70-764.exam.100q

Number: 70-764
Passing Score: 800
Time Limit: 120 min

70-764

Administering a SQL Database Infrastructure

Exam A

QUESTION 1
You have a database named DB1 that is configured to use the full recovery model. You have a full daily backup job that runs at 02:00. The job backs up data from DB1 to the file B:\DB1.bak.

You need to restore the DB1 database to the point in time of May 25, 2016 at 02:23 and ensure that the database is functional and starts to accept connections.

Which Transact-SQL statement should you run?

A.
```
BACKUP LOG [DB1] TO DISK = N'B:\DB1Log.bak' WITH RECOVERY
RESTORE DATABASE [DB1] FROM DISK = N'B:\DB1.bak' WITH NORECOVERY
RESTORE LOG [DB1] FROM DISK = N'B:\DB1Log.bak' WITH STOPAT = N'2016-05-25T02:23:00'
```

B.
```
BACKUP LOG [DB1] TO DISK = N'B:\DB1Log.bak' WITH NORECOVERY
RESTORE DATABASE [DB1] FROM DISK = N'B:\DB1.bak' WITH NORECOVERY
RESTORE LOG [DB1] FROM DISK = N'B:\DB1Log.bak' WITH STOPAT = N'2016-05-25T02:23:00'
```

C.
```
BACKUP LOG [DB1] TO DISK = N'B:\DB1Log.bak' WITH NORECOVERY
RESTORE DATABASE [DB1] FROM DISK = N'B:\DB1.bak' WITH NORECOVERY
RESTORE LOG [DB1] FROM DISK = N'B:\DB1Log.bak' WITH STOPAT = N'2016-05-25T02:23:00', NORECOVERY
```

D.
```
RESTORE DATABASE [DB1] FROM DISK = N'B:\DB1.bak' WITH STOPAT = N'2016-05-25T02:23:00', RECOVERY
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 2
HOTSPOT

You are configuring log shipping for a Microsoft SQL Server database named salesOrders.

You run the following Transact-SQL script:

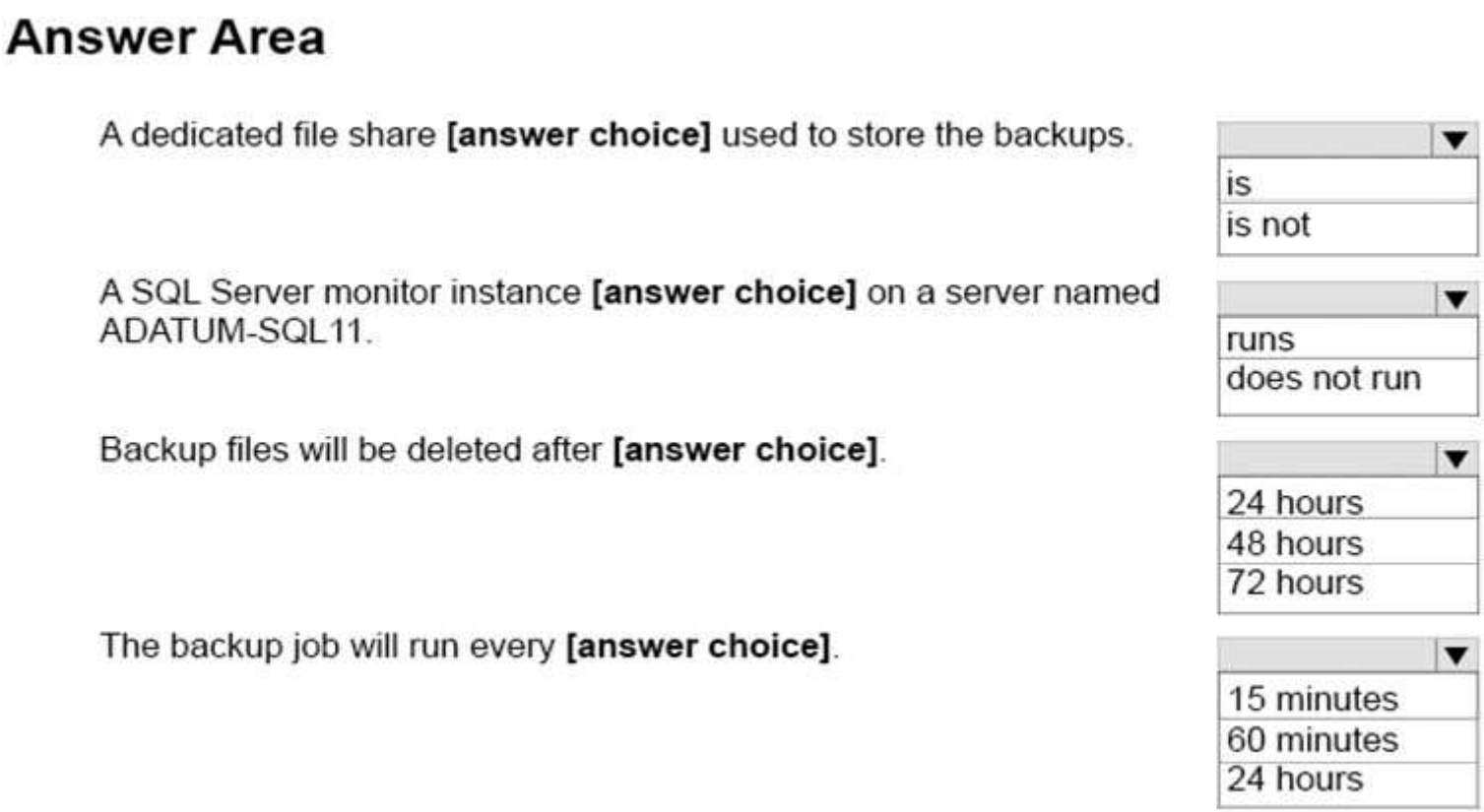
```
DECLARE @LS_BackupJobId AS uniqueidentifier
DECLARE @LS_PrimaryId AS uniqueidentifier
DECLARE @SP_Add_RetCode As int
EXEC @SP_Add_RetCode = master.dbo.sp_add_log_shipping_primary_database
     @database = N'salesOrders'
     ,@backup_directory = N'C:\Backup'
     ,@backup_share = N'\\localhost\Backup'
     ,@backup_job_name = N'LSBackup_salesOrders'
     ,@backup_retention_period = 4320
     ,@backup_compression = 1
     ,@backup_threshold = 60
     ,@threshold_alert_enabled = 1
     ,@history_retention_period = 5760
     ,@backup_job_id = @LS_BackupJobId OUTPUT
     ,@primary_id = @LAS_PrimaryId OUTPUT
     ,@overwrite = 1
IF (@@ERROR = 0 AND @SP_Add_RetCode = 0)
     BEGIN
          DECLARE @LS_BackUpScheduleUID As uniqueidentifier
          DECLARE @LA_BackUpScheduleID AS int
          EXEC msdb.dbo.sp_add_schedule
               @schedule_name = N'LSBackupSchedule_ADATUM-SQL11'
               ,@enabled = 1
               ,@freq_type = 4
               ,@freq_interval = 1
               ,@freq_subday_type = 4
               ,@freq_subday_interval = 15
               ,@freq_recurrence_factor = 0
               ,@active_start_date = 20160720
               ,@active_end_date = 99991231
               ,@active_start_time = 0
               ,@active_end_time = 235900
               ,@schedule_uid = @LS_BackUpScheduleUID OUTPUT
               ,@schedule_id = @LS_BackupScheduleID OUTPUT
          EXEC msdb.dbo.sp_attach_schedule
               @job_id = @LS_BackupJobId
               ,@schedule_id = @LS_BackupScheduleID
          EXEC msdb.dbo.sp_update_job
               @job_id = @LS_BackupJobId
```

You need to determine the changes that the script has on the environment.

How does the script affect the environment? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:



Correct Answer:

Answer Area

A dedicated file share **[answer choice]** used to store the backups.

- is
- is not

A SQL Server monitor instance **[answer choice]** on a server named ADATUM-SQL11.

- runs
- does not run

Backup files will be deleted after **[answer choice]**.

- 24 hours
- 48 hours
- 72 hours

The backup job will run every **[answer choice]**.

- 15 minutes
- 60 minutes
- 24 hours

Section: (none)
Explanation

Explanation/Reference:
Explanation:

Box 1: is
The dedicated backup file share is \\localhost\Backup

Box 2: does not run

The only thing with a name related to ADATM-SQL11 is the schedule name.

Box 3: 72 hours
4320 minutes equals 72 hours.

Note: @backup_retention_period=] backup_retention_period
Isthe length of time, in minutes, to retain the log backup file in the backup directory on the primary server. backup_retention_period is int, with no default, and cannot be NULL.

Box 4: 15 minutes.
[@freq_subday_type =] freq_subday_type
Specifies the units for freq_subday_interval. freq_subday_typeis int, with a default of 0, and can be one of these values.
Here it is 4, which means minutes.

[@freq_subday_interval =] freq_subday_interval
The number of freq_subday_type periods to occur between eachexecution of a job. freq_subday_intervalis int, with a default of 0.

Note: Interval should be longer than 10 seconds. freq_subday_interval is ignored in those cases where freq_subday_type is equal to 1.

QUESTION 3
You have a database that stores information for a shipping company. You create a table named Customers by running the following Transact-SQL statement. (Line numbers are included for reference only.)

```
01  CREATE TABLE dbo.Customers (
02      customerId int,
03      customerName varchar(200),
04      salesPerson varchar(20)
05  )
06  CREATE FUNCTION fn_securitypredicateSalesPerson (@salesPerson sysname)
07
08  AS
09  RETURN SELECT 1 AS [fn_securityPredicateOrder_result]
10  FROM dbo.Customers
11  WHERE @salesPerson = user_name()
```

You need to ensure that salespeople can view data only for the customers that are assigned to them.

Which Transact-SQL segment should you insert at line 07?

A. RETURNS varchar(20)WITH Schemabinding
B. RETURNS dbo.CustomersORDER BY @salesPerson
C. RETURNS tableORDER BY @salesPerson
D. RETURNS tableWITH Schemabinding

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The return value can either be a scalar (single) value or a table.
SELECT 1 just selects a 1 for every row, of course. What it's used for in this case is testing whether any rows exist that match the criteria: if a row exists that matches the WHERE clause, then it returns 1, otherwise it returns nothing.
Specify the WITH SCHEMABINDING clause when you are creating the function. This ensures that the objects referenced in the function definition cannot be modified unless the function is also modified.

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/create-function-transact-sql

QUESTION 4
You manage a Microsoft SQL Server environment. You plan to encrypt data when you create backups.

You need to configure the encryption options for backups.

What should you configure?

A. a certificate
B. an MD5 hash
C. a DES key
D. an AES 256-bit key

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To encrypt during backup, you must specify an encryption algorithm, and an encryptor to secure the encryption key. The following are the supported encryption options:

Encryption Algorithm: The supported encryption algorithms are: AES 128, AES 192, AES 256, and Triple DES
Encryptor: A certificate or asymmetric Key

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/backup-encryption

QUESTION 5
You have a database named DB1 that stores more than 700 gigabyte (GB) of data and serves millions of requests per hour.

Queries on DB1 are taking longer than normal to complete.

You run the following Transact-SQL statement:

SELECT * FROM sys.database_query_store_options

You determine that the Query Store is in Read-Only mode.

You need to maximize the time that the Query Store is in Read-Write mode.

Which Transact-SQL statement should you run?

A. ALTER DATABASE DB1SET QUERY_STORE (QUERY_CAPTURE_MODE = ALL)
B. ALTER DATABASE DB1SET QUERY_STORE (MAX_STORAGE_SIZE_MB = 50)
C. ALTER DATABASE DB1SET QUERY_STORE (CLEANUP_POLICY = (STALE_QUERY_THRESHOLD_DAYS = 14));
D. ALTER DATABASE DB1SET QUERY_STORE (QUERY_CAPTURE_MODE = NONE)

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Stale Query Threshold (Days): Time-based cleanup policy that controls the retention period of persisted runtime statistics and inactive queries.
By default, Query Store is configured to keep the data for 30 days which may be unnecessarily long for your scenario.
Avoid keeping historical data that you do not plan to use. This will reduce changes to read-only status. The size of Query Store data as well as the time to detect and mitigate the issue will be more predictable. Use Management Studio or the following script to configure time-based cleanup policy:

ALTER DATABASE [QueryStoreDB]
SET QUERY_STORE (CLEANUP_POLICY = (STALE_QUERY_THRESHOLD_DAYS = 14));

References: https://docs.microsoft.com/en-us/sql/relational-databases/performance/best-practice-with-the-query-store

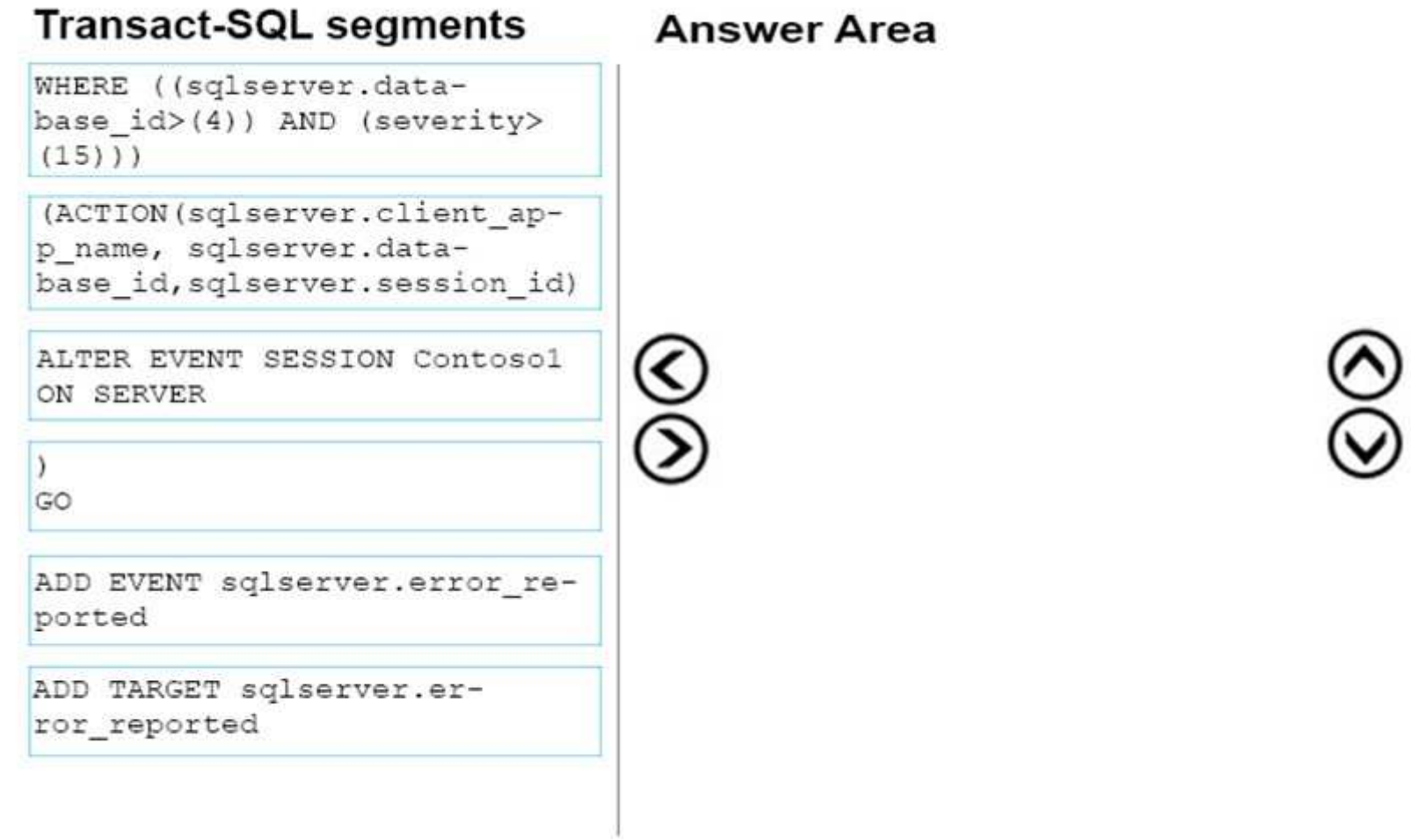
QUESTION 6
DRAG DROP

You are the database administrator for a Microsoft SQL Server instance. You develop an Extended Events package to look for events related to application performance.

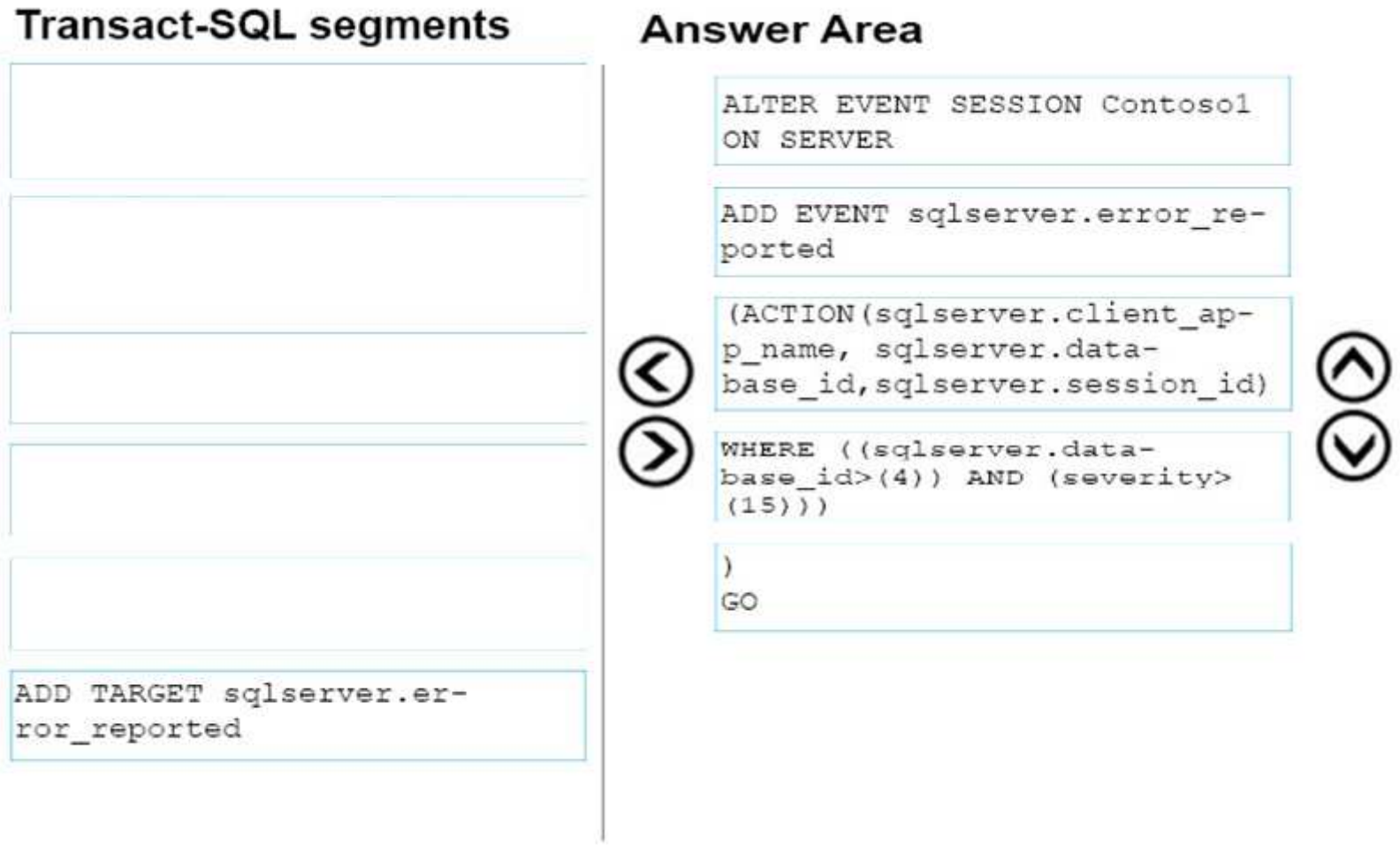
You need to change the event session to include SQL Server errors that are greater than error severity 15.

Which five Transact-SQL segments should you use to develop the solution? To answer, move the appropriate Transact-SQL segments from the list of Transact-SQL segments to the answer area and arrange them in the correct order.

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:
Explanation:

Example: To start an Extended Events sessions in order to trap SQL Server errors with severity greater than 10,just run the following script:

