# Questions

## Development

### Definitions

1. Two difference between a primary key and a unique key?
2. Three Differences between TRUNCATE and DELETE
3. What is the difference between RANK() and DENSE\_RANK() functions
4. What is a correlated subquery. Give an example
5. Examples of Deterministic and Non-Deterministic functions
6. Which ranking function that returns sequential number of a row starting from 1 for each partition?

### Scenario

1. What would you do to develop a stored procedure such that its contents are not viewable?
2. Table1 stores the current local time and the current date-time difference between local and GMT. What data types you’ll use?
3. Add a new column to Table1. The values in this column should be case-sensitive where as others are case-insensitive. What would you do?
4. How will you manually insert values into an identity column?
5. There are two dataspaces in a database - a primary filegroup and a Partition scheme. None of the tables have index & are currently stored in PRIMARY filegroup. Now the tables from PRIMARY filegroup have to be moved to the partition scheme. What will you do to achieve this?
6. You need to create different views of the dbo.Sales table that will be used by each region to insert, update, and delete rows. Each regional office must only be able to insert, update, and delete rows for their respective region. How will you do it?
7. View1 selects data from Table1. I need to make sure that Table1 is not altered without altering View1. What should I do?
8. Customer wants all sessions connected to the SQL Server must avoid dirty read and repeatable read problems. But, Phantom reads are acceptable. What Isolation levels you would set for this scenario?

### Practical

1. What will happen if you run this query?

CREATE TABLE Table1 ( Col1 int PRIMARY NOT NULL

,Col2 varchar(max) NOT NULL UNIQUE

,Col3 varchar(10) NULL UNIQUE)

1. What will happen if you run this query?

CREATE VIEW View3 WITH SCHEMABINDING

AS

SELECT \* FROM Schema1.Table1

1. What will happen if you run this query?

CREATE VIEW View2

AS

SELECT \* FROM Schema1.Table1onSchema1

WITH CHECK OPTION

GO

INSERT INTO Schema1.Table1onSchema1 VALUES(6,'Test6')

1. What will happen if you run this query?

CREATE VIEW View2

AS

SELECT \* FROM Schema1.Table1onSchema1 WHERE Col1 < 5

WITH CHECK OPTION

GO

INSERT INTO Schema1.Table1onSchema1 VALUES(6,'Test6')

1. What will happen if you run this query?

ALTER INDEX ClusteredIndex\_on\_Col1 ON Table1 DISABLE

SELECT \* FROM Table1

1. What will happen if you run this query?

SELECT LEN('go ')

1. Write a Query…

I have two tables - Orders & DeletedOrders both with the same schema (given below). Now, I need to delete the orders placed by a customer (customer\_id = 5) from Orders table and insert them into Old\_Orders Table.

CREATE TABLE Orders (order\_id INT, order\_qty INT, customer\_id INT)

1. Write a Query…

Orders Table has this schema - CREATE TABLE Orders (order\_id INT, order\_qty INT, customer\_name VARCHAR(20))

You need to return the customer name and the total quantity of all the orders placed by him

1. Write a Query…

OrdersAsia and OrdersIndia have same table structure. You need to get all the orders in OrdersAsia that are not there in OrdersIndia.

1. What will happen if you run this Query?

CREATE CLUSTERED INDEX CI\_TestTableONCol1 ON TestTable (Col1) WHERE Col1 <> 'Test500'

* Col1 is a Unique, not nullable column in TestTable .

1. Write a Query…

Orders table has the below schema. I need to delete the orders placed by a customer (customer\_id = 5) from Orders table and view the rows that were deleted.

