

# QB365 Question Bank Software Study Materials

## Structured Query Language (SQL) Important 2, 3 & 5 Marks Questions With Answers (Book Back and Creative)

12th Standard

Computer Science

Total Marks : 75

### 2 Marks

10 x 2 = 20

- 1) Write a query that selects all students whose age is less than 18 in order wise.

**Answer :** SELECT \* FROM Student WHERE Age < = 18 ORDER BY Name;

- 2) Differentiate Unique and Primary Key constraint

**Answer :**

| S.NO | UNIQUE KEY CONSTRAINT  | PRIMARY KEY CONSTRAINT   |
|------|--|--|
| (i)  | This constraint ensures that no two rows have the same value in the specified columns.               | This constraint declares a field as a Primary Key which helps to uniquely identify a record. |
| (ii) | The UNIQUE constraint can be Create applied only to fields that have also been declared as NOT NULL. | The Primary Key does not allow NULL values.  |

- 3) Write the difference between table constraint and column constraint?

**Answer :**

| Table Constraints  | column constraints   |
|--|--|
| Table constraint is apply to a group of one or more columns. | Column constraint can be apply only to individual columns. |

- 4) Which component of SQL lets insert values in tables and which lets to create a table?

**Answer :**

| Command | Description                      | Component |
|---------|----------------------------------|-----------|
| Insert  | Inserts data into a table        | DML       |
| Create  | To create tables in the database | DML       |

- 5) What is the difference between SQL and MYSQL?

**Answer :**

| SQL   | MYSQL   |
|---|---|
| Structured Query Language is a language used for accessing database | MySQL is a database   accessing databases. management system, like SQL Server, Oracle, Informix, postgres, etc. |
| SOL is a DBMS   | MvSOL is a RDBMS  |

6) Differentiate BETWEEN AND NOT BETWEEN keywords.

**Answer :**

| <b>BETWEEN</b>  | <b>NOT BETWEEN</b>   |
|---|--|
| The BETWEEN keyword defines a range of values the record must fall into to make the condition true. | The NOT BETWEEN is reverse of the BETWEEN operator where the records not satisfying the condition are displayed. |

7) How will search NULL values in a field? Give example.

**Answer :** The NULL value in a field can be searched in a table using the ISNULL in the WHERE clause. For example to list all the students whose Age contains no value, the command is used as: SELECT \* FROM Student WHERE Age IS NULL;

8) How will you include aggregate function on the group created in a table using GROUP BY clause?

**Answer :** The HAVING clause can be used along with GROUP BY clause in the SELECT statement to place condition on groups and can include aggregate functions on them. For example to count the number of Male and Female students belonging to Chennai.

SELECT Gender, count(\*) FROM Student GROUP BY Gender HAVING Place = 'Chennai',

9) What are the commands available in DML?

**Answer :**

|               |   |
|---------------|---|
| <b>Insert</b> | Inserts data into a table   |
| <b>Update</b> | Updates the existing data within a table                              |
| <b>Delete</b> | Deletes all records from a table, but not the space occupied by them. |

10) What are the relational operators used in SELECT command?

**Answer :** The relational operators like =, <, <=, >, >=, <> can be used to compare two values in the SELECT command used with WHERE clause.

**3 Marks**

10 x 3 = 30

11) What is a constraint? Write short note on Primary key constraint.

**Answer : Constraint:**

Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the database. Constraints could be either on a column level or a table level. Constraint is a condition applicable on a field or set of fields.

**Primary key constraint:**

- (i) This constraint declares a field as a Primary key which helps to uniquely identify a record.
- (ii) It is similar to unique constraint except that only one field of a table can be set as primary key.
- (iii) The primary key does not allow **NULL** values.

12) Write a SQL statement to modify the student table structure by adding a new field.

**Answer :** ALTER TABLE < table-name > ADD < column- name > < data type > < size > ;

**Example:** ALTER TABLE Student MODIFY Address char (25)

13) Write any three DDL commands.

**Answer : Data Definition Language:**

(i) **Create Command:** To create tables in the database.