```
CREATE EVENT SESSION [error_trap] ON SERVER
ADD EVENT sqlserver.error_reported
(
ACTION
(package0.collect_system_time,package0.last_error,sqlserver.client_app_name,sqlserver.client_hostname,sqlserver.database_id,sqlserver.database_name,sqlser
ver.nt_username,
sqlserver.plan_handle,sqlserver.query_hash,sqlserver.session_id,sqlserver.sql_text,sqlserver.tsql_frame,sqlserver.tsql_stack,sqlserver.username)
WHERE ([severity]>10)
)
ADD TARGET package0.event_file
(
SET filename=N'D:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\XEvents\error_trap.xel'
)
WITH
(
STARTUP_STATE=OFF
)
GO
```

References: http://sqlblog.com/blogs/davide_mauri/archive/2013/03/17/trapping-sql-server-errors-with-extended-events.aspx

QUESTION 7

You have configured Resource Governor with three resource pools.

You have assigned the first resource pool a minimum CPU and memory value of 20%.

You have assigned the second resource pool a minimum CPU and memory value of 30%.

You want to assign maximum CPU and memory values to the third resource pool.

What is the maximum CPU and memory value you can assign to this resource pool?

A. 30%
B. 50%

C. 70%
D. 100%

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
The maximum resource value assigned to the third pool is 100%; the sum of the minimum resource values assigned to the other pools is 50%.

QUESTION 8
You administer a single server that contains a Microsoft SQL Server 2016 default instance on which several production databases have been deployed.

You plan to install a new ticketing application that requires the deployment of a database on the server.

The SQL login for this application requires sysadmin permissions. You need to ensure that the login for the ticketing application cannot access other production databases.

What should you do?

A. Use the SQL Server default instance and enable Contained Databases.
B. Use the SQL Server default instance and configure a user-defined server role. Add the login for the ticketing application to this role.
C. Install a new named SQL Server instance on the server.
D. Install a new default SQL Server instance on the server.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
SQL Server supports multiple instances of SQL Server on a single server or processor, but only one instance can be the default instance. All others must be named instances. A computer can run multiple instances of SQL Server concurrently, and each instance runs independently of other instances.

References: https://msdn.microsoft.com/en-us/library/ms143531(v=SQL.105).aspx

QUESTION 9
You administer a Microsoft SQL Server 2016 failover cluster that contains two nodes named Node A and Node B.

A single instance of SQL Server is installed on the cluster.

An additional node named Node C has been added to the existing cluster.

You need to ensure that the SQL Server instance can use all nodes of the cluster.

What should you do?

A. Create a ConfigurationFile.ini file from Node B, and then run the AddNode command-line tool on Node A.
B. Use Node A to install SQL Server on Node C.
C. Run the Add Node to SQL Server Failover Cluster Wizard on Node C.
D. Use Cluster Administrator to add a new Resource Group to Node B.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
1. To add a node to an existing SQL Server failover cluster
Insert the SQL Server installation media, and from the root folder, double-click Setup.exe. To install from a network share, navigate to the root folder on the share, and then double-click Setup.exe.

2. The Installation Wizard will launch the SQL Server Installation Center. To add a node to an existing failover cluster instance, click Installation in the left-hand pane. Then, select Add node to a SQL Server failover cluster.
Etc.

References: https://docs.microsoft.com/en-us/sql/sql-server/failover-clusters/install/add-or-remove-nodes-in-a-sql-server-failover-cluster-setup

QUESTION 10
You plan to integrate an on-premises Microsoft SQL Server environment with Microsoft Azure.

You need to create the authentication object so that you can connect to Azure.

Which Windows PowerShell command or commands should you run?

A. Invoke-Sqlcmd “CREATE EXTERNAL DATA SOURCE MyAzureStorage WITH (LOCATION = ‘wasbs://Azure@myaccount.blob.core.windows.net/”, CREDENTIAL = Pa$$w0rd)”
B. New-SqlAzureKeyVaultColumnMasterKeySettings-KeyUrl https://myvault.vault.contoso.net:443/keys/CMK/4c05fla41b12488f9cba2ea964b6a700
C. Invoke-Sqlcmd “CREATE CREDENTIAL AzureCred WITH IDENTITY = ‘AzureKey’, SECRET = ‘Pa$$w0rd”
D. Invoke-Sqlcmd “CREATE LOGIN AzureCred WITH CREDENTIAL = ‘AzureKey’, PASSWORD = ‘Pa$$w0rd”

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Invoke-Sqlcmd runs a script containing statements supported by the SQL Server SQLCMD utility.

The following example creates a SQL Server credential for the Database Engine to use when accessing the Azure Key Vault using the SQL Server Connector for Microsoft Azure Key Vault.

