**SQL Test-2 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**MCQ**

1. A relational database consists of a collection of  
   a) Tables  
   b) Fields  
   c) Records  
   d) Keys
2. The term \_\_\_\_\_\_\_ is used to refer to a row.  
   a) Attribute  
   b) Tuple  
   c) Field  
   d) Instance
3. An attribute in a relation is a foreign key if the \_\_\_\_\_\_\_ key from one relation is used as an attribute in that relation.  
   a) Candidate  
   b) Primary  
   c) Super  
   d) Sub
4. The\_\_\_\_\_ operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple.  
   a) Select  
   b) Join  
   c) Union  
   d) Intersection
5. Which one of the following is used to define the structure of the relation, deleting relations and relating schemas?  
   a) DML(Data Manipulation Langauge)  
   b) DDL(Data Definition Langauge)  
   c) Query  
   d) Relational Schema
6. The basic data type char(n) is a \_\_\_\_\_ length character string and varchar(n) is \_\_\_\_\_ length character.  
   a) Fixed, equal  
   b) Equal, variable  
   c) Fixed, variable  
   d) Variable, equal
7. **SELECT** name \_\_\_\_ instructor name, course id **FROM** instructor, teaches

**WHERE** instructor.ID= teaches.ID;

Which keyword must be used here to rename the field name?  
a) From  
b) Rename  
c) As  
d) Join

1. **SELECT** emp\_name **FROM** department **WHERE** dept\_name **LIKE** ’ \_\_\_\_\_ Computer Science’;

Which one of the following has to be added into the blank to select the dept\_name which has Computer Science as its ending string?  
a) %  
b) \_  
c) ||  
d) $

1. **SELECT** name **FROM** instructor **WHERE** salary <= 100000 **AND** salary >= 90000;

Write this query using another operator

1. (**SELECT** course id

**FROM** **SECTION**

**WHERE** semester = ’Fall’ **AND** **YEAR**= 2009)

**EXCEPT**

(**SELECT** course id

**FROM** **SECTION**

**WHERE** semester = ’Spring’ **AND** **YEAR**= 2010);

This query displays  
a) Only tuples from second part  
b) Only tuples from the first part which has the tuples from second part  
c) Tuples from both the parts  
d) Tuples from first part which do not have second part

1. A \_\_\_\_\_ indicates an absent value that may exist but be unknown or that may not exist at all.  
   a) Empty tuple  
   b) New value  
   c) Null value  
   d) Old value
2. In an employee table to include the attributes whose value always have some value which of the following constraint must be used?  
   a) Null  
   b) Not null  
   c) Unique  
   d) Distinct

13. The primary key must be  
a) Unique  
b) Not null  
c) Both Unique and Not null  
d) Either Unique or Not null

14. Aggregate functions are functions that take a \_\_\_\_\_\_\_\_\_\_\_ as input and return a single value.  
a) Collection of values  
b) Single value  
c) Aggregate value  
d) Both Collection of values & Single value

15. Aggregate functions can be used in the select list or the\_\_\_\_\_\_\_clause of a select statement or subquery. They cannot be used in a \_\_\_\_\_\_ clause.  
a) Where, having  
b) Having, where  
c) Group by, having  
d) Group by, where

16. Which one of the following deletes all the entries but keeps the structure of the relation.  
a) Delete from r where P;  
b) Delete from instructor where dept name= ’Finance’;  
c) Delete from instructor where salary between 13000 and 15000;  
d) Delete from instructor;

17. Which of the following is used to insert a tuple from another relation?  
a)

INSERT INTO course (course id, title, dept name, credits)

VALUES (’CS-437’, ’DATABASE Systems’, ’Comp. Sci.’, 4);

b)

INSERT INTO instructor

SELECT ID, name, dept name, 18000

FROM student

WHERE dept name = ’Music’ AND tot cred > 144;

c)

INSERT INTO course VALUES (’CS-437’, ’DATABASE Systems’, ’Comp. Sci.’, 4);

d) Not possible

18. **UPDATE** instructor \_\_\_\_\_ salary= salary \* 1.05;

Fill in with correct keyword to update the instructor relation.  
a) Where  
b) Set  
c) In  
d) Select

19. The\_\_\_\_condition allows a general predicate over the relations being joined.  
a) On  
b) Using  
c) Set  
d) Where

20. Which of the join operations do not preserve non matched tuples?  
a) Left outer join  
b) Right outer join  
c) Inner join  
d) Natural join

21. Updating the value of the view  
a) Will affect the relation from which it is defined  
b) Will not change the view definition  
c) Will not affect the relation from which it is defined  
d) Cannot determine

22. SQL view is said to be updatable (that is, inserts, updates or deletes can be applied on the view) if which of the following conditions are satisfied by the query defining the view?  
a) The from clause has only one database relation  
b) The query does not have a group by or having clause  
c) The select clause contains only attribute names of the relation and does not have any expressions, aggregates, or distinct specification  
d) All of the mentioned

23. A \_\_\_\_\_\_\_\_\_ consists of a sequence of query and/or update statements.  
a) Transaction  
b) Commit  
c) Rollback  
d) Flashback