CREATE TABLE Orders (order\_id INT, order\_qty INT, customer\_id INT)

1. What will happen if you run this Query?

SELECT column1 FROM table1

WHERE column2 IN (SELECT column2 FROM table2

ORDER BY column1)

1. What happens if you run this query?

SELECT item\_name

,strength

,cost

,RANK() OVER (PARTITION BY strength) AS 'ranks'

,DENSE\_RANK() OVER (ORDER BY strength) as 'Strength Ranks'

FROM materials

ORDER BY item\_name;

1. What happens if you run this query?

exec sp\_addmessage 55000, 15, 'user defined error message'

RAISERROR(55000, 10,0)

RAISERROR(55000, 16,0)

SELECT @@ERROR

1. What happens if you run this query?

SELECT \* FROM Orders ORDER BY OrderDate DESC

UNION ALL

SELECT \* FROM OrdersHistory ORDER BY OrderDate ASC

1. How will you troubleshoot this error?

“The statistics '\_WA\_Sys\_00000009\_245D67DE\_CC' is dependent on column 'Col1'”

“ALTER TABLE DROP COLUMN cc failed because one or more objects access this column”

1. What happens if you run this query?

SELECT c.CustomerName

,COUNT(o.OrderID) AS Orders

FROM customer c INNER JOIN [order] o ON c.CustomerID = o.CustomerID

group by c.CustomerName having count(o.OrderID) > 2

SELECT c.CustomerName

,COUNT(o.OrderID) AS Orders

FROM customer c INNER JOIN [order] o ON c.CustomerID = o.CustomerID

where count(o.OrderID) > 2

group by c.CustomerName

1. Write a query…

I have a EmailAddress table that has all types of email.

EmailAddressID, EmailAddressValue are the columns in the table. You need to pick only the email addresses in the following format – at least one character, the @ sign, followed by atleast one character and then .com

1. Write a query to return only the state code from Telephone number table. The general format of telephone number is +countrycode-statecode-part1-part2;

e.g. +91-44-4329-8765; +1-232-443-4398

## Performance Monitoring & Tuning

### Definitions

1. Which event in Profiler would be used to see XML description of a deadlock?
2. How do you flush the XML from memory?
3. What command you’ll use to see the execution plan of a query without executing it?
4. How will you identify the missing index details for a table?

### Scenario

### Practical

1. Employee table has EmployeeID as Clustered index. Write a query to build a query statistics for Employee table to filter out all the null values in Department column. Currently there is clustered index on EmployeeId and non-clustered index on Dep

## Administration

### Definitions

1. What permission do you need to create XML Schema Collection?
2. User1 does not have select permission on table1. User2 has SELECT permission on the table. User1 needs to access table1 only by using a stored procedure proc1 and not directly. Implement appropriate permissions for user1 and the stored procedure proc1.
3. You have installed SQL Server without enabling it. Now the customer wants FILESTREAM capabilities. How do you enable FILESTREAM?

### Scenario

1. Database Role Role1 has 3 users - User1, User2 and User3. Role1 is assigned SELECT permissions on all tables (Tab1, Tab2, Tab3 etc) in a Schema - SCHEMA1. Now the User1 should not access Table1 but can access other tables in Schema1. What will you do?
2. There is a problem during SQL Server installation. What’ll you do to troubleshoot?
3. You need to install SQL Server 2008 on 100 servers. How'll you do?

### Practical

1. What will happen if you run this query?

USE master

GO

CREATE FULLTEXT STOPLIST mystoplist;

1. Write a query…

Create a full text index on Table – Table1, Column – Column1, with these excluded words – “BAD”, “UGLY”

# Answers

## Development

### Definitions

1. Differences…

|  |  |
| --- | --- |
| By Default,  Primary key creates a clustered index | By Default,  Unique creates a non-clustered index |
| Primary key doesn't allow NULLs | Unique key allows one NULL |

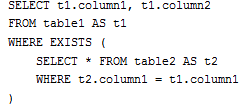
1. Differences…

|  |  |
| --- | --- |
| TRUNCATE removes the data by de-allocating the data pages, and records only the page de-allocations in the transaction log. So a truncate cannot be rolled back | DELETE removes rows one at a time and records an entry in the transaction log for each deleted row |
| TRUNCATE Resets identity of the table | DELETE does not reset identity of the table |
| TRUNCATE is DDL command | DELETE is DML command |
| TRUNCATE TABLE cannot activate a trigger | DELETE Activates Triggers |

1. Rank() function creates a gap when two values have the same rank, whereas Dense\_rank() function does not create gap in rankings.