```
CREATE CREDENTIAL Azure_EKM_TDE_cred
   WITH IDENTITY = 'ContosoKeyVault',
   SECRET = 'EF5C8E094D2A4A769998D93440D8115DSECRET_DBEngine'
   FOR CRYPTOGRAPHIC PROVIDER AzureKeyVault_EKM_Prov ;
```

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/create-credential-transact-sql

QUESTION 11
You are creating an application that will connect to the AgentPortal database by using a SQL login named AgentPortalUser. Stored procedures in the database will use sp_send_dbmail to send email messages.

You create a user account in the msdb database for the AgentPortalUser login.

You use the Database Mail Configuration Wizard to create a Database Mail profile. Security has not been configured for the Database Mail profile.

You need to ensure that AgentPortalUser can send email messages.

What should you do?

A. In the Database Mail Configuration Wizard, configure the Database Mail profile as a private profile for the AgentPortalUser account.
B. Disable the guest user in the msdb database.
C. Use the sysmail_help_profileaccount_sp stored procedure to add accounts to the Database Mail profile.
D. In the Database Mail Configuration Wizard, create an email account for each recipient's email address in the Database Mail profile.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
You enable and configure Database Mail using the Database Mail Configuration Wizard.

Profiles are either public or private. A private profile is accessible only to specific users or roles.

References: https://docs.microsoft.com/en-us/sql/relational-databases/database-mail/configure-database-mail

QUESTION 12
You administer a Microsoft SQL Server 2016 default instance. The instance is hosted by a server that has a local firewall configured.

The firewall only allows inbound connections on port 1433. The server only hosts a single instance of SQL Server.

You need to ensure that the instance is configured to allow remote connections even if the SQL Server is unresponsive to client connections.

What should you do?

A. Enable inbound connections on TCP port 1434 in the Windows Firewall on the server.
B. Execute the following Transact-SQL command: sp_configure 'remote admin connections',
C. Execute the Reconfigure command.
D. Execute the following Transact-SQL command: sp_configure 'remote access', 1
E. Restart the SQL Server Agent Service.
F. Enable inbound connections on TCP port 135 in the Windows Firewall on the server.

Correct Answer: ABC
Section: (none)
Explanation

Explanation/Reference:
SQL Server provides a dedicated administrator connection (DAC). The DAC lets an administrator access a running server to execute diagnostic functions or Transact-SQL statements, or to troubleshoot problems on the server, even when the server is locked or running in an abnormal state and not responding to a SQL Server Database Engine connection. By default, the DAC is only available from a client on the server. To enable client applications on remote computers to use the DAC, use the remote admin connections option of sp_configure.

By default, the DAC only listens on the loop-back IP address (127.0.0.1), port 1434

The following example enables the DAC from a remote computer.
sp_configure 'remote admin connections', 1;
GO
RECONFIGURE;
GO

References: https://docs.microsoft.com/en-us/sql/database-engine/configure-windows/remote-admin-connections-server-configuration-option

QUESTION 13

You administer all the deployments of Microsoft SQL Server 2016 in your company.

You need to ensure that an OLTP database that includes up-to-the-minute reporting requirements can be off- loaded from the primary database to another server.

You also need to be able to add indexes to the secondary database.

Which configuration should you use?

A. Two servers configured in different data centers SQL Server Availability Group configured in Synchronous-Commit Availability Mode One server configured as an Active Secondary
B. Two servers configured in the same data center SQL Server Availability Group configured in Asynchronous-Commit Availability Mode One server configured as an Active Secondary
C. Two servers configured in the same data center A primary server configured to perform log-shipping every 10 minutes A backup server configured as a warm standby
D. Two servers configured in different data centers SQL Server Availability Group configured in AsynchronousCommit Availability Mode
E. Two servers configured on the same subnet SQL Server Availability Group configured in Synchronous-Commit Availability Mode
F. SQL Server that includes an application database configured to perform transactional replication
G. SQL Server that includes an application database configured to perform snapshot replication
H. Two servers configured in a Windows Failover Cluster in the same data center SQL Server configured as a clustered instance

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
References: https://docs.microsoft.com/en-us/sql/relational-databases/replication/transactional/transactional-replication

QUESTION 14
You administer all the deployments of Microsoft SQL Server 2016 in your company.

You need to ensure that data changes are sent to a non-SQL Server database server in near real time.

You also need to ensure that data on the primary server is unaffected.

Which configuration should you use?

A. SQL Server that includes an application database configured to perform transactional replication
B. Two servers configured in different data centers SQL Server Availability Group configured in AsynchronousCommit Availability Mode
C. Two servers configured in different data centers SQL Server Availability Group configured in Synchronous-Commit Availability Mode One server configured as

an Active Secondary

D. SQL Server that includes an application database configured to perform snapshot replication
E. Two servers configured in the same data center SQL Server Availability Group configured in AsynchronousCommit Availability Mode One server configured as an Active Secondary
F. Two servers configured on the same subnet SQL Server Availability Group configured in Synchronous-Commit Availability Mode
G. Two servers configured in a Windows Failover Cluster in the same data center SQL Server configured as a clustered instance
H. Two servers configured in the same data center A primary server configured to perform log-shipping every 10 minutes A backup server configured as a warm standby

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
SQL Server supports the following heterogeneous scenarios for transactional and snapshot replication:

- Publishing data from SQL Server to non- SQL Server Subscribers.
- Publishing data to and from Oracle has some restrictions.

References: https://docs.microsoft.com/en-us/sql/relational-databases/replication/non-sql/heterogeneous-database-replication

QUESTION 15
You administer all the deployments of Microsoft SQL Server 2016 in your company.

A database contains a large product catalog that is updated periodically.

You need to be able to send the entire product catalog to all branch offices on a monthly basis.

Which configuration should you use?

A. Two servers configured in the same data center A primary server configured to perform log-shipping every 10 minutes A backup server configured as a warm standby
B. SQL Server that includes an application database configured to perform transactional replication
C. Two servers configured in the same data center SQL Server Availability Group configured in AsynchronousCommit Availability Mode One server configured as

an Active Secondary

D. Two servers configured in a Windows Failover Cluster in the same data center SQL Server configured as a clustered instance
E. SQL Server that includes an application database configured to perform snapshot replication
F. Two servers configured in different data centers SQL Server Availability Group configured in Synchronous-Commit Availability Mode One server configured as an Active Secondary
G. Two servers configured on the same subnet SQL Server Availability Group configured in Synchronous-Commit Availability Mode
H. Two servers configured in different data centers SQL Server Availability Group configured in AsynchronousCommit Availability Mode

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Snapshot replication distributes data exactly as it appears at a specific moment in time and does not monitor for updates to the data. When synchronization occurs, the entire snapshot is generated and sent to Subscribers.

Using snapshot replication by itself is most appropriate when one or more of the following is true:
- Data changes infrequently.
- It is acceptable to have copies of data that are out of date with respect to the Publisher for a period of time.
- Replicating small volumes of data.

A large volume of changes occurs over a short period of time.

References: https://docs.microsoft.com/en-us/sql/relational-databases/replication/snapshot-replication

QUESTION 16
You administer all the deployments of Microsoft SQL Server 2016 in your company.

You need to ensure that an OLTP database that uses a storage area network (SAN) remains available if any of the servers fail.

You also need to minimize the amount of storage used by the database.

Which configuration should you use?

A. Two servers configured in different data centers SQL Server Availability Group configured in Synchronous-Commit Availability Mode One server configured as an Active Secondary
B. SQL Server that includes an application database configured to perform transactional replication
C. Two servers configured in the same data center SQL Server Availability Group configured in AsynchronousCommit Availability Mode One server configured as an Active Secondary
D. Two servers configured in different data centers SQL Server Availability Group configured in AsynchronousCommit Availability Mode

E. Two servers configured in the same data center A primary server configured to perform log-shipping every 10 minutes A backup server configured as a warm standby
F. Two servers configured on the same subnet SQL Server Availability Group configured in Synchronous-Commit Availability Mode
G. SQL Server that includes an application database configured to perform snapshot replication
H. Two servers configured in a Windows Failover Cluster in the same data center SQL Server configured as a clustered instance

Correct Answer: H
Section: (none)
Explanation

Explanation/Reference:
A Windows Server Failover Cluster (WSFC) is a group of independent servers that work together to increase the availability of applications and services. SQL Server takes advantage of WSFC services and capabilities to support Always On availability groups and SQL Server Failover Cluster Instances.

References: https://docs.micosoft.com/en-us/sql/sql-server/failover-clusters/windows/windows-server-failover-clustering-wsfc-with-sql-server

QUESTION 17
You administer a Microsoft SQL Server 2016 server that hosts a transactional database and a reporting database.

The transactional database is updated through a web application and is operational throughout the day.

The reporting database is only updated from the transactional database.

The recovery model and backup schedule are configured as shown in the following table:

Database	Description
Transactional database	Recovery model: • Full Backup schedule: • Full database backup: midnight, daily • Differential database backup: on the hour, every two hours starting at 02:00 hours except at 00:00 hours • Log backup: every half hour, except at the times of full and differential backups
Reporting database	Recovery model: • Simple Backup schedule: • Full database backup: 01:00 hours daily • Differential database backup: 13:00 hours daily Data updates: • Changes in data are updated from the transactional database to the reporting database at 00:30 hours and at 12:30 hours • The update takes 15 minutes

The differential backup of the reporting database fails.

Then, the reporting database fails at 14:00 hours.

You need to ensure that the reporting database is restored.

You also need to ensure that data loss is minimal.

What should you do?

A. Restore the latest full backup, and restore the latest differential backup. Then, restore the latest log backup.
B. Perform a point-in-time restore.
C. Restore the latest full backup.
D. Restore the latest full backup, and restore the latest differential backup. Then, restore each log backup taken before the time of failure from the most recent differential backup.
E. Restore the latest full backup. Then, restore the latest differential backup.
F. Restore the latest full backup. Then, restore each differential backup taken before the time of failure from the most recent full backup.
G. Perform a page restore.
H. Perform a partial restore.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
The differential backup of the reporting database has failed, so it can't be used.

QUESTION 18
You administer a Microsoft SQL Server 2016 server that hosts a transactional database and a reporting database. The transactional database is updated through a web application and is operational throughout the day.

The reporting database is only updated from the transactional database.

The recovery model and backup schedule are configured as shown in the following table:

Database	Description
Transactional database	Recovery model: • Full Backup schedule: • Full database backup: midnight, daily • Differential database backup: on the hour, every two hours starting at 02:00 hours except at 00:00 hours • Log backup: every half hour, except at the times of full and differential backups
Reporting database	Recovery model: • Simple Backup schedule: • Full database backup: 01:00 hours daily • Differential database backup: 13:00 hours daily Data updates: • Changes in data are updated from the transactional database to the reporting database at 00:30 hours and at 12:30 hours • The update takes 15 minutes

At 14:00 hours, you discover that pages 71, 520, and 713 on one of the database files are corrupted on the reporting database.

You need to ensure that the databases are restored.

You also need to ensure that data loss is minimal. What should you do?

A. Perform a partial restore.

B. Restore the latest full backup, and restore the latest differential backup. Then, restore each log backup taken before the time of failure from the most recent differential backup.
C. Restore the latest full backup.
D. Restore the latest full backup, and restore the latest differential backup. Then, restore the latest log backup.
E. Perform a page restore.
F. Restore the latest full backup. Then, restore each differential backup taken before the time of failure from the most recent full backup.
G. Perform a point-in-time restore.
H. Restore the latest full backup. Then, restore the latest differential backup.

Correct Answer: H
Section: (none)
Explanation

Explanation/Reference:
At restore time, before you restore a differential backup, you must restore its base. Then, restore only the most recent differential backup to bring the database forward to the time when that differential backup was created. Typically, you would restore the most recent full backup followed by the most recent differential backup that is based on that full backup.

References: https://technet.microsoft.com/en-us/library/ms345448(v=sql.105).aspx

QUESTION 19
You administer a Microsoft SQL Server 2016 server that hosts a transactional database and a reporting database.

The transactional database is updated through a web application and is operational throughout the day.

The reporting database is only updated from the transactional database.

The recovery model and backup schedule are configured as shown in the following table:

Database	Description
Transactional database	Recovery model: • Full Backup schedule: • Full database backup: midnight, daily • Differential database backup: on the hour, every two hours starting at 02:00 hours except at 00:00 hours • Log backup: every half hour, except at the times of full and differential backups
Reporting database	Recovery model: • Simple Backup schedule: • Full database backup: 01:00 hours daily • Differential database backup: 13:00 hours daily Data updates: • Changes in data are updated from the transactional database to the reporting database at 00:30 hours and at 12:30 hours • The update takes 15 minutes

At 16:20 hours, you discover that pages 17, 137, and 205 on one of the database files are corrupted on the transactional database. You need to ensure that the transactional database is restored. You also need to ensure that data loss is minimal.

What should you do?

A. Perform a partial restore.
B. Restore the latest full backup, and restore the latest differential backup. Then, restore each log backup taken before the time of failure from the most recent

differential backup.

C. Perform a point-in-time restore.
D. Restore the latest full backup.
E. Restore the latest full backup, and restore the latest differential backup. Then, restore the latest log backup.
F. Perform a page restore.
G. Restore the latest full backup. Then, restore each differential backup taken before the time of failure from the most recent full backup.
H. Restore the latest full backup. Then, restore the latest differential backup.

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
The goal of a page restore is to restore one or more damaged pages without restoring the whole database. Typically, pages that are candidates for restore have been marked as "suspect" because of an error that is encountered when accessing the page.

Note: Requirements for Restoring Pages
A page restore is subject to the following requirements:
- The databases must be using the full or bulk-logged recovery model.

Etc.

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/restore-pages-sql-server

QUESTION 20
You use Microsoft SQL Server 2016 to write code for a transaction that contains several statements.

There is high contention between readers and writers on several tables used by your transaction. You need to minimize the use of the tempdb space.

You also need to prevent reading queries from blocking writing queries.

Which isolation level should you use?

A. SERIALIZABLE
B. SNAPSHOT
C. READ COMMITTED SNAPSHOT
D. REPEATABLE READ

Correct Answer: C
Section: (none)

Explanation

Explanation/Reference:
For most applications, read committed isolation using row versioning is recommended over snapshot isolation for the following reasons:

It consumes less tempdb space than snapshot isolation.
Etc.

References: https://msdn.microsoft.com/en-us/library/ms188277.aspx

QUESTION 21
You plan to migrate the db to azure.

You verify that all objects are valid for azure sql database. You need to ensure that users and logins are migrated to azure.

What should you do?

A. Use the Copy Database wizard
B. Use the Database Transfer wizard
C. Use the SQL Management Studio to deploy the db to azure
D. Back up the databasae from the local server and restore it to azure

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 22
You install Microsoft SQL Server 2016 on a new server.

After setup is complete, you attempt to start the SQL Server service.

After being in a starting state for a few moments, the service goes back to a stopped state.

You need to determine the cause of the failure. Which file should you use?

A. %programfiles%\Microsoft SQL Server\MSSQL11.MSSQLSERVER|MSSQL\Log\Errorlog

B. %programfiles%\Microsoft SQL Server\110\setup Bootstrap\Log\Summary.txt
C. %programfiles%\Microsoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\mastlog.idf
D. %programfiles%\Microsoft SQL Server\110\Shared\ErrorDmpr[XXXX] .mdmp

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 23
You administer a Windows Azure SQL Database database named Inventory that contains a stored procedure named p_AddInventory.

Users need to be able to SELECT from all tables in the database and execute the stored procedure.

You need to grant only the necessary permissions.

What should you do?

A. Grant EXECUTE permission on p_AddInventory to all users. Grant VIEW DEFINITION to all users.
B. Grant EXECUTE permission on p_AddInventory to all users. Add all users to the db_datawriter role.
C. Add all users to the db_owner role.
D. Grant EXECUTE permission on p_Add!nventory to all users. Add all users to the db_datareader role.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 24
You administer a SQL Server 2016 database instance.

You need to configure the SQL Server Database Engine service on a failover cluster.

Which user account should you use?

A. A domain user
B. The BUILTIN\SYSTEM account
C. A local user with Run as Service permissions
D. The SQLBrowser account

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Account of the person who installs the cluster: The person who installs the cluster must use an account with the following characteristics:
- The account must be a domain account. It does not have to be a domain administrator account. It can be a domain user account if it meets the other requirements in this list.

Etc.

References: https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2008-R2-and-2008/cc731002(v=ws.10)

QUESTION 25
You administer a Windows Azure SQL Database database named Human_Resources. The database contains 2 tables named Employees and SalaryDetails. You add two Windows groups as logins for the server:
- CORP\Employees - All company employees
- CORP\HRAdmins - HR administrators only
- HR Administrators are also company employees.

You need to grant users access according to the following requirements:
- CORP\Employees should have SELECT access to the Employees table.
- Only users in CORP\HRAdmins should have SELECT access to the SalaryDetails table.
- Logins are based only on Windows security groups.

What should you do?

A. Create a database role called Employees.
Add CORP\Employees to the db_datareader role.

Add all company employees except HR administrators to the Employees role.
Deny SELECT access to the SalaryDetails table to the Employees role.

B. Create a database role called HRAdmins.
Add all company employees except HR administrators to the db_datareader role, Add all HR administrators to the HRAdmins role.
Grant SELECT access to the SalaryDetails table to the HRAdmins role.
Deny SELECT access to the SalaryDetails table to the db_datareader role.

C. Create two database roles: Employees and HRAdmins.
Add all company employees to the Employees role.
Add HR administrators to the HRAdmins role.
Grant SELECT access to all tables except SalaryDetails to the Employees role.
Grant SELECT access to the SalaryDetails table to the HRAdmins role.
Deny SELECT access to the SalaryDetails table to the Employees role.

D. Create a database role called Employees.
Add all HR administrators to the db_datareader role.
Add all company employees to the Employees role.
Grant SELECT access to all tables except the SalaryDetails table to the Employees role.
Deny SELECT access to the SalaryDetails table to the Employees role.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 26
You administer a Microsoft SQL Server 2016 database instance.

You plan to migrate the database to Windows Azure SQL Database.

You verify that all objects contained in the database are compatible with Windows Azure SQL Database.

You need to ensure that database users and required server logins are migrated to Windows Azure SQL Database.

What should you do?

A. Use the Copy Database wizard.
B. Back up the database from the local server and restore it to Windows Azure SQL Database.
C. Use the Database Transfer wizard.
D. Use SQL Server Management Studio to deploy the database to Windows Azure SQL Database.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 27
You administer a Microsoft SQL Server 2016 database that contains a table named AccountTransaction.

You discover that query performance on the table is poor due to fragmentation on the IDX_AccountTransaction_AccountCode non-clustered index.

You need to defragment the index.

You also need to ensure that user queries are able to use the index during the defragmenting process.

Which Transact-SQL batch should you use?

A. ALTER INDEX IDX_AccountTransaction_AccountCode ON AccountTransaction.
AccountCode REORGANIZE
B. ALTER INDEX ALL ON AccountTransaction REBUILD
C. ALTER INDEX IDX_AccountTransaction_AccountCode ON AccountTransaction.
AccountCode REBUILD
D. CREATE INDEX IDXAccountTransactionAccountCode ON AccountTransaction.
AccountCode WITH DROP EXISTING

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 28
You administer a Microsoft SQL Server 2016 failover cluster.

You need to ensure that a failover occurs when the server diagnostics returns query_processing error.

Which server configuration property should you set?

A. SqlOumperDumpFlags
B. FailureConditionLevel
C. HealthCheckTimeout
D. SqlDumperDumpPath

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
The SQL Server Database Engine resource DLL determines whether the detected health status is a condition for failure using the FailureConditionLevel property. The FailureConditionLevel property defines which detected health statuses cause restarts or failovers. Multiple levels of options are available, ranging from no automatic restart or failover to all possible failure conditions resulting in an automatic restart or failover.

References: https://docs.microsoft.com/en-us/sql/sql-server/failover-clusters/windows/failover-policy-for-failover-cluster-instances

QUESTION 29
You want to simulate read, write, checkpoint, backup, sort, and read-ahead activities for your organization's SQL Server 2016 deployment.

Which of the following tools would you use to accomplish this goal?

A. SQLIO
B. SQLIOSim
C. SQLIOStress
D. chkdsk

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
The SQLIOSim utility has been upgraded from the SQLIOStress utility. The SQLIOSim utility more accurately simulates the I/O patterns of Microsoft SQL Server.

References: https://support.microsoft.com/en-us/help/231619/how-to-use-the-sqliosim-utility-to-simulate-sql-server-activity-on-a-d

QUESTION 30
You are planning on deploying a server that will be dedicated for ETL (Extraction, Transformation, and Loading) processes.

You want to ensure that SSIS (SQL Server Integration Services) packages will run on this dedicated ETL server and not on any other server on which they were started.

Which of the following features must you install on the ETL server in addition to SSIS to accomplish this goal?

A. Database Engine
B. SQL Server Reporting Services
C. SQL Server Analysis Services
D. Client Tools SDK

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 31
You want to reproduce the same SQL Server 2016 installation configuration across five servers.

Which of the following files will you generate by using SQL Server Setup to accomplish this goal?

A. Configuration.xml
B. Setup.ini
C. Setup.xml
D. ConfigurationFile.ini

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 32
Which feature should you enable and configure so session requests addressed to a specific instance can be allocated different processor resources based on session request properties?

A. Resource Governor
B. Windows System Resource Manager
C. Processor affinity
D. I/O affinity

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Resource Governor enables you to allocate session requests to different resources based on the characteristics of the session request properties.

References: https://docs.microsoft.com/en-us/sql/relational-databases/resource-governor/resource-governor

QUESTION 33
You are implementing a SQL Server 2016 five-node failover cluster.

You need to choose a quorum configuration.

Which configuration should you use?

A. Distributed File System (DFS)
B. Node Majority
C. Cluster Shared Volume (CSV)
D. Node and Disk Majority

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Node and Disk Majority (recommended for clusters with an even number of nodes)

Incorrect Answers:
B: Node Majority (recommended for clusters with an odd number of nodes)

References: https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2008-R2-and-2008/cc731739(v=ws.11)

QUESTION 34
You administer a Microsoft SQL Server 2016 database named Contoso that contains a single user-defined database role namedBillingUsers.

All objects in Contoso are in the dbo schema.

You need to grant EXECUTE permissions for all stored procedures in Contoso to BillingUsers.

Which Transact-SQL statement should you use?

A. EXEC sp_addrolemember'db_procexecutor', 'BillingUsers'
B. CREATE ROLE proc_caller
   GRANT EXECUTE ON ALL PROCEDURES TO proc_caller
   ALTER MEMBER BillingUsers ADD TO ROLE proc_caller
C. GRANT EXECUTE ON Schema::dbo TO BillingUsers
D. GRANT EXECUTE ON Contoso::dbo TOBillingUsers

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 35
You administer a Microsoft SQL Server 2016 database that has multiple tables in the Sales schema.

Some users must be prevented from deleting records in any of the tables in the Sales schema. You need to manage users who are prevented from deleting records in the Sales schema.

You need to achieve this goal by using the minimum amount of administrative effort.

What should you do?

A. Create a custom database role that includes the users. Deny Delete permissions on the Sales schema for the custom database role.
B. Include the Sales schema as an owned schema for the db_denydatawriter role. Add the users to the db_denydatawriter role.
C. Deny Delete permissions on each table in the Sales schema for each user.
D. Create a custom database role that includes the users. Deny Delete permissions on each table in the Sales schema for the custom database role.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 36
You are the lead database administrator (DBA) of a Microsoft SQL Server 2016 environment. All DBAs are members of the DOMAIN\JrDBAs Active Directory group.

You grant DOMAIN\JrDBAs access to the SQL Server.

You need to create a server role named SpecialDBARole that can perform the following functions:
- View all databases.
- View the server state.
- Assign GRANT, DENY, and REVOKE permissions on logins.

You need to add DOMAIN\JrDBAs to the server role.

You also need to provide the least level of privileges necessary.

Which SQL statement or statements should you use? Choose all that apply.

A. CREATE SERVER ROLE [SpecialDBARole] AUTHORIZATION setupadmin;
B. ALTER SERVER ROLE [SpecialDBARole] ADD MEMBER [DOMAIN\JrDBAs];
C. CREATE SERVER ROLE [SpecialDBARole] AUTHORIZATION securityadmin;
D. GRANT VIEW DEFINITION TO [SpecialDBARole];
E. CREATE SERVER ROLE [SpecialDBARole] AUTHORIZATION serveradmin;
F. GRANT VIEW SERVER STATE, VIEW ANY DATABASE TO [SpecialDBARole];

Correct Answer: BCF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 37
You administer a Microsoft SQL Server 2016 database that has Trustworthy set to On.

You create a stored procedure that returns database-level information from Dynamic Management Views. You grant User1 access to execute the stored procedure.

You need to ensure that the stored procedure returns the required information when User1 executes the stored procedure.

You need to achieve this goal by granting the minimum permissions required.

What should you do? (Each correct answer presents a complete solution. Choose all that apply.)

A. Create a SQL Server login that has VIEW SERVER STATE permissions. Create an application role and a secured password for the role.
B. Modify the stored procedure to include the EXECUTE AS OWNER statement. Grant VIEW SERVER STATE permissions to the owner of the stored procedure.
C. Create a SQL Server login that has VIEW SERVER STATE permissions. Modify the stored procedure to include the EXECUTE AS {newlogin} statement.
D. Grant the db_owner role on the database to User1.
E. Grant the sysadmin role on the database to User1.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
References:
http://msdn.microsoft.com/en-us/library/ms187861.aspx
http://msdn.microsoft.com/en-us/library/ms191291.aspx

QUESTION 38
You are migrating a database named Orders to a new server that runs Microsoft SQL Server 2016.

You attempt to add the [Corpnet\User1] login to the database.

However, you receive the following error message:

```
"User already exists in current database."
```

You need to configure the [Corpnet\User1] login to be able to access the Orders database and retain the original permissions.
You need to achieve this goal by using the minimum required permissions.
Which Transact-SQL statement should you use?

A. DROP USER [User1]; CREATE USER [Corpnet\User1] FOR LOGIN [Corpnet\User1]; ALTER ROLE [db_owner] ADD MEM3ER [Corpnet\User1];
B. ALTER SERVER RCLS Isysadmin] ADD MEMBER [Corpnet\User1];
C. ALTER USER [Corpnet\User1] WITH LOGIN [Corpnet\User1];
D. ALTER ROLE [db owner] ADD MEMBBR [Corpnet\User1];

Correct Answer: C
Section: (none)

Explanation

Explanation/Reference:

QUESTION 39
You administer a Microsoft SQL Server 2016 database.

You provide temporary securityadmin access to User1 to the database server.

You need to know if User1 adds logins to securityadmin.

Which server-level audit action group should you use?

A. SERVER_STATE_CHANGE_GROUP
B. SERVER_PRINCIPAL_IMPERSONATION_GROUP
C. SUCCESSFUL_LOGIN_GROUP
D. SERVER_ROLE_MEMBER_CHANGE_GROUP

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
SERVER_ROLE_MEMBER_CHANGE_GROUP
This event is raised whenever a login is added or removed from a fixed server role. This event is raised for the sp_addsrvrolemember and sp_dropsrvrolemember stored procedures. Equivalent to the Audit Add Login to Server Role Event Class.

References: http://technet.microsoft.com/en-us/library/cc280663.aspx

QUESTION 40
You administer a Microsoft SQL Server 2016 instance.

You need to stop a blocking process that has an SPID of 64 without stopping other processes.

What should you do?

A. Execute the following Transact-SQL statement: EXECUTE sp_KillSPID 64
B. Restart the SQL Server service.
C. Execute the following Transact-SQL statement: KILL 64
D. Execute the following Transact-SQL statement: ALTER SESSION KILL '64'

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
KILL can be used to terminate a normal connection, which internally terminates the transactions that are associated with the specified session ID.

References: http://msdn.microsoft.com/en-us/library/ms173730.aspx

QUESTION 41
You administer a Microsoft SQL Server 2016 server.

One of the databases on the server supports a highly active OLTP application.

Users report abnormally long wait times when they submit data into the application.

You need to identify which queries are taking longer than 1 second to run over an extended period of time.

What should you do?

A. use SQL Profiler to trace all queries that are processing on the server. Filter queries that have a Duration value of more than 1,000.
B. Use sp_configure to set a value for blocked process threshold. Create an extended event session.
C. Use the Job Activity monitor to review all processes that are actively running. Review the Job History to find out the duration of each step.
D. Run the sp_who command from a query window.
E. Run the DBCC TRACEON 1222 command from a query window and review the SQL Server event log.

Correct Answer: B

Section: (none)
Explanation

Explanation/Reference:

QUESTION 42
You administer a Microsoft SQL Server database named Sales.

The database is 3 terabytes in size.

The Sales database is configured as shown in the following table.

You discover that all files except Sales_2.ndf are corrupt.

You need to recover the corrupted data in the minimum amount of time.

What should you do?

Filegroup	File
PRIMARY	• Sales.mdf
XACTIONS	• Sales_1.ndf • Sales_2.ndf • Sales_3.ndf
ARCHIVES	• SalesArch_1.ndf • SalesArch_2.ndf

A. Perform a restore from a full backup.
B. Perform a transaction log restore.
C. Perform a file restore.
D. Perform a filegroup restore.

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:
References: http://technet.microsoft.com/en-us/library/ms187048.aspx

QUESTION 43
You administer a Microsoft SQL Server 2016 server.

You plan to deploy new features to an application.

You need to evaluate existing and potential clustered and non-clustered indexes that will improve performance.

What should you do?

A. Query the sys.dm_db_index_usage_stats DMV.
B. Query the sys.dm_db_missing_index_details DMV.
C. Use the Database Engine Tuning Advisor.
D. Query the sys.dm_db_missing_index_columns DMV.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
The Microsoft Database Engine Tuning Advisor (DTA) analyzes databases and makes recommendations that you can use to optimize query performance. You can use the Database Engine Tuning Advisor to select and create an optimal set of indexes, indexed views, or table partitions without having an expert understanding of the database structure or the internals of SQL Server. Using the DTA, you can perform the following tasks.

Troubleshoot the performance of a specific problem query

Tune a large set of queries across one or more databases

Perform an exploratory what-if analysis of potential physical design changes

Manage storage space

References: https://docs.microsoft.com/en-us/sql/relational-databases/performance/database-engine-tuning-advisor

QUESTION 44
You administer a Microsoft SQL Server 2016 database named Contoso on a server named Server01.

You need to write messages to the Application Log when users are added to or removed from a fixed server role in Server01.

What should you create?

A. a Database Audit Specification
B. a Policy
C. an Alert
D. a SQL Profiler Trace
E. a Resource Pool
F. an Extended Event session
G. a Server Audit Specification

Correct Answer: G
Section: (none)
Explanation

Explanation/Reference:
The SQL Server Audit feature enables you to audit server-level and database-level groups of events and individual events.

Audits can have the following categories of actions:

Server-level. These actions include server operations, such as management changes and logon and logoff operations.

Database-level. These actions encompass data manipulation languages (DML) and data definition language (DDL) operations.

Audit-level. These actions include actions in the auditing process.

References: http://technet.microsoft.com/en-us/library/cc280663(v=sql.105).aspx

QUESTION 45
You administer a Microsoft SQL Server 2016 database named Contoso on a server named Server01.

You need to be notified immediately when fatal errors occur on Server01.

What should you create?

A. an Alert
B. a Server Audit Specification
C. an Extended Event session

D. a Resource Pool
E. a Policy
F. a SQL Profiler Trace
G. a Database Audit Specification

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
References: http://www.sqlskills.com/blogs/glenn/creating-sql-server-agent-alerts-for-critical-errors/

QUESTION 46
You administer a Microsoft SQL Server 2016 database named Contoso on a server named Server01.

You need to diagnose deadlocks that happen when executing a specific set of stored procedures by recording events and playing them back on a different test server.

What should you create?

A. an Extended Event session
B. a Policy
C. a Database Audit Specification
D. an Alert
E. a Server Audit Specification
F. a SQL Profiler Trace
G. a Resource Pool

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
References: http://msdn.microsoft.com/en-us/library/ms188246.aspx

QUESTION 47
You administer a Microsoft SQL Server 2016 database named Contoso on a server named Server01.

You need to prevent users from disabling server audits in Server01.

What should you create?

A. an Alert
B. a Resource Pool
C. an Extended Event session
D. a Policy
E. a Database Audit Specification
F. a SQL Profiler Trace
G. a Server Audit Specification

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 48
You are designing a monitoring application for a new SQL Server 2014 instance.

You need to recommend a solution to generate a report that displays the 10 most frequent wait types that occur for the instance.

What should you include in the recommendation? More than one answer choice may achieve the goal. Select the BEST answer.

A. The SQL Server error log
B. The sys.dm_os_wait_stats dynamic management view
C. The DBCC SQLPERF(WAITSTATS) command
D. SQL Server Profiler

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
sys.dm_os_wait_stats
Returns information about all the waits encountered by threads that executed. You can use this aggregated view to diagnose performance issues with SQL Server and also with specific queries and batches.

Columns include:
waiting_tasks_count
Number of waits on this wait type.
This counter is incremented at the start of each wait.

QUESTION 49
You deploy a database by using SQL Server 2012.

The database contains a table named Table1.

You need to recommend a solution that meets the following requirements:
- Stores the most recent data from Table1 by using the fastest storage solution possible.
- Stores the historical data from Table1 by using a slower storage solution.

What should you recommend?

A. partitioned views
B. a database snapshot
C. change data capture
D. table partitioning

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 50
You are creating a database that will store usernames and passwords for an application.

You need to recommend a solution to store the passwords in the database.

What should you recommend? More than one answer choice may achieve the goal. Select the BEST answer.

A. One-way encryption
B. Transparent Data Encryption (TDE)
C. Encrypting File System (EFS)
D. Reversible encryption

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
1. Transparent Data Encryption (TDE) is a special case of encryption using a symmetric key. TDE encrypts an entire database using that symmetric key called the database encryption key. The database encryption key is protected by other keys or certificates which are protected either by the database master key or by an asymmetric key stored in an EKM module.
2. SQL Server provides the following mechanisms for encryption:
- Transact-SQL functions
- Asymmetric keys
- Symmetric keys
- Certificates
- Transparent Data Encryption

QUESTION 51
DRAG DROP

You have a SQL Azure database named Database1.

You need to design the schema for a table named table1.

Table1 will have less than one million rows.

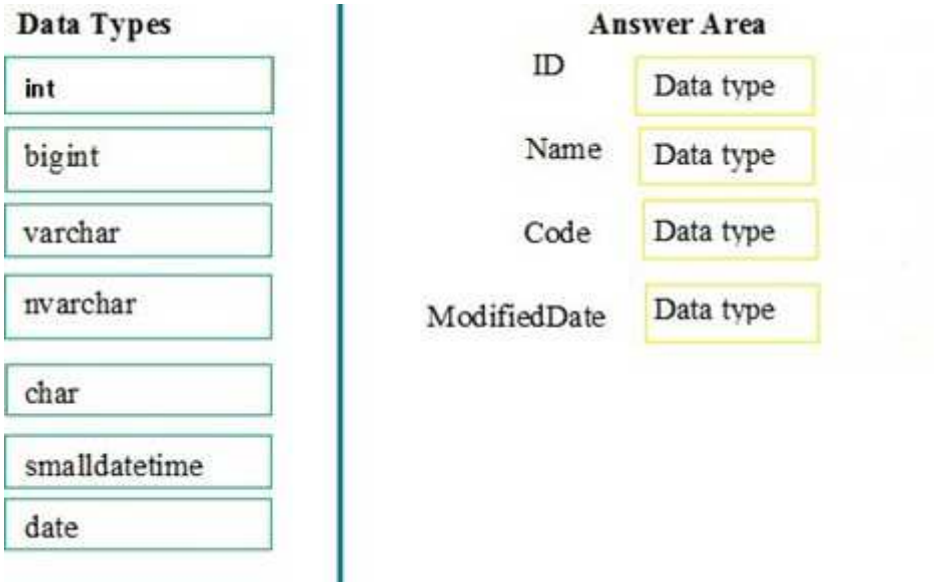
Table1 will contain the following information for each row:

Column	Description
ID	An incremental numeric value used to identify the row
Name	A string in English
Code	An alphanumeric code that has five characters
ModifiedDate	The date of the last modification

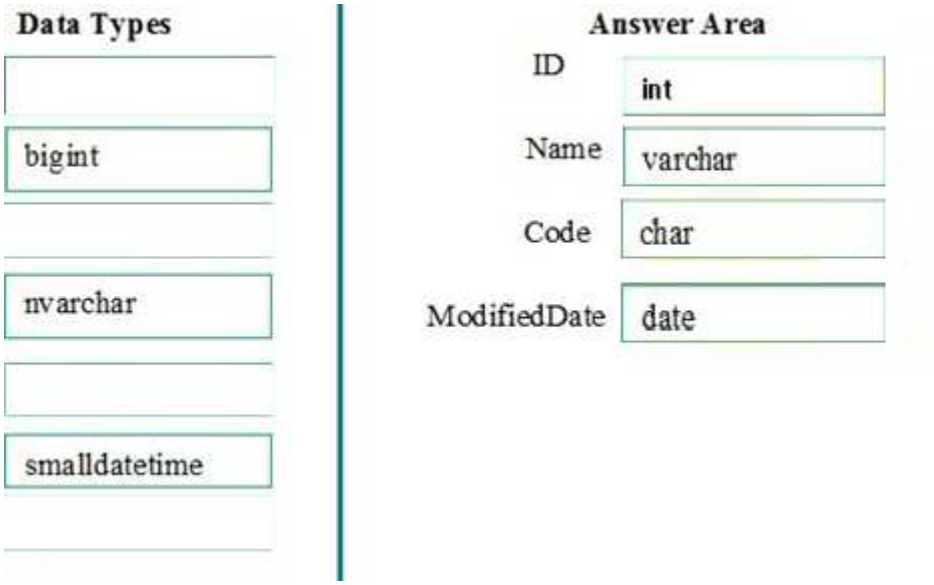
The solution must minimize the amount of space used to store each row.

Which data types should you recommend for each column? To answer, drag the appropriate data type to the correct column in the answer area.

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:
Explanation:
References:
http://msdn.microsoft.com/en-US/library/ms187752.aspx

QUESTION 52
You have a SQL Server 2014 environment That contains 20 servers.

The corporate security policy states that all SQL Server 2014 instances must meet specific security standards.

You need to recommend a management strategy for the SQL Server 2014 servers.

What should you include in the recommendation? More than one answer choice may achieve the goal. Select the BEST answer.

A. Multi server jobs
B. Policy-Based Management
C. Common criteria compliance
D. Maintenance plans

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Policy-Based Management is a system for managing one or more instances of SQL Server. When SQL Server policy administrators use Policy-Based Management, they use SQL Server Management Studio to create policies to manage entities on the server, such as the instance of SQL Server, databases, or other SQL Server objects.

QUESTION 53
You deploy a database by using SQL Server 2014.

The database contains a table named Table1.

You need to recommend a solution to track all of the deletions executed on Table1. The solution must minimize the amount of custom code required.

What should you recommend?

A. Change data capture
B. Statistics
C. A trigger
D. Master Data Services

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Change data capture is designed to capture insert, update, and delete activity applied to SQL Server tables, and to make the details of the changes available in an easily consumed relational format. The change tables used by change data capture contain columns that mirror the column structure of a tracked source table, along with the metadata needed to understand the changes that have occurred.

QUESTION 54
You have four databases that are accessed by using an Online Transaction Processing (OLTP) application.

The databases are stored on a server named SQL1 that has SQL Server 2014 installed. You plan to deploy an additional server that has SQL Server 2014 installed. You need to design a high-availability solution for the databases that meets the following requirements:
- If SQL1 fails, the databases must be available.
- Users must be able to run reports against a secondary copy of the databases.

What should you include in the design? More than one answer choice may achieve the goal. Select the BEST answer.

A. AlwaysOn availability groups
B. Database mirroring
C. Log shipping
D. Failover Clustering

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The AlwaysOn Availability Groups feature is a high-availability and disaster-recovery solution that provides an enterprise-level alternative to database mirroring. Introduced in SQL Server 2012, AlwaysOn Availability Groups maximizes the availability of a set of user databases for an enterprise. An availability group supports a failover environment for a discrete set of user databases, known as availability databases, that fail over together.

QUESTION 55
You are troubleshooting an application that runs a query. The application frequently causes deadlocks. You need to identify which transaction causes the deadlock.

What should you do? More than one answer choice may achieve the goal. Select the BEST answer.

A. Query the sys.dm_exec_requests dynamic management view.
B. Create a trace in SQL Server Profiler that contains the Deadlock graph event.
C. Query the sys.dm_exec_sessions dynamic management view.
D. Create an extended events session to capture deadlock information.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Troubleshooting deadlocks
You have been receiving reports from users indicating that certain applications are returning deadlock errors. To maximize the effectiveness of troubleshooting these problems, you decide to focus on the deadlocks that are hit most frequently. You create an Extended Events session that:
- Configures deadlock event tracking for the session.
- Specifies a target that aggregates based on an identifier for the deadlock.

You run the Extended Events session, and after additional deadlocks are reported you are able to obtain aggregated deadlock information, along with the complete XML deadlock graph for each source. Using this information, you are able to pin point the most common deadlocks and start working on a solution.

QUESTION 56
You have a SQL Server 2014 instance named SQL1. SQL1 creates error events in the Windows Application event log.

You need to recommend a solution that will run an application when SQL1 logs a specific error in the Application log.

Which SQL elements should you include in the recommendation? (Each correct answer presents part of the solution. Choose all that apply.)

A. A policy
B. A maintenance plan
C. An alert
D. A job
E. A trigger

Correct Answer: DE

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Use a trigger that starts a job which executes the application.

References: http://technet.microsoft.com/en-us/library/hh849759.aspx

QUESTION 57
DRAG DROP

You plan to deploy SQL Server 2012. You must create two tables named Table 1 and Table 2 that will have the following specifications:

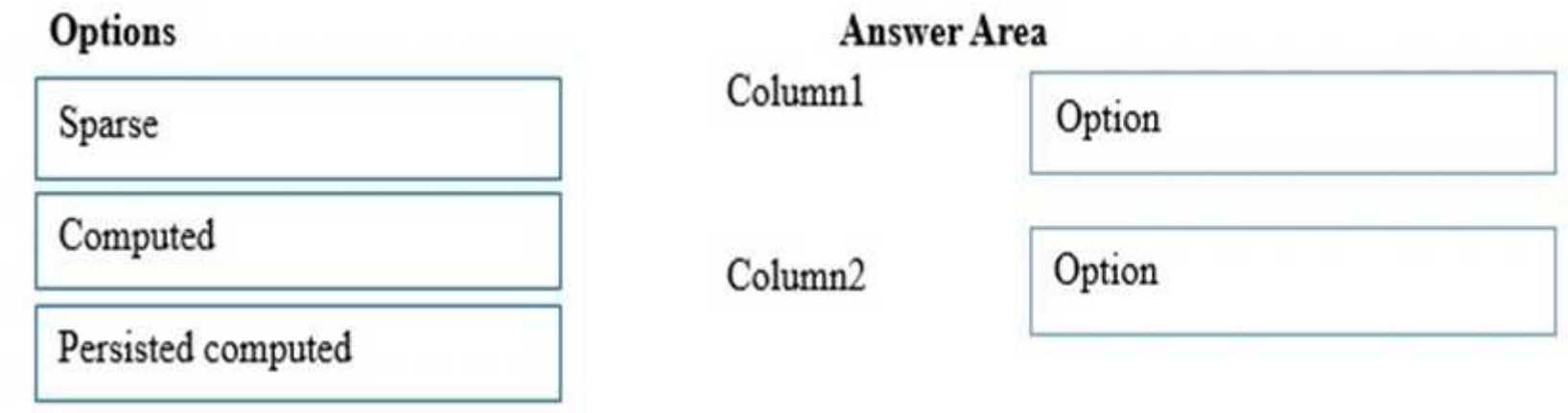
- Table1 will contain a date column named Column1 that will contain a null value approximately 80 percent of the time.
- Table2 will contain a column named Column2 that is the product of two other columns in Table2.

Both Table1 and Table2 will contain more than 1 million rows.

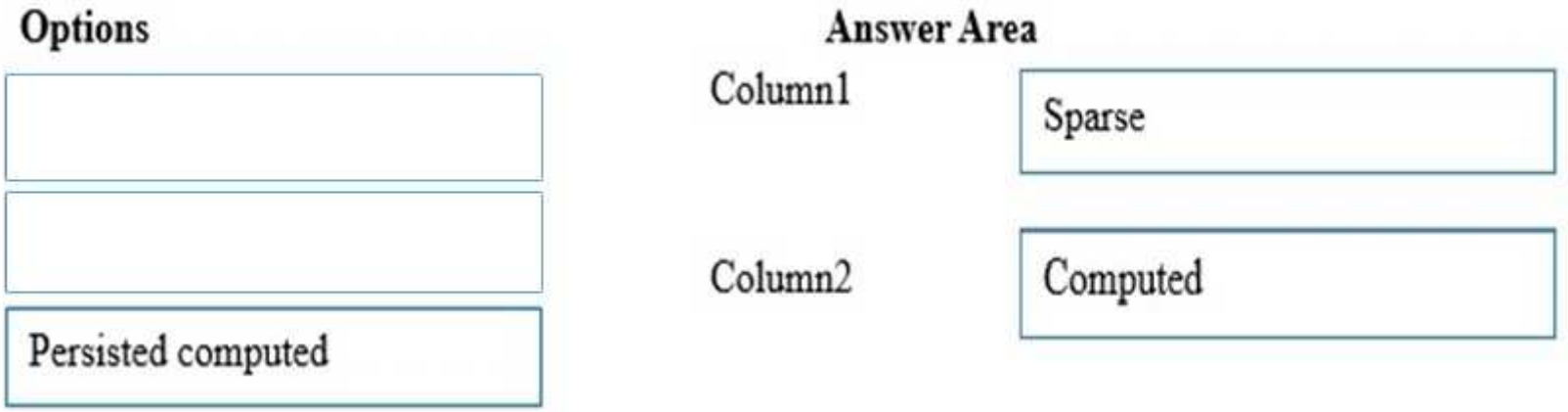
You need to recommend which options must be defined for the columns. The solution must minimize the storage requirements for the tables.

Which options should you recommend? To answer, drag the appropriate options to the correct column in the answer area.

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:
Explanation:

- Sparse columns are ordinary columns that have an optimized storage for null values. Sparse columns reduce the space requirements for null values at the cost of more overhead to retrieve nonnull values. Consider using sparse columns when the space saved is at least 20 percent to 40 percent.
- A Persisted column would be faster to retrieve.
- A computed column is computed from an expression that can use other columns in the same table. The expression can be a noncomputed column name, constant, function, and any combination of these connected by one or more operators. Unless otherwise specified, computed columns are virtual columns that are not physically stored in the table. Their values are recalculated every time they are referenced in a query. The Database Engine uses the PERSISTED keyword in the CREATE TABLE and ALTER TABLE statements to physically store computed columns in the table. Their values are updated when any columns that are part of their calculation change.

References:
http://msdn.microsoft.com/en-us/library/cc280604.aspx
http://msdn.microsoft.com/en-us/library/ms186241.aspx

QUESTION 58
You manage a SQL Server 2014 instance that contains a database named DB1.

Users report that some queries to DB1 take longer than expected.

Although most queries run in less than one second, some queries take up to 20 seconds to run. You need to view all of the performance statistics for each database file.

Which method should you use?

A. Query the sys.dm_os_tasks dynamic management view.
B. Query the sys.dm_os_performance_counters dynamic management view.
C. Query the sys.dm_io_virtual_file_stats dynamic management function.
D. Examine the Data File I/O pane in Activity Monitor.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
sys.dm_io_virtual_file_stats Returns I/O statistics for data and log files.

QUESTION 59
Overview
You are a database administrator for a company named Litware, Inc.
Litware is a book publishing house. Litware has a main office and a branch office.
You are designing the database infrastructure to support a new web-based application that is being developed.
The web application will be accessed at www.litwareinc.com. Both internal employees and external partners will use the application.
You have an existing desktop application that uses a SQL Server 2008 database named App1_DB.
App1_DB will remain in production.

Requirements
Planned Changes
You plan to deploy a SQL Server 2014 instance that will contain two databases named Database1 and Database2.
All database files will be stored in a highly available SAN.
Database1 will contain two tables named Orders and OrderDetails.
Database1 will also contain a stored procedure named usp_UpdateOrderDetails.
The stored procedure is used to update order information. The stored procedure queries the Orders table twice each time the procedure executes.
The rows returned from the first query must be returned on the second query unchanged along with any rows added to the table between the two read operations.
Database1 will contain several queries that access data in the Database2 tables.

Database2 will contain a table named Inventory.
Inventory will contain over 100 GB of data.
The Inventory table will have two indexes: a clustered index on the primary key and a nonclustered index.
The column that is used as the primary key will use the identity property.
Database2 wilt contains a stored procedure named usp_UpdateInventory. usp_UpdateInventory will manipulate a table that contains a self-join that has an unlimited number of hierarchies. All data in Database2 is recreated each day ad does not change until the next data creation process. Data from Database2 will be accessed periodically by an external application named Application1. The data from Database2 will be sent to a database named Appl_Dbl as soon as changes occur to the data in Database2. Litware plans to use offsite storage for all SQL Server 2014 backups.

Business Requirements
You have the following requirements:

- Costs for new licenses must be minimized.
- Private information that is accessed by Application must be stored in a secure format.
- Development effort must be minimized whenever possible.
- The storage requirements for databases must be minimized.
- System administrators must be able to run real-time reports on disk usage.
- The databases must be available if the SQL Server service fails.
- Database administrators must receive a detailed report that contains allocation errors and data corruption.
- Application developers must be denied direct access to the database tables. Applications must be denied direct access to the tables.

You must encrypt the backup files to meet regulatory compliance requirements.
The encryption strategy must minimize changes to the databases and to the applications.

You need to recommend a solution to allow application users to perform UPDATE operations on the database tables. The solution must meet the business requirements.
What should you recommend?

A. Create stored procedures that use EXECUTE AS clauses.
B. Create a user-defined database role and add users to the role.
C. Create functions that use EXECUTE AS clauses.
D. Create a Policy-Based Management Policy.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- EXECUTE AS Clause (Transact-SQL)

In SQL Server you can define the execution context of the following user-defined modules: functions (except inline table-valued functions), procedures, queues, and triggers.

QUESTION 60
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- System administrators must be able to run real-time reports on disk usage.
- The databases must be available if the SQL Server service fails.
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- Application developers must be denied direct access to the database tables. Applications must be denied direct access to the tables.

You must encrypt the backup files to meet regulatory compliance requirements.
The encryption strategy must minimize changes to the databases and to the applications.

You need to recommend a database reporting solution that meets the business requirements.
What should you include in the recommendation?

A. Data collection
B. Performance Monitor
C. A maintenance plan
D. A dynamic management view

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
1. Scenario: System administrators must be able to run real-time reports on disk usage.
2. The data collector provides an historical report for each of the System Data collection sets. Each of the following reports use data that is stored in the management data warehouse:
- Disk Usage Summary
- Query Statistics History
- Server Activity History

You can use these reports to obtain information for monitoring system capacity and troubleshooting system performance.

QUESTION 61
Overview
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- The databases must be available if the SQL Server service fails.
- Database administrators must receive a detailed report that contains allocation errors and data corruption.
- Application developers must be denied direct access to the database tables. Applications must be denied direct access to the tables.

You must encrypt the backup files to meet regulatory compliance requirements.
The encryption strategy must minimize changes to the databases and to the applications.

You need to recommend a solution to synchronize Database2 to App1_Db1. What should you recommend?

A. Change data capture
B. Snapshot replication
C. Master Data Services
D. Transactional replication

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

Explanation:
Scenario:
- Data from Database2 will be accessed periodically by an external application named
Application1. The data from Database2 will be sent to a database named App1_Db1 as soon as changes occur to the data in Database2.
- All data in Database2 is recreated each day and does not change until the next data creation process.

QUESTION 62
Overview
Application Overview

Contoso, Ltd., is the developer of an enterprise resource planning (ERP) application.
Contoso is designing a new version of the ERP application. The previous version of the ERP application used SQL Server 2008 R2.
The new version will use SQL Server 2014.
The ERP application relies on an import process to load supplier data. The import process updates thousands of rows simultaneously, requires exclusive access to the database, and runs daily.
You receive several support calls reporting unexpected behavior in the ERP application. After analyzing the calls, you conclude that users made changes directly to the tables in the database.

Tables
The current database schema contains a table named OrderDetails.
The OrderDetails table contains information about the items sold for each purchase order. OrderDetails stores the product ID, quantities, and discounts applied to each product in a purchase order.
The product price is stored in a table named Products. The Products table was defined by using the SQL_Latin1_General_CP1_CI_AS collation.
A column named ProductName was created by using the varchar data type. The database contains a table named Orders.
Orders contains all of the purchase orders from the last 12 months. Purchase orders that are older than 12 months are stored in a table named OrdersOld.
The previous version of the ERP application relied on table-level security.

Stored Procedures
The current version of the database contains stored procedures that change two tables. The following shows the relevant portions of the two stored procedures:

```
CREATE PROC Sales.Proc1
AS
BEGIN TRAN
UPDATE Sales.Table1 …
UPDATE Sales.Table2 …
COMMIT TRAN
GO

CREATE PROC Sales.Proc2
AS
BEGIN TRAN
UPDATE Sales.Table2 …
UPDATE Sales.Table1 …
COMMIT TRAN
GO
```

Customer Problems

Installation Issues
The current version of the ERP application requires that several SQL Server logins be set up to function correctly. Most customers set up the ERP application in multiple locations and must create logins multiple times.

Index Fragmentation Issues
Customers discover that clustered indexes often are fragmented. To resolve this issue, the customers defragment the indexes more frequently. All of the tables affected by fragmentation have the following columns that are used as the clustered index key:

Column	Data type
id	uniquedentifier
lastModified	datetime
modifiedBy	Varchar(200)

Backup Issues
Customers who have large amounts of historical purchase order data report that backup time is unacceptable.

Search Issues

Users report that when they search product names, the search results exclude product names that contain accents, unless the search string includes the accent.

Missing Data Issues
Customers report that when they make a price change in the Products table, they cannot retrieve the price that the item was sold for in previous orders.

Query Performance Issues
Customers report that query performance degrades very quickly. Additionally, the customers report that users cannot run queries when SQL Server runs maintenance tasks. Import Issues During the monthly import process, database administrators receive many supports call from users who report that they cannot access the supplier data. The database administrators want to reduce the amount of time required to import the data.

Design Requirements
File Storage Requirements
The ERP database stores scanned documents that are larger than 2 MB. These files must only be accessed through the ERP application. File access must have the best possible read and write performance.

Data Recovery Requirements
If the import process fails, the database must be returned to its prior state immediately.

Security Requirements
You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

Concurrency Requirements
You must reduce the likelihood of deadlocks occurring when Sales.Prod and Sales.Proc2 execute.

You need to recommend a solution that reduces the time it takes to import the supplier data. What should you include in the recommendation?

A. Enable instant file initialization.
B. Reorganize the indexes.
C. Disable Resource Governor.
D. Enable Auto Update Statistics.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- The ERP application relies on an import process to load supplier data. The import process updates thousands of rows simultaneously, requires exclusive access to the database, and runs daily.

QUESTION 63
Overview
Application Overview

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You receive several support calls reporting unexpected behavior in the ERP application. After analyzing the calls, you conclude that users made changes directly to the tables in the database.

Tables
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A column named ProductName was created by using the varchar data type. The database contains a table named Orders.
Orders contains all of the purchase orders from the last 12 months. Purchase orders that are older than 12 months are stored in a table named OrdersOld.
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AS
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COMMIT TRAN
GO

CREATE PROC Sales.Proc2
AS
BEGIN TRAN
UPDATE Sales.Table2 …
UPDATE Sales.Table1 …
COMMIT TRAN
GO
```

Customer Problems

Installation Issues
The current version of the ERP application requires that several SQL Server logins be set up to function correctly. Most customers set up the ERP application in multiple locations and must create logins multiple times.