**CREATE TABLE Student**

**(Admno integer,**

**Name char(20),**

**Gender char(1),**

**Age integer,**

**Place char(10),**

**);**

(ii) **Alter Command:** The ALTER command is used to alter the table structure like adding a column, renaming the existing column, change the data type of any column or size of the column or delete the column from the table.

**ALTER TABLE < table-name > ADD < column-name > < data type > < size > ;**

To add a new column "Address" of type 'char' to the Student table, the command is used as

**ALTER TABLE Student ADD Address char;**

(iii) **Drop Command:** The DROP TABLE command is used to remove a table from the database.

The table can be deleted by DROP TABLE command in the following way:

**DROP TABLE table-name;**

14) Write the use of Savepoint command with an example.

**Answer :** (i) The SAVEPOINT command is used to temporarily save a transaction so that you can rollback to the point whenever required.

(ii) The different states of our table can be saved at any time using different names and the rollback to that state can be done using the ROLLBACK command.

(iii) SAVEPOINT savepoint\_name:

UPDATE student SET Name = 'Mini' WHERE Admno=105;

SAVEPOINT A;

15) Write a SQL statement using DISTINCT keyword.

**Answer :** (i) The DISTINCT keyword is used along with the SELECT command to eliminate duplicate rows in the table. This helps to eliminate redundant data.

(ii) **For Example:** SELECT DISTINCT Place FROM Student;

Will display the following data as follows:

Place

Chennai

Banglore

Delhi

16) Write the different categories of SQL commands.

**Answer :** (i) DDL - Data Definition Language

(ii) DML - Data Manipulation Language

(iii) DCL - Data Control Language

(iv) TCL - Transaction Control Language

(v) DQL - Data Query Language

17) What is TCL? Write the commands available in TCL.

**Answer :** Transactional Control Language (TCL) commands are used to manage transactions in the database. These are used to manage the changes made to the data in a table by DML statements.

SQL command:

**commit** - saves any transaction into the database permanently.

**Roll back** - Restores the database to last commit state

**Save point** - Temporarily save a transaction so that we can rollback.

18) Write short notes on

i) Keywords

- ii) Commands
- iii) Clauses
- iv) Arguments

**Answer : i) Keywords:**

They have a special meaning in SQL. They are understood as instructions.

**Example:** Distinct keyword, All keyword, IN keyword

**ii) Commands:**

They are instructions given by the user to the database also known as statements. Example: SELECT Command

**iii) Clauses:**

They begin with a keyword and consist of keywords and argument. Example: ORDER By

**iv) Arguments:**

They are the values given to make the clause complete.

- 19) Write short notes on COMMIT Command.

**Answer :** The COMMIT command is used to permanently save any transaction to the database. When any DML commands like INSERT, UPDATE, DELETE commands are used, the changes made by these commands are not permanent. It is marked permanent only after the COMMIT command is given from the SQL prompt. Once the COMMIT command is given, the changes made cannot be rolled back. The COMMIT command is used as  
COMMIT;

- 20) Write short notes on ROLLBACK command.

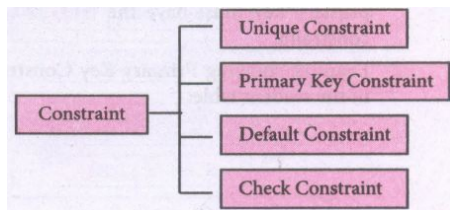
**Answer :** The ROLLBACK command restores the database to the last committed state. It is used with SAVEPOINT command to jump to a particular Savepoint location. The syntax for the ROLLBACK command is:  
ROLLBACK TO Save point name;

**5 Marks**

5 x 5 = 25

- 21) Write the different types of constraints and their functions.

**Answer :** Constraints ensure database integrity, therefore known as database integrity constraints. The different type of constraints are:



### 1. Unique Constraint:

(i) This constraint ensures that no two rows have the same value in the specified columns. For example UNIQUE constraint applied on Admno of student table ensures that no two students have the same admission number and the constraint can be used as:

```
CREATE TABLE Student:
(
Admno integer NOT NULL UNIQUE,
Name char (20) NOT NULL,
Gender char (1),
Age integer,
Place char (10),
);
```

(ii) The UNIQUE constraint can be applied only to fields that have also been declared as NOT NULL.

