# SQL Server

## Development

1. The Dworks database has a table named Orderthings. The Orderthings table is partitioned on the OrderId column. The first partition contains integer values greater than 100,000, while the second partition contains integer values between 1 and 100,000. You have to add a new partition. The new partition should contain integer values greater than 200,000.

Answer: You should use a Split clause to change the existing partition function

1. If EmpID column in Employee table has to be made as an identity column. What should you do?

Answer: There is no straightway to do that. Table or that column has to be dropped & recreated

1. Employee & EmployeeAddress are two tables with EmpID as common column. If an Employee resigns, you will only delete his entry from Employee Table. The references in the EmployeeAddress should automatically get deleted. What should you do with minimal Development efforts?

Answer: Foreign Key with Cascading Delete set to True

## Administration

1. The three instances are respectively named InstanceA, InstanceB, and InstanceC. InstanceA - Principal, InstanceB - Mirror, InstanceC - witness.

You intend to apply a patch on Principal & Mirror servers as soon as possible, the patch needs to restart the server. You have to make sure that the database is online on the partner that currently does not apply the patch and during this time the database does not failover automatically to the other partner.

Answer: Below are the Steps…

1. Suspend the mirroring session
2. Apply patch on InstanceB
3. Resume the mirroring session
4. Manually failover the mirroring session
5. Apply the patch on InstanceA
6. How do you move User databases to a new location?

ALTER DATABASE db\_name SET ONLINE

GO

ALTER DATABASE db\_name MODIFY FILE ( NAME = 'db\_name\_data, FILENAME = 'new\_path\os\_file\_name' )

ALTER DATABASE db\_name MODIFY FILE ( NAME = db\_name\_log', FILENAME = 'new\_path\os\_file\_name' )

GO

ALTER DATABASE db\_name SET OFFLINE

1. There is a database named DB1 in the instance. The backup strategy for DB1 has the following requirements...

Every day at 9:00 full database backup to a file named cash.bak is performed; at 9:15 a transaction log backup to a file named cash\_HHMM.trn is performed every 15 minutes. DB1 is being used in single-user mode. Today a user reports that a query deleted some data by accident, the query was executed at 9: 25. Since the deleted data is quite important, the data has to be restored to its original state. You must achieve this goal.

Answer: Below are the steps…

1. RESTORE 9:00 AM DATABASE Backup WITH NORECOVERY
2. RESTORE 9:15 AM LOG Backup WITH NORECOVERY;
3. RESTORE 9:30 AM LOG Backup WITH RECOVERY, STOPAT = 9:25AM
4. A Database of 90 GB Size with Simple recovery model. Every day about 1 GB of data is modified or inserted. According to the company requirements, during business hours, data loss of more than 120 minutes worth of transactions is unacceptable. You have to choose a backup strategy using as little disk space as possible

Answer: A full database backup should be performed once daily. During business hours, a differential backup should be performed every two hours

### Disaster Recovery & High Availability

### Backup and Restore

How do you Backup and restore an encrypted database?

**Backup Encrypted databases…**

1. Backup the Certificate

BACKUP CERTIFICATE MyCert

TO FILE = ‘C:\MyCert.CertBak’

WITH PRIVATE KEY

(FILE = ‘C:\MyEncryptCert.pkbak’

ENCRYPTION BY PASSWORD = ‘P@$Sw0rd’)

1. Backup the database

**Restore Encrypted database…**

1. Create master key in the destination with a password if there is no master key

USE master

GO

CREATE MASTER KEY ENCRYPTION BY PASSWORD = ‘abc#123’

## SQL Server Internals

### Transaction Log

## Performance Monitoring, Tuning & Troubleshooting

# SSIS

Design a Package for the below requirements...

The package contains two Boolean variables named @IsWeekday and @IsHoliday. When the package is executed on week days, the @IsWeekday variable is set to True. When the package is executed on holidays, the @IsHoliday variable is set to True.

You need to implement the following business logic in the control flow of the package:

- When the ©IsWeekday variable is set to True, the Perform Weekday Processing Data Flow task is executed.

- When the ©IsWeekday variable is set to False, the Perform Weekend Processing Data Flow task is executed.

- When the @IsHoliday variable is set to True, the Perform Holiday Processing Data Flow task is executed.

Construct a data flow that inserts data from a source query to a destination table. You need to insert only those rows that do not already exist in the destination table.

What are possible ways to achieve this goal?

What is pre-requirement for using Merge Join Transformations?

Sorting of the data is needed

# Others

How do you check the free memory status for the server?

If you want to restrict a query to use only 4 out of 16 CPUs, How would you do that?

What SPID Status “*Suspended*” mean?

When & where do you see “cxpacket”? What does this mean?

On what occasions, a T-Log can’t be shrunk?

Is it possible to do point-in-time recovery for a database in Bulk Logged Recovery model?

Difference between Blocking and Deadlocking

Where can you spot Deadlocking?

How SQL Server decides which SPID to kill?

“SET DEADLOCK PRIORITY” – Is this set at session level or database level?

When can a CPU be over-utilized?

How memory utilization can affect CPU utilization?

How can you know how much time DBCC CHECKDB will take?

What is the use of Checkpoint?

Which process will wrote data from T-Log to DB

What is use of Lazywriter?

What is write-ahead logging?

Where will be the setup logs located?

Prerequisites for SQL Server Installation on Cluster

Difference between LooksAlive and IsAlive

Where will the differential backup take information which data to backup?

What is a Boot Page?

Where will SQL Server check the location of master file while starting?

What is a Heap

What is difference between Clustered Index and Non-Clustered Index?

What is a Piece-Meal Restore?

What is a Copy-Only Backup?

What actions would you take when Database goes into suspect mode?

What is a VLF?

What is DBCC Logininfo used for?

At 1:45 PM Log is backed up. At 2 PM drive crashes. How will you recover point-in-time data?

What are the Isolation levels in SQL Server?

What are Adhoc Plans?

You get an error “Insufficient memory to run the query”. How will you troubleshoot?

There are certain number of users in the server and that number exceeds the “max no of connections” set in SQL Server. Is that possible. If so, how?

What are phases of Database Recovery while starting up?

How would you avoid Deadlock?

When logs will be cleared for databases in Full and Differential Backups

What are the agents of Replication and where they reside?

How will you replicate ddl changes?

Adding an article at publisher. How will this reflect in the subscriber?

Can I take snapshot only for the newly added article? If so, how?

How would you measure latency?

What will “DBCC CheckDB WITH ESTIMATE” do?

What is the use of DBCC SQLPerf?

What is the use of DBCC UpdateUsage?

How would you find the location error log?

What are endpoints?

Is it possible to have High performance with witness? Why?