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Design Requirements
File Storage Requirements
The ERP database stores scanned documents that are larger than 2 MB. These files must only be accessed through the ERP application. File access must have the best possible read and write performance.

Data Recovery Requirements
If the import process fails, the database must be returned to its prior state immediately.

Security Requirements
You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

Concurrency Requirements
You must reduce the likelihood of deadlocks occurring when Sales.Prod and Sales.Proc2 execute.

You need to recommend a solution that addresses the file storage requirements.
What should you include in the recommendation?

A. FileStream
B. FileTable
C. The varbinary data type
D. The image data type

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: File Storage Requirements The ERP database stores scanned documents that are larger than 2 MB. These files must only be accessed through the ERP application. File access must have the best possible read and write performance.

- FileTables remove a significant barrier to the use of SQL Server for the storage and management of unstructured data that is currently residing as files on file servers.
Enterprises can move this data from file servers into FileTables to take advantage of integrated administration and services provided by SQL Server. At the same time, they can maintain Windows application compatibility for their existing Windows applications that see this data as files in the file system.

QUESTION 64
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If the import process fails, the database must be returned to its prior state immediately.

Security Requirements
You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

Concurrency Requirements
You must reduce the likelihood of deadlocks occurring when Sales.Prod and Sales.Proc2 execute.

You need to recommend a solution that addresses the installation issues.
What should you include in the recommendation?

A. Windows logins
B. Server roles
C. Contained users
D. Database roles

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: Installation Issues The current version of the ERP application requires that several SQL Server logins be set up to function correctly. Most customers set up the ERP application in multiple locations and must create logins multiple times.

- Creating contained users enables the user to connect directly to the contained database. This is a very significant feature in high availability and disaster recovery scenarios such as in an AlwaysOn solution. If the users are contained users, in case of failover, people would be able to connect to the secondary without creating logins on the instance hosting the secondary. This provides an immediate benefit.

QUESTION 65
Overview
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Users report that when they search product names, the search results exclude product names that contain accents, unless the search string includes the accent.

Missing Data Issues
Customers report that when they make a price change in the Products table, they cannot retrieve the price that the item was sold for in previous orders.

Query Performance Issues
Customers report that query performance degrades very quickly. Additionally, the customers report that users cannot run queries when SQL Server runs maintenance tasks. Import Issues During the monthly import process, database administrators receive many supports call from users who report that they cannot access the supplier data. The database administrators want to reduce the amount of time required to import the data.

Design Requirements
File Storage Requirements
The ERP database stores scanned documents that are larger than 2 MB. These files must only be accessed through the ERP application. File access must have the best possible read and write performance.

Data Recovery Requirements
If the import process fails, the database must be returned to its prior state immediately.

Security Requirements
You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

Concurrency Requirements
You must reduce the likelihood of deadlocks occurring when Sales.Prod and Sales.Proc2 execute.

You need to recommend a solution that addresses the security requirement. What should you recommend?

A. Revoke user permissions on the tables. Create stored procedures that manipulate data. Grant the users the EXECUTE permission on the stored procedures.
B. Grant the users the SELECT permission on the tables. Create views that retrieve data from the tables. Grant the users the SELECT permission on the views.
C. Deny the users SELECT permission on the tables. Create views that retrieve data from the tables. Grant the users the SELECT permission on the views.
D. Deny the users the SELECT permission on the tables. Create stored procedures that manipulate data. Grant the users the EXECUTE permission on the stored procedures.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Security Requirements
You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

QUESTION 66
Overview
Application Overview

Contoso, Ltd., is the developer of an enterprise resource planning (ERP) application.
Contoso is designing a new version of the ERP application. The previous version of the ERP application used SQL Server 2008 R2.
The new version will use SQL Server 2014.
The ERP application relies on an import process to load supplier data. The import process updates thousands of rows simultaneously, requires exclusive access to the database, and runs daily.
You receive several support calls reporting unexpected behavior in the ERP application. After analyzing the calls, you conclude that users made changes directly to the tables in the database.

Tables
The current database schema contains a table named OrderDetails.
The OrderDetails table contains information about the items sold for each purchase order. OrderDetails stores the product ID, quantities, and discounts applied to each product in a purchase order.
The product price is stored in a table named Products. The Products table was defined by using the SQL_Latin1_General_CP1_CI_AS collation.
A column named ProductName was created by using the varchar data type. The database contains a table named Orders.
Orders contains all of the purchase orders from the last 12 months. Purchase orders that are older than 12 months are stored in a table named OrdersOld.
The previous version of the ERP application relied on table-level security.

Stored Procedures
The current version of the database contains stored procedures that change two tables. The following shows the relevant portions of the two stored procedures:

```
CREATE PROC Sales.Proc1
AS
BEGIN TRAN
UPDATE Sales.Table1 …
UPDATE Sales.Table2 …
COMMIT TRAN
GO

CREATE PROC Sales.Proc2
AS
BEGIN TRAN
UPDATE Sales.Table2 …
UPDATE Sales.Table1 …
COMMIT TRAN
GO
```

Customer Problems

Installation Issues
The current version of the ERP application requires that several SQL Server logins be set up to function correctly. Most customers set up the ERP application in multiple locations and must create logins multiple times.

Index Fragmentation Issues
Customers discover that clustered indexes often are fragmented. To resolve this issue, the customers defragment the indexes more frequently. All of the tables affected by fragmentation have the following columns that are used as the clustered index key:

Column	Data type
id	uniquedentifier
lastModified	datetime
modifiedBy	Varchar(200)

Backup Issues
Customers who have large amounts of historical purchase order data report that backup time is unacceptable.

Search Issues

Users report that when they search product names, the search results exclude product names that contain accents, unless the search string includes the accent.

Missing Data Issues
Customers report that when they make a price change in the Products table, they cannot retrieve the price that the item was sold for in previous orders.

Query Performance Issues
Customers report that query performance degrades very quickly. Additionally, the customers report that users cannot run queries when SQL Server runs maintenance tasks. Import Issues During the monthly import process, database administrators receive many supports call from users who report that they cannot access the supplier data. The database administrators want to reduce the amount of time required to import the data.

Design Requirements
File Storage Requirements
The ERP database stores scanned documents that are larger than 2 MB. These files must only be accessed through the ERP application. File access must have the best possible read and write performance.

Data Recovery Requirements
If the import process fails, the database must be returned to its prior state immediately.

Security Requirements
You must provide users with the ability to execute functions within the ERP application, without having direct access to the underlying tables.

Concurrency Requirements
You must reduce the likelihood of deadlocks occurring when Sales.Prod and Sales.Proc2 execute.

What should you recommend for the updates to Sales.TransactionHistory?

A. a REPEATABLE READ isolation level
B. implicit transactions
C. query hints
D. a SNAPSHOT isolation level

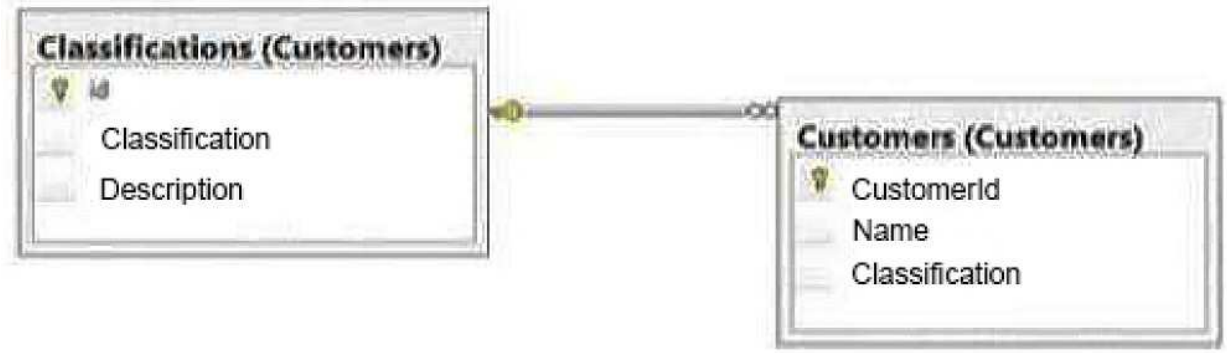
Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 67
Overview
General Overview

ADatum Corporation has offices in Miami and Montreal.
The network contains a single Active Directory forest named adatum.com. The offices connect to each other by using a WAN link that has 5-ms latency. A. Datum standardizes its database platform by using SQL Server 2014 Enterprise edition.

Databases
Each office contains databases named Sales, Inventory, Customers, Products, Personnel, and Dev.
Servers and databases are managed by a team of database administrators. Currently, all of the database administrators have the same level of permissions on all of the servers and all of the databases.
The Customers database contains two tables named Customers and Classifications.
The following graphic shows the relevant portions of the tables:
Classifications (Customers)



The following table shows the current data in the Classifications table:

ID	Classification	Description
1	Platinum	Yearly sales over 1,000,000
2	Gold	Yearly sales over 500,000
3	Silver	Yearly sales over 100,000

The Inventory database is updated frequently.
The database is often used for reporting.
A full backup of the database currently takes three hours to complete.

Stored Procedures
A stored procedure named USP_1 generates millions of rows of data for multiple reports. USP_1 combines data from five different tables from the Sales and Customers databases in a table named Table1.
After Table1 is created, the reporting process reads data from Table1 sequentially several times. After the process is complete, Table1 is deleted.
A stored procedure named USP_2 is used to generate a product list. The product list contains the names of products grouped by category.

USP_2 takes several minutes to run due to locks on the tables the procedure accesses. The locks are caused by USP_1 and USP_3.
A stored procedure named USP_3 is used to update prices. USP_3 is composed of several UPDATE statements called in sequence from within a transaction. Currently, if one of the UPDATE statements fails, the stored procedure fails. A stored procedure named USP_4 calls stored procedures in the Sales, Customers, and Inventory databases.
The nested stored procedures read tables from the Sales, Customers, and Inventory databases. USP_4 uses an EXECUTE AS clause.
All nested stored procedures handle errors by using structured exception handling. A stored procedure named USP_5 calls several stored procedures in the same database. Security checks are performed each time USP_5 calls a stored procedure.
You suspect that the security checks are slowing down the performance of USP_5. All stored procedures accessed by user applications call nested stored procedures.
The nested stored procedures are never called directly.

Design Requirements
Data Recovery
You must be able to recover data from the Inventory database if a storage failure occurs. You have a Recovery Time Objective (RTO) of 5 minutes.

You must be able to recover data from the Dev database if data is lost accidentally. You have a Recovery Point Objective (RPO) of one day.

Classification Changes
You plan to change the way customers are classified. The new classifications will have four levels based on the number of orders. Classifications may be removed or added in the future. Management requests that historical data be maintained for the previous classifications. Security A group of junior database administrators must be able to manage security for the Sales database. The junior database administrators will not have any other administrative rights. A. Datum wants to track which users run each stored procedure.

Storage
A. Datum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a disaster recovery strategy for the Inventory database. What should you include in the recommendation?

A. Log shipping
B. SQL Server Failover Clustering
C. AlwaysOn availability groups
D. Peer-to-peer replication

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
- You must be able to recover data from the Inventory database if a storage failure occurs. You have a Recovery Point Objective (RPO) of one hour.
- A. Datum Corporation has offices in Miami and Montreal.
- SQL Server Log shipping allows you to automatically send transaction log backups from a primary database on a primary server instance to one or more secondary databases on separate secondary server instances. The transaction log backups are applied to each of the secondary databases individually.

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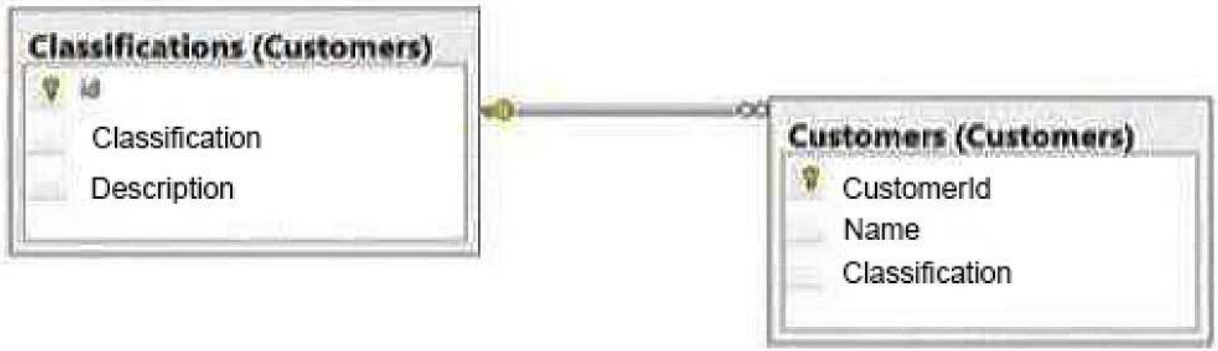

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Storage
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Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a solution to minimize the amount of time it takes to execute USP_5. What should you include in the recommendation?

A. Enable cross-database chaining.
B. Use a server role to group all logins.
C. Use the EXECUTE AS clause in USP_5.
D. Copy USP.5 to each database.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
A stored procedure named USP_5 changes data in multiple databases. Security checks are performed each time USP_5 accesses a database.
- Cross-database ownership chaining occurs when a procedure in one database depends on objects in another database. A cross-database ownership chain works in the same way as ownership chaining within a single database, except that an unbroken ownership chain requires that all the object owners are mapped to the same login account. If the source object in the source database and the target objects in the target databases are owned by the same login account, SQL Server does not check permissions on the target objects.

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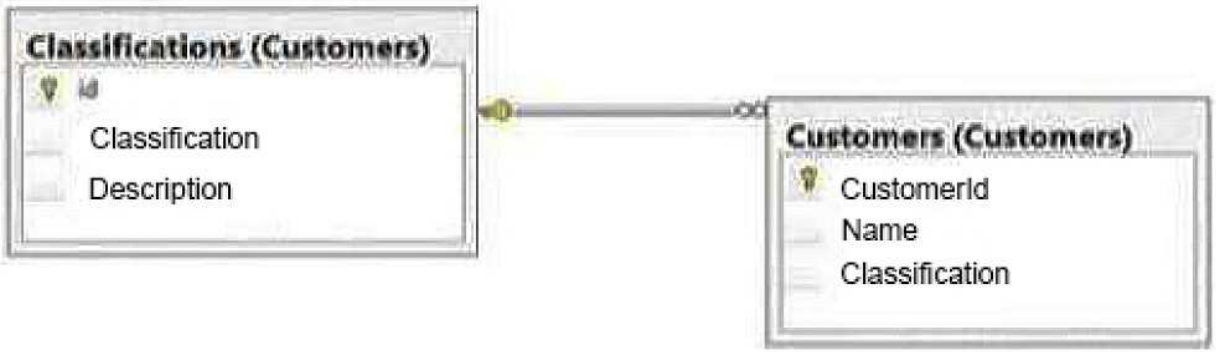

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Storage
ADatum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a solution to meet the security requirements of the junior database administrators. What should you include in the recommendation?