(iii) When two constraints are applied on a single field, it is known as multiple constraints. In the above Multiple constraints NOT NULL and UNIQUE are applied on a single field Admno, the constraints are separated by a space and the end of the field definition a comma(,) is added. By adding these two constraints the field Admno must take some value ie. will not be NULL and should not be duplicated.

### 2. Primary Key Constraint:

(i) This constraint declares a field as a Primary key which helps to uniquely identify a record. It is similar to unique constraint except that only one field of a table can be set as primary key.

(ii) The primary key does not allow ULI values and therefore a field declared as primary key must have the NOT NULL constraint.

#### Example:

```
CREATE TABLE Student:
(
Admno integer NOT NULL PRIMARY KEY,
Name char(20)NOT NULL,
Gender char(1),
Age integer,
Place char(10),
);
```

### 3. Default Constraint:

(i) The DEFAULT constraint is used to assign a default value for the field. When no value is given for the specified field having DEFAULT constraint, automatically the default value will be assigned to the field.

#### Example:

```
CREATE TABLE Student:
(
Admno integer NOT NULL PRIMARY KEY,
Name char(20)NOT NULL, .
Gender char(1),
Age integer DEFAULT = "17":
Place char(10),
);
```

### 4. Check Constraint:

(i) This constraint helps to set a limit value placed for a field. When we define a check constraint on a single column, it allows only the restricted values on that field. Example showing check constraint in the student table:

```
CREATE TABLE Students
(
Admno integer NOT NULL PRIMARY KEY
Name char(20)NOT NULL,
Gender char(1),
Age integer (CHECK< = 19),
```

Place char(10),

);

**5. Table Constraint:**

(i) When the constraint is applied to a group of fields of the table, it is known as Table constraint. The table constraint is normally given at the end of the table definition.

CREATE TABLE Student

(

Admno integer NOT NULL,

Firstname char(20),

Lastname char(20),

Gender char(1),

Age integer,

Place char(10),

PRIMARY KEY (Firstname, Lastname)

);

22) Consider the following employee table. Write SQL commands for the qtns.(i) to (v).

| EMP CODE | NAME      | DESIG      | PAY   | ALLOWANCE |
|----------|-----------|------------|-------|-----------|
| S1001    | Hariharan | Supervisor | 29000 | 12000     |
| P1002    | Shaji     | Operator   | 10000 | 5500      |
| P1003    | Prasad    | Operator   | 12000 | 6500      |
| C1004    | Manjima   | Clerk      | 8000  | 4500      |
| M1005    | Ratheesh  | Mechanic   | 20000 | 7000      |

(i) To display the details of all employees in descending order of pay.

(ii) To display all employees whose allowance is between 5000 and 7000.

(iii) To remove the employees who are mechanic.

(iv) To add a new row.

(v) To display the details of all employees who are operators.

**Answer :** (i) SELECT \* FROM Employee ORDER BY PAY DESC;

(ii) SELECT \* FROM Employee WHERE ALLOWANCE BETWEEN 5000 AND 7000;

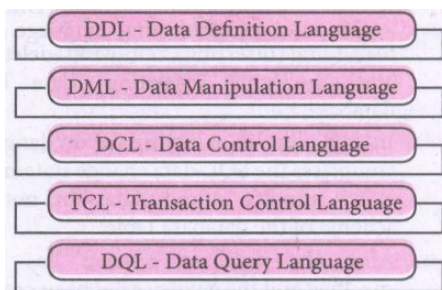
(iii) DELETE FROM Employee WHERE DESIG='Mechanic';

(iv) ALTER TABLE employee ADD Age Varchar(50);

(v) SELECT \* FROM Employee WHERE DESIG='Operator';

23) What are the components of SQL? Write the commands in each.

**Answer :** SQL commands are divided into five categories:



**Data Definition Language:**

- (i) The Data Definition Language (DDL) consist of SQL statements used to define the database structure or schema.
- (ii) It simply deals with descriptions of the database schema and is used to create and modify the structure of database objects in databases.
- (iii) The DDL provides a set of definitions to specify the storage structure and access methods used by the database system.

