Sure, here's a sample theoretical SQL quiz for an objective paper. Each question is followed by multiple-choice answers. Remember, the correct answer is indicated by the letter in parentheses.

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\*\*SQL Quiz\*\*

\*\*Question 1:\*\* What does SQL stand for?

a) Standard Query Language

b) Structured Query Language

c) System Query Language

d) Structured Question Language

\*(Answer: b)\*

\*\*Question 2:\*\* Which SQL clause is used to retrieve data from a database table?

a) RETRIEVE

b) SELECT

c) EXTRACT

d) FETCH

\*(Answer: b)\*

\*\*Question 3:\*\* Which SQL statement is used to insert new records into a database table?

a) ADD

b) INSERT

c) UPDATE

d) MODIFY

\*(Answer: b)\*

\*\*Question 4:\*\* In a SQL database, which data type would you use to store a date and time value?

a) TEXT

b) INTEGER

c) DATETIME

d) FLOAT

\*(Answer: c)\*

\*\*Question 5:\*\* What is the purpose of the SQL JOIN clause?

a) To create a new table

b) To update records in a table

c) To retrieve data from multiple tables

d) To delete records from a table

\*(Answer: c)\*

\*\*Question 6:\*\* Which SQL statement is used to modify existing records in a database table?

a) ALTER

b) EDIT

c) MODIFY

d) UPDATE

\*(Answer: d)\*

\*\*Question 7:\*\* Which SQL keyword is used to filter the results of a SELECT statement based on a specified condition?

a) WHERE

b) FILTER

c) HAVING

d) IF

\*(Answer: a)\*

\*\*Question 8:\*\* What is the purpose of the SQL GROUP BY clause?

a) To sort the results in ascending order

b) To group rows that have the same values into summary rows

c) To filter out rows that do not meet a specified condition

d) To combine two or more tables into a single table

\*(Answer: b)\*

\*\*Question 9:\*\* Which SQL function is used to find the highest value in a column?

a) MAX()

b) HIGH()

c) TOP()

d) SUM()

\*(Answer: a)\*

\*\*Question 10:\*\* What is the purpose of the SQL ORDER BY clause?

a) To specify which columns to include in the result set

b) To filter the results based on a condition

c) To sort the results in ascending or descending order

d) To group rows that have the same values

\*(Answer: c)\*

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Certainly, here are 5 more theoretical SQL questions for your quiz:

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\*\*Question 11:\*\* In SQL, what is a primary key?

a) A key used for decryption

b) A unique identifier for a row in a table

c) A key used for joining tables

d) A key used for sorting results

\*(Answer: b)\*

\*\*Question 12:\*\* Which SQL statement is used to delete records from a database table?

a) REMOVE

b) ERASE

c) DELETE

d) DROP

\*(Answer: c)\*

\*\*Question 13:\*\* What is the purpose of the SQL DISTINCT keyword?

a) To remove duplicate records from the result set

b) To sort the records in ascending order

c) To group records based on a common value

d) To combine data from multiple tables

\*(Answer: a)\*

\*\*Question 14:\*\* What is an SQL subquery?

a) A query that retrieves data from multiple tables

b) A query used to join two tables

c) A query that is embedded within another query

d) A query that updates records in a table

\*(Answer: c)\*

\*\*Question 15:\*\* Which SQL statement is used to create a new database table?

a) MAKE TABLE

b) ADD TABLE

c) CREATE TABLE

d) NEW TABLE

\*(Answer: c)\*

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Of course, here are 5 practical SQL coding-based objective questions for your quiz:

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\*\*Question 16:\*\* Consider a table named "Students" with the following columns: StudentID, FirstName, LastName, and Age. Write an SQL query to retrieve the full names (concatenation of FirstName and LastName) of students aged 20 or below.

a) SELECT CONCAT(FirstName, ' ', LastName) AS FullName FROM Students WHERE Age <= 20;

b) SELECT FirstName + ' ' + LastName AS FullName FROM Students WHERE Age <= 20;

c) SELECT FirstName || ' ' || LastName AS FullName FROM Students WHERE Age <= 20;

d) SELECT FullName(FirstName, LastName) FROM Students WHERE Age <= 20;

\*(Answer: a)\*

\*\*Question 17:\*\* Given a table named "Orders" with columns OrderID, CustomerID, and OrderDate, write an SQL query to find the total number of orders placed by each customer.

a) SELECT CustomerID, COUNT(OrderID) AS TotalOrders FROM Orders GROUP BY CustomerID;

b) SELECT CustomerID, SUM(OrderID) AS TotalOrders FROM Orders GROUP BY CustomerID;

c) SELECT CustomerID, AVG(OrderID) AS TotalOrders FROM Orders GROUP BY CustomerID;

d) SELECT CustomerID, MAX(OrderID) AS TotalOrders FROM Orders GROUP BY CustomerID;