A. A server role
B. A database role
C. A credential
D. A shared login

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: A group of junior database administrators must be able to view the server state of the SQL Server instance that hosts the Sales database. The junior database administrators will not have any other administrative rights.
- Credentials provide a way to allow SQL Server Authentication users to have an identity outside of SQL Server. Credentials can also be used when a SQL Server Authentication user needs access to a domain resource, such as a file location to store a backup.

QUESTION 70

Overview
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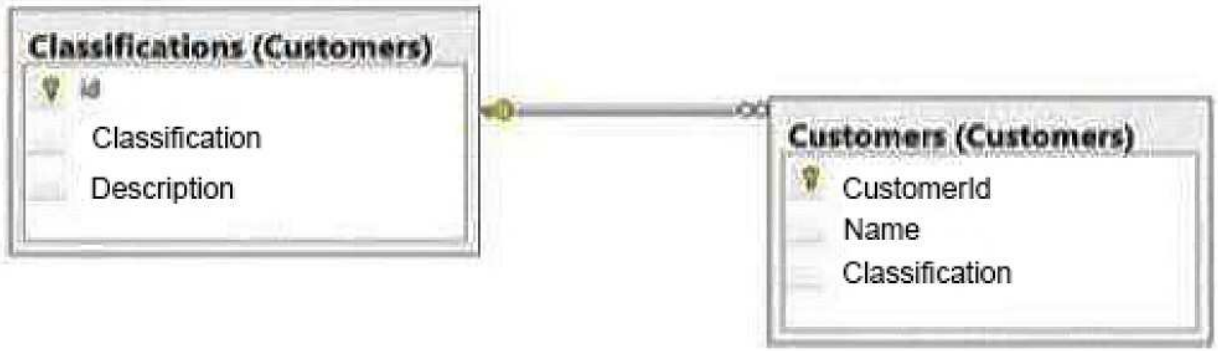

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Design Requirements
Data Recovery
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Storage
ADatum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a change to USP_3 to ensure that the procedure continues to execute even if one of the UPDATE statements fails.
Which change should you recommend?

A. Set the XACT_ABORT option to off.
B. Set the XACT_ABORT option to on.
C. Set the IMPLICIT_TRANSACTIONS option to off.

D. Set the IMPLICIT_TRANSACTIONS option to on.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: A stored procedure named USP_3 is used to update prices. USP_3 is composed of several UPDATE statements called in sequence from within a transaction. Currently, if one of the UPDATE statements fails, the stored procedure continues to execute.
- When SET XACT_ABORT is OFF, in some cases only the Transact-SQL statement that raised the error is rolled back and the transaction continues processing.

QUESTION 71
Overview
General Overview
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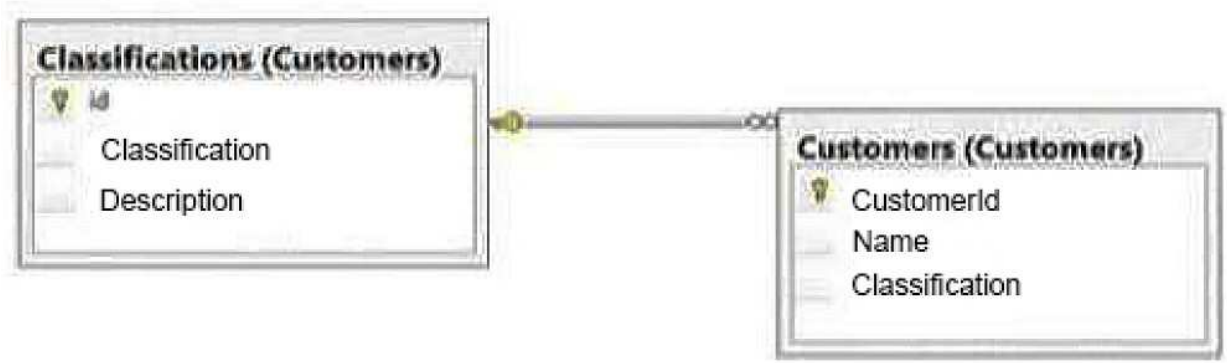

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Design Requirements
Data Recovery
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Storage

ADatum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a disaster recovery solution for the Dev database. What should you include in the recommendation?

A. The simple recovery model and full backups
B. The full recovery model, full backups, and transaction log backups
C. The full recovery model, full backups, and differential backups
D. The bulk-logged recovery model and full backups

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
You must be able to recover data from the Dev database if data is lost accidentally. You have a Recovery Point Objective (RPO) of one day.
- The simple recovery model provides the simplest form of backup and restore. This recovery model supports both database backups and file backups, but does not support log backups. Transaction log data is backed up only with the associated user data.
The absence of log backups simplifies managing backup and restore. However, a database can be restored only to the end of the most recent backup.

Incorrect Answers:
B: The bulk-logged recovery model is a special-purpose recovery model that should be used only intermittently to improve the performance of certain large-scale bulk operations, such as bulk imports of large amounts of data.

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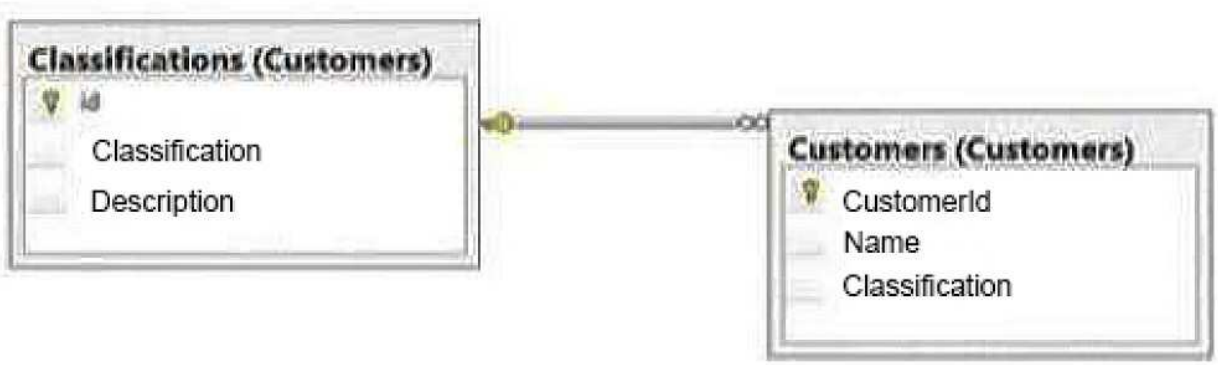

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database. Security checks are performed each time USP_5 calls a stored procedure.
You suspect that the security checks are slowing down the performance of USP_5. All stored procedures accessed by user applications call nested stored procedures.
The nested stored procedures are never called directly.

Design Requirements
Data Recovery
You must be able to recover data from the Inventory database if a storage failure occurs. You have a Recovery Time Objective (RTO) of 5 minutes.

You must be able to recover data from the Dev database if data is lost accidentally. You have a Recovery Point Objective (RPO) of one day.

Classification Changes
You plan to change the way customers are classified. The new classifications will have four levels based on the number of orders. Classifications may be removed or added in the future. Management requests that historical data be maintained for the previous classifications. Security A group of junior database administrators must be able to manage security for the Sales database. The junior database administrators will not have any other administrative rights. A. Datum wants to track which users run each stored procedure.

Storage
ADatum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a solution for the planned changes to the customer classifications. What should you recommend? (Each correct answer presents part of the solution. Choose all that apply.)

A. Add a row to the Customers table each time a classification changes.
B. Add columns for each classification to the Customers table.
C. Add a table to track any changes made to the classification of each customer.
D. Add a column to the Classifications table to track the status of each classification.
E. Implement change data capture.

Correct Answer: CD
Section: (none)
Explanation

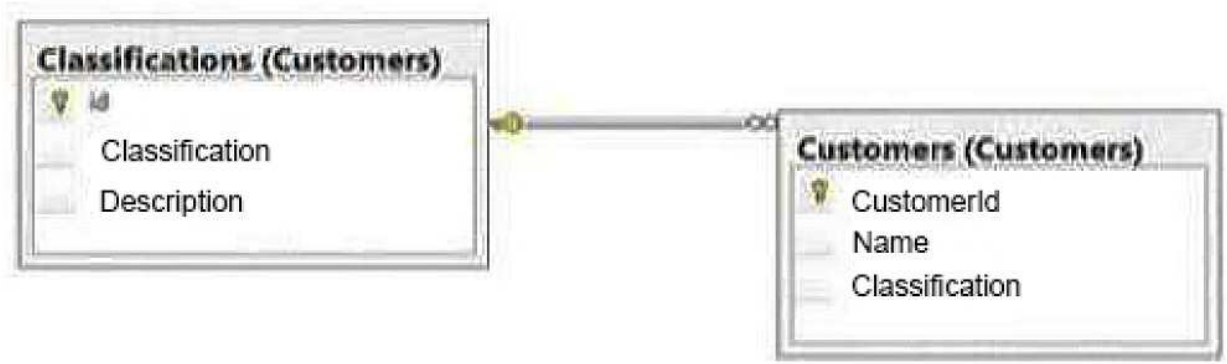
Explanation/Reference:
Explanation:
Scenario:

You plan to change the way customers are classified.
The new classifications will have four levels based on the number of orders. Classifications may be removed or added in the future.

Incorrect Answers:
E: Change data capture provides information about DML changes on a table and a database. By using change data capture, you eliminate expensive techniques such as user triggers, timestamp columns, and join queries.

QUESTION 73
Overview
General Overview
ADatum Corporation has offices in Miami and Montreal.
The network contains a single Active Directory forest named adatum.com. The offices connect to each other by using a WAN link that has 5-ms latency. A. Datum standardizes its database platform by using SQL Server 2014 Enterprise edition.

Databases
Each office contains databases named Sales, Inventory, Customers, Products, Personnel, and Dev.
Servers and databases are managed by a team of database administrators. Currently, all of the database administrators have the same level of permissions on all of the servers and all of the databases.
The Customers database contains two tables named Customers and Classifications.
The following graphic shows the relevant portions of the tables:



The following table shows the current data in the Classifications table:

ID	Classification	Description
1	Platinum	Yearly sales over 1,000,000
2	Gold	Yearly sales over 500,000
3	Silver	Yearly sales over 100,000

The Inventory database is updated frequently.
The database is often used for reporting.
A full backup of the database currently takes three hours to complete.

Stored Procedures
A stored procedure named USP_1 generates millions of rows of data for multiple reports. USP_1 combines data from five different tables from the Sales and Customers databases in a table named Table1.
After Table1 is created, the reporting process reads data from Table1 sequentially several times. After the process is complete, Table1 is deleted.
A stored procedure named USP_2 is used to generate a product list. The product list contains the names of products grouped by category.
USP_2 takes several minutes to run due to locks on the tables the procedure accesses. The locks are caused by USP_1 and USP_3.
A stored procedure named USP_3 is used to update prices. USP_3 is composed of several UPDATE statements called in sequence from within a transaction.
Currently, if one of the UPDATE statements fails, the stored procedure fails. A stored procedure named USP_4 calls stored procedures in the Sales, Customers, and Inventory databases.
The nested stored procedures read tables from the Sales, Customers, and Inventory databases. USP_4 uses an EXECUTE AS clause.
All nested stored procedures handle errors by using structured exception handling. A stored procedure named USP_5 calls several stored procedures in the same database. Security checks are performed each time USP_5 calls a stored procedure.
You suspect that the security checks are slowing down the performance of USP_5. All stored procedures accessed by user applications call nested stored procedures.
The nested stored procedures are never called directly.

Design Requirements
Data Recovery
You must be able to recover data from the Inventory database if a storage failure occurs. You have a Recovery Time Objective (RTO) of 5 minutes.

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Storage
ADatum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a change to USP_3 to ensure that the procedure completes only if all of the UPDATE statements complete. Which change should you recommend?

A. Set the XACT_ABORT option to off
B. Set the XACT_ABORT option to on.
C. Set the IMPLICIT_TRANSACTIONS option to off.
D. Set the IMPLICIT_TRANSACTIONS option to on.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
A stored procedure named USP_3 is used to update prices. USP_3 is composed of several UPDATE statements called in sequence from within a transaction.
Currently, if one of the UPDATE statements fails, the stored procedure continues to execute.
- When SET XACT_ABORT is ON, if a Transact-SQL statement raises a run-time error, the entire transaction is terminated and rolled back.

QUESTION 74
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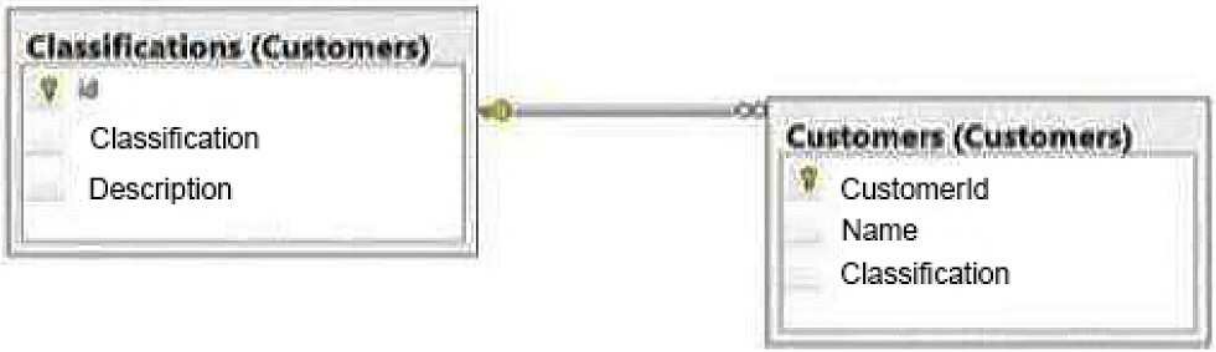

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The nested stored procedures read tables from the Sales, Customers, and Inventory databases. USP_4 uses an EXECUTE AS clause.
All nested stored procedures handle errors by using structured exception handling. A stored procedure named USP_5 calls several stored procedures in the same database. Security checks are performed each time USP_5 calls a stored procedure.
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Design Requirements
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Storage
ADatum has limited storage. Whenever possible, all storage space should be minimized for all databases and all backups.

Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a solution for the error handling of USP_3. The solution must minimize the amount of custom code required. What should you recommend?

A. Use the @@ERROR variable in the nested stored procedures.
B. Use a TRY CATCH block in the called stored procedures.
C. Use the @@ERROR variable in the called stored procedures.
D. Use the RAISERROR command in the nested stored procedures.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

Explanation:
- Must catch and handle the error.
Scenario:
A stored procedure named USP_3 is used to update prices. USP_3 is composed of several UPDATE statements called in sequence from within a transaction. Currently, if one of the UPDATE statements fails, the stored procedure continues to execute.

QUESTION 75
Background
Corporate Information
Fabrikam, Inc. is a retailer that sells electronics products on the Internet. The company has a headquarters site and one satellite sales office. You have been hired as the database administrator, and the company wants you to change the architecture of the Fabrikam ecommerce site to optimize performance and reduce downtime while keeping capital expenditures to a minimum. To help with the solution, Fabrikam has decided to use cloud resources as well as on-premise servers.

Physical Locations
All of the corporate executives, product managers, and support staff are stationed at the headquarters office. Half of the sales force works at this location. There is also a satellite sales office. The other half of the sales force works at the satellite office in order to have sales people closer to clients in that area. Only sales people work at the satellite location.

Problem Statement
To be successful, Fabrikam needs a website that is fast and has a high degree of system uptime. The current system operates on a single server and the company is not happy with the single point of failure this presents. The current nightly backups have been failing due to insufficient space on the available drives and manual drive cleanup often needing to happen to get past the errors. Additional space will not be made available for backups on the HQ or satellite servers. During your investigation, you discover that the sales force reports are causing significant contention.

