are:

- Data Definition Language (DDL)
- Data Manipulation Language (DML)

Data Definition Language (DDL)

A data definition language or data description language (DDL) is a standard for commands that define the different structures in a database. DDL statements create, modify, and remove database objects such as tables, indexes, and users. Common DDL statements are CREATE, ALTER, and DROP.

Data Manipulation Language (DML)

A data manipulation language (DML) is a language that enables users to access and manipulate data in a database. The goal is to provide efficient human interaction with the system. Data manipulation involves:

- SELECT statement
- INSERT statement
- DELETE statement
- UPDATE statement

There are two types of DML:

- **Procedural:** The user specifies what data is needed and how to get it
- **Nonprocedural:** The user only specifies what data is needed. This is easier for the user but may not generate code as efficient as that produced by procedural languages.

Q13. Write the SQL commands to answer the queries based on Fabric table.

| FabricID | Fname | Type | Disc |
|----------|--------|--------|------|
| F001 | Shirt | Woolen | 10 |
| F002 | Suit | Cotton | 20 |
| F003 | Tunic | Cotton | 10 |
| F004 | Jeans | Denim | 5 |
| F006 | Shorts | Cotton | 7 |

a) To insert the following record
("F005", "Kurta", "Woolen",5)

Ans. -> INSERT INTO Fabric ("FabricID", "Fname", "Type", "Disc") values ('F005', 'Kurta', 'Woolen', '5');

b) To display only those fabric whose disc is more than 10

Ans. -> SELECT * from Fabric where Disc>'10';

c) To display those record whose type is "Woolen"

Ans. -> SELECT * from Fabric where Type='Woolen';

d) To modify the fabric shirt by increasing discount of 10

Ans. -> update Fabric set Disc = 'Disc+10' where Fname = Shirt;

e) To delete the record of fabric F003 from table

Ans. -> Delete from Fabric where FabricID=F003;

Q14. Create table BOOK.

| | |
|----------------|---------------------|
| BOOK ID | Char (4) |
| Bname | Varchar (15) |
| Author | Varchar (20) |
| Price | Decimal |

Identify the primary key of the Book Table, also mention the suitable reason for choosing it as a Primary Key.

Ans. -> SQL Command to create BOOK table:

```
CREATE TABLE BOOK (BOOK ID CHAR(4), Bname VARCHAR (15), Author VARCHAR (20), Price DECIMAL);
```

In the above BOOK Table, the field "BOOK ID" is the Primary key field. The values of two or more records in the fields other than BOOK ID, i.e. Bname, Author or Price, could be same. But, BOOK ID field will contain ID of the book which will be different for each book, i.e. there will be unique value in each record. A primary key is a unique value that identifies a row in a table. So, this is the suitable reason for choosing BOOK ID as a Primary key.

Q15. What is database server?

Ans. -> Database servers are dedicated computers that hold the actual databases and run only the DBMS and related software. Database servers are referred to as Back-ends.

Q16. Differentiate between Flat File and Relational Database.

Ans. -> 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.

Q17. (a) Write a Query to create a Table with the following structure:

Table Product

| Field | Datatype |
|-------------|-------------|
| PID | Char(4) |
| Pname | Varchar(20) |
| Description | Varchar(40) |
| Price | Decimal |

Ans. ->

Create table Product (PID Char(4), Pname Varchar(20), Description Varchar(40), Price Decimal);

(b) Consider the following Vendor table and write the queries :

Table Vendor

| VendorID | VName | DateofRegistration | Location |
|----------|---------------|--------------------|----------|
| V001 | Mother Dairy | 20-01-2009 | Delhi |
| V002 | Havmor | 01-04-2015 | Gujrat |
| V003 | Amul | 12-05-2012 | Kolkata |
| V004 | Kwality Walls | 15-10-2013 | Mumbai |

(i) Write a Query to display all records

Ans. -> Select * from Vendor;

(ii) Write a Query to add a new row with the following details

(„V005“, „Vadilal“, „2010-03-20“, „Pune“)

Ans. -> Insert into Vendor values („V005“, „Vadilal“, „2010-03-20“, „Pune“);

(iii) Write a query to modify the location of V003 from Kolkata to Gujrat

Ans. ->

Update Vendor

Set location= „Gujrat“

Where location= „Kolkata“;

Q 18. 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. In simple terms, a database table can be visualized 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.

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.