**DDL performs the following functions:**

- (i) It should identify the type of data division such as data item, segment, record and database file.
- (ii) It gives a unique name to each data item type, record type, file type and data base.
- (iii) It should specify the proper data type.
- (iv) It should define the size of the data item.
- (v) It may define the range of values that a data item may use.
- (vi) It may specify privacy locks for preventing unauthorized data entry.

**Commands:**

|                 |  |
|-----------------|--|
| <b>CREATE</b>   | To create tables in the database.  |
| <b>ALTER</b>    | Alters the structure of the database   |
| <b>DROP</b>     | Data tables from database.   |
| <b>TRUNCATE</b> | Remove all records from a table, also release the space occupied by those records. |

**Data Manipulation Language:**

This is a computer programming language used for adding, removing and modifying data in a database. This language comprises the SQL-data change statements, which modify stored data but not the schema of the database table

**Data Manipulation includes**

- (i) Insertion of new information into the database
- (ii) Retrieval of information stored in a database
- (iii) Deletion of information from the database.
- (iv) Modification of data stored in the database

**The DML is basically of two types:**

**Procedural DML** - Requires a user to specify what data is needed and how to get it.

**Non-Procedural DML** - Requires a user to specify what data is needed without Specifying how to get it.

**Commands:**

|               |   |
|---------------|---|
| <b>INSERT</b> | Inserts data into a table   |
| <b>UPDATE</b> | Updates the existing data within a table                              |
| <b>DELETE</b> | Deletes all records from a table, but not the space occupied by them. |

**Data Control Language:**

- (i) A Data Control Language (DCL) is a programming language used to control the access of data stored in a database. It is used for controlling privileges in the database (Authorization).
- (ii) The privileges are required for performing all the database operations such as creating sequences, views of tables etc.

**Commands:**

|               |   |
|---------------|---|
| <b>GRANT</b>  | Grants permission to one or more users to perform specific tasks. |
| <b>REVOKE</b> | Withdraws the access permission given by the GRANT statement.     |

**Transactional Control Language:**

Transactional control language (TCL) commands are used to manage transactions in the database. These are used to manage the changes made to the data in a table by DML statements.

**Commands:**

|                   |  |
|-------------------|--|
| <b>COMMIT</b>     | Saves any transaction into the database permanently.     |
| <b>ROLL BACK</b>  | Restores the database to last commit state.              |
| <b>SAVE POINT</b> | Temporarily save a transaction so that you can rollback. |

**Data query language:**

The Data Query Language consist of commands used to query or retrieve data from a database. One such SQL command in Data Query Language is

|               |   |
|---------------|---|
| <b>SELECT</b> | It displays the records from the table. |
|---------------|---|

24) Construct the following SQL statements in the student table-

(i) SELECT statement using GROUP BY clause.

(ii) SELECT statement using ORDER BY clause.

**Answer :** 1. SELECT \* FROM student WHERE gender = Male GROUP BY gender;

2. SELECT \* FROM student WHERE Age > 18 ORDER BY DESC;

25) Write a SQL statement to create a table for employee having any five fields and create a table constraint for the employee table.

**Answer : Table constraint:**

Table constraint apply to a group of one or more columns. The Syntax for a table created with Constraint is given as below:

CREATE TABLE < table\_name >

(< column name > < datatype > [< size > ]

< column constraint > ,

(< column name > < data type > [< size > ]

< column constraint).....

< table constraint > (< column name > , [< column name > .....]).....);

Following is an example for employee table with 'NOT NULL' column constraint. This constraint enforces a field to always contain a value.

CREATE TABLE employee (No int NOT NULL PRIMARY KEY,

NAME varchar(50), Age int (10), Address varchar(50)

PhoneNo int(10), Pincode int (6) PRIMARY KEY (NAME, PhoneNo);

The above command creates a table "employee" in which the field No of integer type is defined NOT NULL, which means this field must have values. The field NAME is of char type. The fields NAME, PhoneNo, have table constraint.