\*(Answer: a)\*

\*\*Question 18:\*\* Suppose you have a table named "Products" with columns ProductID, ProductName, Price, and CategoryID. Write an SQL query to retrieve the product names along with their average prices for each category.

a) SELECT ProductName, AVG(Price) AS AvgPrice FROM Products GROUP BY CategoryID;

b) SELECT ProductName, SUM(Price) / COUNT(\*) AS AvgPrice FROM Products GROUP BY CategoryID;

c) SELECT ProductName, AVERAGE(Price) AS AvgPrice FROM Products GROUP BY CategoryID;

d) SELECT ProductName, AVG(Price) OVER (PARTITION BY CategoryID) AS AvgPrice FROM Products;

\*(Answer: a)\*

\*\*Question 19:\*\* Consider a table named "Employees" with columns EmployeeID, FirstName, LastName, Salary, and DepartmentID. Write an SQL query to find the highest salary in each department.

a) SELECT DepartmentID, MAX(Salary) AS HighestSalary FROM Employees GROUP BY DepartmentID;

b) SELECT DepartmentID, TOP(Salary, 1) AS HighestSalary FROM Employees GROUP BY DepartmentID;

c) SELECT DepartmentID, MAXIMUM(Salary) AS HighestSalary FROM Employees GROUP BY DepartmentID;

d) SELECT DepartmentID, Salary AS HighestSalary FROM Employees GROUP BY DepartmentID HAVING Salary = MAX(Salary);

\*(Answer: a)\*

Explanation: SELECT DepartmentID, Salary AS HighestSalary FROM Employees GROUP BY DepartmentID HAVING Salary = MAX(Salary);

The SQL query you provided appears to be an attempt to retrieve the DepartmentID and the highest salary for each department from an "Employees" table. However, there is a small issue in the query that needs correction for it to work correctly. The "HAVING" clause is typically used in combination with aggregate functions like "MAX," but it cannot directly reference aliases like "Salary" that you've defined in the SELECT clause. Instead, you should use a subquery to achieve the desired result. Here's the corrected query:

SELECT DepartmentID, MAX(Salary) AS HighestSalary

FROM Employees

GROUP BY DepartmentID;

The HAVING clause in SQL is typically used with the GROUP BY clause to filter groups of rows based on a specified condition. Here's an example of how the HAVING clause works:

Suppose we have a table named "Orders" with the following columns: "CustomerID," "OrderDate," and "TotalAmount." We want to find customers who have placed orders with a total amount greater than $1,000. We can use the HAVING clause in conjunction with the GROUP BY clause to achieve this:

sql

Copy code

SELECT CustomerID, SUM(TotalAmount) AS TotalSpent

FROM Orders

GROUP BY CustomerID

HAVING SUM(TotalAmount) > 1000;

Hence, d is incorrect.

\*\*Question 20:\*\* Given a table named "Sales" with columns SaleID, SaleDate, and Amount, write an SQL query to calculate the total sales amount for each month and year.

a) SELECT YEAR(SaleDate), MONTH(SaleDate), SUM(Amount) AS TotalSales FROM Sales GROUP BY YEAR(SaleDate), MONTH(SaleDate);

b) SELECT SaleDate, SUM(Amount) AS TotalSales FROM Sales GROUP BY SaleDate;

c) SELECT MONTH(SaleDate), SUM(Amount) AS TotalSales FROM Sales GROUP BY MONTH(SaleDate);

d) SELECT SaleDate, AVG(Amount) AS TotalSales FROM Sales GROUP BY SaleDate;

\*(Answer: a)\*

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Certainly, here are 5 objective questions focused on Power BI concepts for your quiz:

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\*\*Power BI Quiz\*\*

\*\*Question 21:\*\* What is Power BI?

a) A spreadsheet software

b) A cloud storage platform

c) A business intelligence tool

d) An email communication tool

\*(Answer: c)\*

\*\*Question 22:\*\* What is a Power BI Dashboard?

a) A report that shows a single visual element

b) A collection of related reports and datasets

c) A single visual element in a report

d) A visualization tool for data exploration

\*(Answer: b)\*

\*\*Question 23:\*\* In Power BI, what is a "measure"?

a) A visualization type

b) A calculated field based on column values

c) An imported data source

d) A chart or graph

\*(Answer: b)\*

\*\*Question 24:\*\* How does Power BI handle "relationships" between tables?

a) Automatically establishes relationships based on table names

b) Requires manual configuration to establish connections between tables

c) Doesn't support relationships between tables

d) Only allows relationships between tables from the same data source

\*(Answer: b)\*

\*\*Question 25:\*\* What is the purpose of Power Query in Power BI?

a) To create calculated measures

b) To create data visualizations

c) To load and transform data from various sources

d) To create DAX formulas

\*(Answer: c)\*

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These questions cover fundamental concepts in Power BI, including its purpose, components, and key features. You can adjust the difficulty level and add more questions based on specific areas of Power BI that you want to focus on in your quiz.