Rank() returns 1,2,2,4,5,5,5,8; Dense\_rank() returns 1,2,2,3,4,4,4,5

1. When a subquery uses the result returned from the outer query to determine its result is called as a Correlated Subquery



1. Deterministic functions are the ones that return same value for the same input. Examples – All String functions, ISNULL() etc

Non-Deterministic functions return different value for same input – GETDATE()

1. ROW\_NUMBER()

### Scenario

1. Create Procedure with Encryption Option
2. time and datetimeoffset
3. Create column with Collation - SQL\_Latin1\_General\_CP1\_CS\_AS
4. SET IDENTITY\_INSERT ON and then run the INSERT statement
5. Create a Clustered Index for the table on the partition scheme
6. Create View with check option
7. DENY SELECT Permission on Table1 to User1
8. CREATE View with Schema\_Binding option
9. Grant EXECUTE permission for user1 on proc1 and change procedure to include EXECUTE AS user2 clause
10. Serializable and Repeatable Read

### Practical

1. Error as you cannot create Unique constraint on varchar(max) column
2. Error since you cannot specify \* while creating a schema-bound view. Use individual column names instead
3. Error because Creating a view with check option expects the query to have a where clause
4. Error because the where clause mentioned in the view expects value below 5 whereas the inserted value is beyond the boundary defined
5. Error – Because, When a clustered index is disabled, the underlying data cannot be accessed.
6. LEN function does not count trailing spaces
7. Query…

CREATE FULLTEXT STOPLIST mystoplist;

ALTER FULLTEXT STOPLIST mystoplist ADD 'Bad';

ALTER FULLTEXT STOPLIST mystoplist ADD 'Ugly';

CREATE FULLTEXT INDEX ON SchemaName.TableName(ColName) KEY INDEX indexname WITH STOPLIST = mystoplist;

1. Error – “Cannot use full-text search in master, tempdb, or model database”
2. Query…

DELETE FROM TableName OUTPUT DELETED.\* INTO TableName2 WHERE Col1 = 'Value'

1. Query…

SELECT Customer\_name

,SUM(order\_qty)

FROM Orders

GROUP BY Customer\_name

1. Query…

SELECT \* FROM OrdersAsia

EXCEPT

SELECT \* FROM OrdersIndia

1. Error – You cannot create filtered index on clustered index
2. Query…

DELETE FROM TestTable OUTPUT deleted.Col1, deleted.col2 WHERE Col1 = 'Value'

1. Error – Order by clause is not allowed in sub queries unless they are accompanied by TOP in the SELECT statement
2. Error – Rank() function should have ORDER BY Clause compulsorily
3. Returns Output – 0 for first Raiserror (i.e. with severity 10)

Return error message defined using sp\_addmessage for RAISERROR with severity 11 and above

The Severity level of the RAISERROR always overrides the severity defined using sp\_addmessage

1. Error – Order by clause comes only at the last select statement of union operators
2. DROP STATISTICS [Tablename].[StatisticsName]
3. Query with Where clause throws error - An aggregate may not appear in the WHERE clause unless it is in a subquery contained in a HAVING clause or a select list, and the column being aggregated is an outer reference
4. SELECT EmailAddressValue FROM EmailAddress WHERE EmailAddressValue LIKE '%@%.com'
5. SELECT SUBSTRING( Phone

,PATINDEX('%-%',Phone)+1

,CHARINDEX('-',Phone,PATINDEX('%-%',Phone)+1)-(PATINDEX('%-%',Phone)+1))

FROM Person.Contact

1. As

## Performance Monitoring & Tuning

### Definitions

1. Deadlock Graph
2. sp\_xml\_removedocument
3. SET SHOWPLAN\_ALL
4. sys.dm\_db\_missing\_index\_details

### Scenario

### Practical

## Administration

### Definitions

1. One of these permissions…
   1. CONTROL permission on the server
   2. ALTER ANY DATABASE permission on the server
   3. ALTER permission on the database
   4. CONTROL permission in the database
   5. ALTER ANY SCHEMA permission and CREATE XML SCHEMA COLLECTION permission in the database
   6. ALTER or CONTROL permission on the relational schema and CREATE XML SCHEMA COLLECTION permission in the database
2. Provide EXECUTE permission for user on store proc
3. Configuration Manager 🡺 SQL Server Instance Properties 🡺 Filestream tab