24.  In case of any shut down during transaction before commit which of the following statement is done automatically?  
a) View  
b) Commit  
c) Rollback  
d) Flashback

25.  To include integrity constraint in an existing relation use :  
a) Create table  
b) Modify table  
c) Alter table  
d) Drop table

26. Which type of data can be stored in the database?  
a) Image oriented data  
b) Text, files containing data  
c) Data in the form of audio or video  
d) All of the above

1. Which of the following is not an example of DBMS?  
   a) MySQL  
   b) Microsoft Acess  
   c) IBM DB2  
   d) Google
2. Which of the following is not a feature of DBMS?  
   a) Minimum Duplication and Redundancy of Data  
   b) High Level of Security  
   c) Single-user Access onlyd) Support ACID Property
3. What is information about data called?  
   a) Hyper data  
   b) Tera data  
   c) Meta datad) Relations
4. For designing a normal RDBMS which of the following normal form is considered adequate?  
   a) 4NF  
   b) 3NFc) 2NF  
   d) 5NF
5. Which of the following establishes a top-to-bottom relationship among the items?  
   a) Relational schema  
   b) Network schema  
   c) Hierarchical schemad) All of the mentioned
6. What happens if a piece of data is stored in two places in the db?  
   a) Storage space is wasted & Changing the data in one spot will cause data inconsistencyb) In can be more easily accessed  
   c) Changing the data in one spot will cause data inconsistency  
   d) Storage space is wasted
7. To delete a database \_\_\_\_\_\_\_\_\_\_\_ command is used  
   a) Delete database database\_name  
   b) Delete database\_name  
   c) drop database database\_named) drop database\_name
8. Which keyword is used to retrieve data from a database in SQL?

A) SELECT

B) RETRIEVE

C) GET

D) FETCH

35. In SQL, which statement is used to add new rows of data to a table?

A) INSERT INTO

B) ADD ROW

C) CREATE ROW

D) APPEND ROW

36. Which SQL keyword is used to filter rows based on a specified condition?

A) WHERE

B) FILTER

C) CONDITION

D) LIMIT

37. Which SQL clause is used to sort the result set in ascending or descending order?

A) ORDER BY

B) SORT BY

C) GROUP BY

D) ARRANGE BY

38. What is the purpose of the SQL GROUP BY clause?

A) To eliminate duplicate rows from the result set

B) To group rows with the same values into summary rows

C) To filter rows based on a specified condition

D) To sort the result set in ascending or descending order

39. Which SQL statement is used to delete data from a database table?

A) DELETE

B) REMOVE

C) TRUNCATE

D) DROP

40. What is the purpose of the SQL UPDATE statement?

A) To add new rows to a table

B) To retrieve data from a table

C) To modify existing data in a table

D) To sort the result set in ascending or descending order

41. Which SQL function is used to count the number of rows in a result set?

A) COUNT()

B) SUM()

C) AVG()

D) MAX()

42. Which SQL command is used to create a new database?

A) BUILD DATABASE

B) MAKE DATABASE

C) NEW DATABASE

D) CREATE DATABASE

43. Which SQL constraint is used to ensure that all values in a column are unique?

A) CHECK

B) PRIMARY KEY

C) FOREIGN KEY

D) UNIQUE

44. What is the purpose of the SQL INNER JOIN clause?

A) To return all rows from both tables

B) To return only the rows that have matching values in both tables

C) To return only the rows that do not have matching values in both tables

D) To return a cartesian product of both tables

45. Which SQL command is used to change the structure of an existing table?

A) ALTER TABLE

B) MODIFY TABLE

C) CHANGE TABLE

D) UPDATE TABLE

46. What does SQL stand for?

A) Structured Query Language

B) Sequential Query Language

C) Simple Query Language

D) Systematic Query Language

47. Which SQL operator is used to combine multiple conditions in a WHERE clause?

A) AND

B) OR

C) NOT

D) XOR

48. Which SQL statement is used to create a new table?

A) CREATE TABLE

B) MAKE TABLE

C) NEW TABLE

D) BUILD TABLE

49. Which SQL function is used to find the maximum value in a column?

A) MIN()

B) MAX()

C) AVG()

D) SUM()

50. What is the purpose of the SQL HAVING clause?

A) To filter rows based on a specified condition

B) To sort the result set in ascending or descending order

C) To group rows with the same values into summary rows

D) To filter groups based on a specified condition

51. Which SQL command is used to revoke privileges from a user in a database?

A) REVOKE

B) DENY

C) WITHDRAW

D) REMOVE

52. In SQL, which statement is used to make temporary changes to a table?

A) COMMIT

B) ROLLBACK

C) TEMPORARY

D) TRANSACTION

53. Which SQL function is used to find the average value in a column?

A) AVG()

B) SUM()

C) MAX()

D) MIN()