Certainly, here are 10 more objective questions related to Power BI concepts:

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\*\*Power BI Quiz\*\*

\*\*Question 26:\*\* Which type of visualization in Power BI is suitable for comparing the distribution of a single variable?

a) Line Chart

b) Pie Chart

c) Bar Chart

d) Scatter Plot

\*(Answer: c)\*

\*\*Question 27:\*\* What is the purpose of a Power BI data model?

a) To design visualizations

b) To import data from external sources

c) To organize and relate data tables

d) To publish reports to the Power BI service

\*(Answer: c)\*

\*\*Question 28:\*\* In Power BI, what is a "hierarchy"?

a) A type of visualization

b) A type of data source

c) An organized arrangement of data fields with parent-child relationships

d) A measure used for summarizing data

\*(Answer: c)\*

\*\*Question 29:\*\* Which Power BI component allows you to create and edit data visualizations and reports?

a) Power BI Desktop

b) Power BI Service (Power BI online)

c) Power Query

d) Power Pivot

\*(Answer: a)\*

\*\*Question 30:\*\* What is the purpose of the Power BI Service (Power BI online)?

a) To design and create data models

b) To build data visualizations

c) To share and collaborate on reports and dashboards

d) To perform advanced data analysis

\*(Answer: c)\*

\*\*Question 31:\*\* In Power BI, what does "Drill Down" mean?

a) Creating a new column in the data model

b) Filtering data using slicers

c) Navigating from a higher-level summary to a lower-level detail in a visualization

d) Creating a calculated measure

\*(Answer: c)\*

\*\*Question 32:\*\* Which Power BI visualization type is suitable for comparing values side by side across multiple categories?

a) Donut Chart

b) Line Chart

c) Stacked Bar Chart

d) KPI Indicator

\*(Answer: c)\*

\*\*Question 33:\*\* What is the Power BI DAX language used for?

a) Creating data visualizations

b) Querying and transforming data

c) Designing report layouts

d) Writing custom calculations and formulas

\*(Answer: d)\*

\*\*Question 34:\*\* What is the purpose of Power BI's "Q&A" feature?

a) To ask questions about data using natural language and get instant visualizations

b) To import data from various sources

c) To schedule data refreshes

d) To create calculated measures

\*(Answer: a)\*

\*\*Question 35:\*\* How does Power BI support data refresh for reports and dashboards?

a) Data refresh is not supported in Power BI

b) Data is automatically refreshed every hour

c) Data refresh can be scheduled to keep reports up to date

d) Data refresh must be done manually by recreating reports

\*(Answer: c)\*

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Feel free to adjust these questions according to your audience's familiarity with Power BI and the depth of the content you want to cover.

Certainly, here are 5 DAX (Data Analysis Expressions) based questions for your Power BI quiz:

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\*\*DAX Quiz\*\*

\*\*Question 36:\*\* What does DAX stand for in the context of Power BI?

a) Data Analysis Expressions

b) Dynamic Analysis XML

c) Data Access Extensions

d) Detailed Analytics XML

\*(Answer: a)\*

\*\*Question 37:\*\* In DAX, which function is used to calculate the sum of a column in a table?

a) SUMMARIZE

b) SUM

c) TOTAL

d) AGGREGATE

\*(Answer: b)\*

\*\*Question 38:\*\* What is the purpose of the DAX function "CALCULATE"?

a) To create calculated columns

b) To filter data using conditions

c) To define hierarchies

d) To modify column data types

\*(Answer: b)\*

\*\*Question 39:\*\* Which DAX function is used to retrieve the distinct values from a column?

a) DISTINCT

b) UNIQUE

c) VALUES

d) DISTINCTVALUES

\*(Answer: a)\*

\*\*Question 40:\*\* Consider a DAX formula: `Total Sales = SUM('Sales'[Amount])`. What does this formula calculate?

a) The sum of all sales amounts in the 'Sales' table

b) The average sales amount in the 'Sales' table

c) The maximum sales amount in the 'Sales' table

d) The total count of sales in the 'Sales' table

\*(Answer: a)\*

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These DAX-based questions will assess the participants' knowledge of DAX functions and their ability to use them to perform calculations and analysis in Power BI. Feel free to expand the set with more complex DAX scenarios or questions related to specific DAX functions.