54. What is the purpose of the SQL UNION operator?

A) To combine the results of two or more SELECT statements

B) To perform a join operation between two or more tables

C) To filter rows based on a specified condition

D) To sort the result set in ascending or descending order

55. Which SQL statement is used to grant privileges to a user in a database?

A) GRANT

B) ALLOW

C) PERMIT

D) AUTHORIZE

57. What is the purpose of the SQL LIKE operator?

A) To search for exact matches

B) To search for patterns in a column

C) To compare two values

D) To perform arithmetic operations

58. Which SQL function is used to concatenate two or more strings?

A) CONCAT()

B) JOIN()

C) MERGE()

D) COMBINE()

59. In SQL, which statement is used to define a user-defined function?

A) DEFINE FUNCTION

B) CREATE FUNCTION

C) DECLARE FUNCTION

D) FUNCTION

60. Which SQL command is used to delete a table from a database?

A) DELETE TABLE

B) REMOVE TABLE

C) DROP TABLE

D) ERASE TABLE

**Write Queries**

1. Retrieve all columns from a table named "Employees"

2. Retrieve only the "Name" column from the "Customers" table

3. Retrieve distinct values of the "City" column from the "Customers" table

4. Retrieve all columns from the "Orders" table where the "OrderDate" is greater than '2023-01-01'

5. Retrieve the "Name" and "Price" columns from the "Products" table where the "Price" is between $10 and $20

6. Retrieve the count of all orders in the "Orders" table

7. Retrieve the average price of all products in the "Products" table

8. Retrieve the highest price from the "Products" table

9. Retrieve the "Name" column from the "Customers" table sorted alphabetically by name

10. Retrieve the "Name" and "Quantity" columns from the "Orders" table, and the corresponding "ProductName" from the "Products" table where the order quantity is greater than 10

11. Retrieve the total sales amount for each customer from the "Orders" and "Customers" tables, showing only customers who have made purchases

12. Retrieve the top 5 customers with the highest total sales amount

13. Retrieve the average order amount for each month in the year 2023

14. Retrieve the names of customers who have not placed any orders

15. Retrieve the number of orders placed by each customer in each year

16. Retrieve the top 3 best-selling products in terms of total quantity sold

17. Retrieve the names of customers who have spent more than the average amount spent by all customers

18. Retrieve the top 5 months with the highest total sales amount

19. Retrieve the oldest and newest customers based on their registration date

20. Retrieve the top 3 customers who have made the highest number of orders in the last 3 months

21. Retrieve the cumulative sum of sales amount for each month, considering the previous months' sales as well

22. Retrieve the top 3 customers who have made the highest total purchases in terms of different product categories they bought

23. Retrieve the moving average of sales amount for each product over the last 3 months

24. Retrieve the customer who has made purchases in all product categories available in the database

25. Retrieve the top 3 months with the highest percentage increase in sales amount compared to the previous month

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27. Retrieve only the "Name" column from the "Customers" table

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29. Retrieve all columns from the "Orders" table where the "OrderDate" is greater than '2023-01-01'

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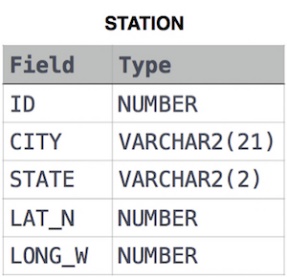
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**SQL Program 1**



Write the SQL command to find the difference between total number of cities in table and total number of unique cities in the table

Total number of records – number of unique cities

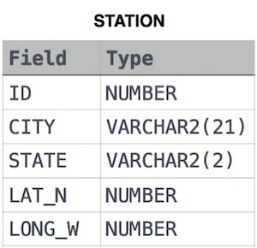
**SQL Program 2**



Query a list of CITY names from STATION for cities that have an even ID number. Print the results in any order, but exclude duplicates from the answer.

**SQL Program 3**

Query the two cities in **STATION** with the shortest and longest CITY names, as well as their respective lengths (i.e.: number of characters in the name). If there is more than one smallest or largest city, choose the one that comes first when ordered alphabetically.  
The **STATION** table is described as follows:



**Sample Input**

For example, **CITY** has four entries: **DEF, ABC, PQRS** and **WXY**.

**Sample Output**

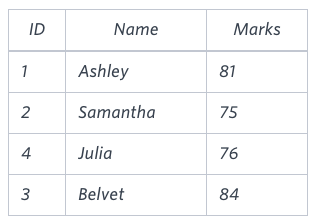
ABC 3

PQRS 4

**SQL Program 4**

Query the Name of any student in **STUDENTS** who scored higher than **75** Marks. Order your output by the last three characters of each name. If two or more students both have names ending in the same last three characters (i.e.: Bobby, Robby, etc.), secondary sort them by ascending ID.

**Sample Input**



**Sample Output**

Ashley

Julia

Belvet

**SQL Program 5**

Consider the structure of a table movie

* Id
* movie\_title
* imdb\_rating
* year\_released
* budget
* box\_office
* distribution\_company\_id
* language

Count the number of movies of each language in each year also sort the result on year\_released is descending order

**SQL Program 6**

Show the languages spoken and the average movie budget by language category. Show only the languages with an average budget above $50 million.