Configuration
Windows Logins
The network administrators have set up Windows groups to make it easier to manage security. Users may belong to more than one group depending on their role. The groups have been set up as shown in the following table:

Group	Members
OurDomain\Management	All corporate executives
OurDomain\SalesStaff	All sales people
OurDomain\ProductionStaff	All product managers and support staff
OurDomain\AllUsers	Everyone
OurDomain\CustomerSupport	Customer support representatives

Server Configuration The IT department has configured two physical servers with Microsoft Windows Server 2012 R2 and SQL Server 2014 Enterprise Edition and one Windows Azure Server. There are two tiers of storage available for use by database files only a fast tier and a slower tier. Currently the data and log files are

stored on the fast tier of storage only. If a possible use case exists, management would like to utilize the slower tier storage for data files. The servers are configured as shown in the following table:

Location	Server
Company headquarters	HQ_Server
Satellite sales office	Satellite_Server
Microsoft Windows Azure (cloud)	Cloud_File Server

Database
Currently all information is stored in a single database called ProdDB, created with the following script:

```
CREATE DATABASE ProdDB
GO
ALTER DATABASE ProdDB SET RECOVERY SIMPLE
GO
```

The Product table is in the Production schema owned by the ProductionStaff Windows group. It is the main table in the system so access to information in the Product table should be as fast as possible. The columns in the Product table are defined as shown in the following table:

Column	Data type
ProductID	INT
ProductName	VARCHAR(100)
ProductDescription	VARCHAR(MAX)
ProductPrice	SMALLMONEY
QuantityOnHand	INT
ProductCost	SMALLMONEY
ProductSupplierID	INT

The SalesOrderDetail table holds the details about each sale. It is in the Sales schema owned by the SalesStaff Windows group. This table is constantly being updated, inserted into, and read. The columns in the SalesOrderDetail table are defined as shown in the following table:

Column	Data type
SalesOrderDetailID	INT
ProductID	INT
SalePrice	SMALLMONEY
SaleQuantity	INT

Database Issues
The current database does not perform well. Additionally, a recent disk problem caused the system to go down, resulting in lost sales revenue. In reviewing the current system, you found that there are no automated maintenance procedures. The database is severely fragmented, and everyone has read and write access.

Requirements
Database
The database should be configured to maximize uptime and to ensure that very little data is lost in the event of a server failure. To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memoryoptimized table. The auto-update statistics option is set off on this database. Only product managers are allowed to add products or to make changes to the name, description, price, cost, and supplier. The changes are made in an internal database and pushed to the Product table in ProdDB during system maintenance time. Product managers and others working at the headquarters location also should be able to generate reports that include supplier and cost information.

Customer data access
Customers access the company's website to order products, so they must be able to read product information such asname, description, and price from the Product table. When customers place orders, stored procedures calledby the website update product quantityon-hand values. This means the product table is constantly updated at randomtimes.

Customer support data access
Customer support representatives need to be able to view and not update or change product information. Management does not want the customer support representatives to be able to see the product cost or any supplier information.

Sales force data access
Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

Historical Data
The system should keep historical information about customers who access the site so that sales people can see how frequently customers log in and how long they stay on the site.

The information should be stored in a table called Customer Access. Supporting this requirement should have minimal impact on production website performance.

Backups
The recovery strategy for Fabrikam needs to include the ability to do point in time restores and minimize the risk of data loss by performing transaction log backups every 15 minutes.

Database Maintenance
The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed
- Revoked all existing read and write access to the database, leaving the schema ownership in place.
- Configured an Azure storage container secured with the storage account name MyStorageAccount with the primary access key StorageAccountKey on the cloud file server.
- SQL Server 2014 has been configured on the satellite server and is ready for use.
- On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

You need to write code that will allow the sales force to retrieve data for their reports with the least amount of effort. Which code should you use?

Option A

```
CREATE PROCEDURE Sales.usp_CustomerSalesReport
      WITH EXECUTE AS 'OurDomain\ProductionStaff'
AS
SELECT *
FROM Production.Product
JOIN Sales.SalesOrderDetail ON Product.ProductID =
SalesOrderDetail.ProductID'
```

Option B

```
CREATE VIEW Sales.vm_CustomerSalesReports
AS
SELECT *
FROM Production.Product
JOIN Sales.SalesOrderDetail ON Product.ProductID =
SalesOrderDetail.ProductID'
```

Option C

```
CREATE PROCEDURE Sales.usp_CustomerSalesReport
AS
SELECT *
FROM Production.Product
JOIN Sales.SalesOrderDetail ON Product.ProductID =
SalesOrderDetail.ProductID
```

Option D

```
CREATE USER MyProxy WITHOUT LOGIN
GRANT SELECT
      ON Production.Product
      TO MyProxy
GRANT SELECT
      ON Sales.SalesOrderDetail
      TO MyProxy
CREATE PROCEDURE Sales.usp_CustomerSalesReport
AS
SELECT *
FROM Production.Product
JOIN Sales.SalesOrderDetail ON Product.ProductID =
SalesOrderDetail.ProductID
```

A. Option A
B. Option B
C. Option C
D. Option D

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario:
- During your investigation, you discover that the sales force reports are causing significant contention.
- Sales force data access Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

QUESTION 76
Background
Corporate Information
Fabrikam, Inc. is a retailer that sells electronics products on the Internet. The company has a headquarters site and one satellite sales office. You have been hired as the database administrator, and the company wants you to change the architecture of the Fabrikam ecommerce site to optimize performance and reduce downtime while keeping capital expenditures to a minimum. To help with the solution, Fabrikam has decided to use cloud resources as well as on-premise servers.

Physical Locations
All of the corporate executives, product managers, and support staff are stationed at the headquarters office. Half of the sales force works at this location. There is also a satellite sales office. The other half of the sales force works at the satellite office in order to have sales people closer to clients in that area. Only sales people work at the satellite location.

Problem Statement
To be successful, Fabrikam needs a website that is fast and has a high degree of system uptime. The current system operates on a single server and the company is not happy with the single point of failure this presents. The current nightly backups have been failing due to insufficient space on the available drives and manual drive cleanup often needing to happen to get past the errors. Additional space will not be made available for backups on the HQ or satellite servers. During your investigation, you discover that the sales force reports are causing significant contention.

Configuration
Windows Logins
The network administrators have set up Windows groups to make it easier to manage security. Users may belong to more than one group depending on their role.

The groups have been set up as shown in the following table:

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OurDomain\AllUsers	Everyone
OurDomain\CustomerSupport	Customer support representatives

Server Configuration The IT department has configured two physical servers with Microsoft Windows Server 2012 R2 and SQL Server 2014 Enterprise Edition and one Windows Azure Server. There are two tiers of storage available for use by database files only a fast tier and a slower tier. Currently the data and log files are stored on the fast tier of storage only. If a possible use case exists, management would like to utilize the slower tier storage for data files. The servers are configured as shown in the following table:

Location	Server
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Database
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The Product table is in the Production schema owned by the ProductionStaff Windows group. It is the main table in the system so access to information in the Product table should be as fast as possible. The columns in the Product table are defined as shown in the following table:

Column	Data type
ProductID	INT
ProductName	VARCHAR(100)
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ProductPrice	SMALLMONEY
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ProductSupplierID	INT

The SalesOrderDetail table holds the details about each sale. It is in the Sales schema owned by the SalesStaff Windows group. This table is constantly being updated, inserted into, and read. The columns in the SalesOrderDetail table are defined as shown in the following table:

Column	Data type
SalesOrderDetailID	INT
ProductID	INT
SalePrice	SMALLMONEY
SaleQuantity	INT

Database Issues
The current database does not perform well. Additionally, a recent disk problem caused the system to go down, resulting in lost sales revenue. In reviewing the current system, you found that there are no automated maintenance procedures. The database is severely fragmented, and everyone has read and write access.

Requirements
Database
The database should be configured to maximize uptime and to ensure that very little data is lost in the event of a server failure. To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memoryoptimized table. The auto-update statistics option is set off on this database. Only product managers are allowed to add products or to make changes to the name, description, price, cost, and supplier. The changes are made in an internal database and pushed to the Product table in ProdDB during system maintenance time. Product managers and others working at the headquarters location also should be able to generate reports that include supplier and cost information.

Customer data access
Customers access the company's website to order products, so they must be able to read product information such asname, description, and price from the Product table. When customers place orders, stored procedures calledby the website update product quantityon-hand values. This means the product table is constantly updated at randomtimes.

Customer support data access
Customer support representatives need to be able to view and not update or change product information. Management does not want the customer support representatives to be able to see the product cost or any supplier information.

Sales force data access
Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

Historical Data
The system should keep historical information about customers who access the site so that sales people can see how frequently customers log in and how long they stay on the site.

The information should be stored in a table called Customer Access. Supporting this requirement should have minimal impact on production website performance.

Backups
The recovery strategy for Fabrikam needs to include the ability to do point in time restores and minimize the risk of data loss by performing transaction log backups every 15 minutes.

Database Maintenance
The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed
- Revoked all existing read and write access to the database, leaving the schema ownership in place.
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- SQL Server 2014 has been configured on the satellite server and is ready for use.
- On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

You need to configure security on the Product table for customer support representatives.
Which two actions should you perform? Each correct answer presents part of the solution. (Choose two.)

A. Create a view called CustProduct that includes columns ProductID. ProductName, Product Description, QuantityOnHand, ProductPrice, ProductCost, and ProductSupplierID.
B. GRANT ALL on CustProduct TO OurDomain\CustomerSupport
C. Create a user-defined data type called CustProduct that includes columns ProductID, ProductName, Product Description, and ProductPrice.
D. Create a view called CustProduct that includes columns ProductID, ProductName, Product Description, QuantityOnHand, and ProductPrice.

E. GRANT SELECT on CustProduct TO OurDomain\CustomerSupport.
F. GRANT SELECT on CustProduct TO public.

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Give access to CustomerSupport through a view. The view must include all these columns (refer to scenario). GRANT Object Permissions (Transact-SQL)

QUESTION 77
Background
Corporate Information
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Database Issues
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Requirements
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Historical Data
The system should keep historical information about customers who access the site so that sales people can see how frequently customers log in and how long they stay on the site.

The information should be stored in a table called Customer Access. Supporting this requirement should have minimal impact on production website performance.

Backups
The recovery strategy for Fabrikam needs to include the ability to do point in time restores and minimize the risk of data loss by performing transaction log backups every 15 minutes.

Database Maintenance
The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed
- Revoked all existing read and write access to the database, leaving the schema ownership in place.
- Configured an Azure storage container secured with the storage account name MyStorageAccount with the primary access key StorageAccountKey on the cloud file server.
- SQL Server 2014 has been configured on the satellite server and is ready for use.
- On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

You need to implement a backup strategy to support the requirements.
Which two actions should you perform? Each correct answer presents part of the solution. (Choose two.)

A. Create a credential called MyCredential on SQL Server by using a Windows domain account and password.
B. Schedule a full backup by using the command BACKUP DATABASE ProdDB TO DISK...
C. Create a share on your Windows Azure site by using your Windows Azure storage account information, and grant permission to the SQL Server service login.
D. Schedule a full backup by using the command BACKUP DATABASE ProdDB TO URL ... WTTH CREDENTIAL=N'MyCredential'
E. Create a share on the hot standby site and grant permission to the SQL Server service login.

F. Create a credential called MyCredential on SQL Server, using MyStorageAccount for the storage account name and StorageAccountKey for the access key.
G. Schedule a full backup by using the command BACKUP DATABASE ProdDB TO SHARE ... WITH CREDENTIAL=N' MyCredential'

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: The current nightly backups have been failing due to insufficient space on the available drives and manual drive cleanup often needing to happen to get past the errors. Additional space will not be made available for backups on the HQ or satellite servers.
- Need to store files in the cloud.
- Manage your backups to Windows Azure: Using the same methods used to backup to DISK and TAPE, you can now back up to Windows Azure storage by Specifying URL as the backup destination.
You can use this feature to manually backup or configure your own backup strategy like you would for a local storage or other off-site options.
This feature is also referred to as SQL Server Backup to URL. SQL Server Managed Backup to Windows Azure

QUESTION 78
Background
Corporate Information
Fabrikam, Inc. is a retailer that sells electronics products on the Internet. The company has a headquarters site and one satellite sales office. You have been hired as the database administrator, and the company wants you to change the architecture of the Fabrikam ecommerce site to optimize performance and reduce downtime while keeping capital expenditures to a minimum. To help with the solution, Fabrikam has decided to use cloud resources as well as on-premise servers.

Physical Locations
All of the corporate executives, product managers, and support staff are stationed at the headquarters office. Half of the sales force works at this location. There is also a satellite sales office. The other half of the sales force works at the satellite office in order to have sales people closer to clients in that area. Only sales people work at the satellite location.

Problem Statement
To be successful, Fabrikam needs a website that is fast and has a high degree of system uptime. The current system operates on a single server and the company is not happy with the single point of failure this presents. The current nightly backups have been failing due to insufficient space on the available drives and manual drive cleanup often needing to happen to get past the errors. Additional space will not be made available for backups on the HQ or satellite servers. During your investigation, you discover that the sales force reports are causing significant contention.

Configuration
Windows Logins
The network administrators have set up Windows groups to make it easier to manage security. Users may belong to more than one group depending on their role. The groups have been set up as shown in the following table:

Group	Members
OurDomain\Management	All corporate executives
OurDomain\SalesStaff	All sales people
OurDomain\ProductionStaff	All product managers and support staff
OurDomain\AllUsers	Everyone
OurDomain\CustomerSupport	Customer support representatives

Server Configuration The IT department has configured two physical servers with Microsoft Windows Server 2012 R2 and SQL Server 2014 Enterprise Edition and one Windows Azure Server. There are two tiers of storage available for use by database files only a fast tier and a slower tier. Currently the data and log files are stored on the fast tier of storage only. If a possible use case exists, management would like to utilize the slower tier storage for data files. The servers are configured as shown in the following table:

Location	Server
Company headquarters	HQ_Server
Satellite sales office	Satellite_Server
Microsoft Windows Azure (cloud)	Cloud_File Server

Database
Currently all information is stored in a single database called ProdDB, created with the following script:

```
CREATE DATABASE ProdDB
GO
ALTER DATABASE ProdDB SET RECOVERY SIMPLE
GO
```

The Product table is in the Production schema owned by the ProductionStaff Windows group. It is the main table in the system so access to information in the Product table should be as fast as possible. The columns in the Product table are defined as shown in the following table:

Column	Data type
ProductID	INT
ProductName	VARCHAR(100)
ProductDescription	VARCHAR(MAX)
ProductPrice	SMALLMONEY
QuantityOnHand	INT
ProductCost	SMALLMONEY
ProductSupplierID	INT

The SalesOrderDetail table holds the details about each sale. It is in the Sales schema owned by the SalesStaff Windows group. This table is constantly being updated, inserted into, and read. The columns in the SalesOrderDetail table are defined as shown in the following table:

Column	Data type
SalesOrderDetailID	INT
ProductID	INT
SalePrice	SMALLMONEY
SaleQuantity	INT

Database Issues
The current database does not perform well. Additionally, a recent disk problem caused the system to go down, resulting in lost sales revenue. In reviewing the current system, you found that there are no automated maintenance procedures. The database is severely fragmented, and everyone has read and write access.

Requirements
Database
The database should be configured to maximize uptime and to ensure that very little data is lost in the event of a server failure. To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memoryoptimized table. The auto-update statistics option is set off on this database. Only product managers are allowed to add products or to make changes to the name, description, price, cost, and supplier. The changes are made in an internal database and pushed to the Product table in ProdDB during system maintenance time. Product managers and others working at the headquarters location also should be able to generate reports that include supplier and cost information.

Customer data access
Customers access the company's website to order products, so they must be able to read product information such asname, description, and price from the Product table. When customers place orders, stored procedures calledby the website update product quantityon-hand values. This means the product table is constantly updated at randomtimes.

Customer support data access
Customer support representatives need to be able to view and not update or change product information. Management does not want the customer support representatives to be able to see the product cost or any supplier information.

Sales force data access
Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

Historical Data
The system should keep historical information about customers who access the site so that sales people can see how frequently customers log in and how long they stay on the site.

The information should be stored in a table called Customer Access. Supporting this requirement should have minimal impact on production website performance.

Backups
The recovery strategy for Fabrikam needs to include the ability to do point in time restores and minimize the risk of data loss by performing transaction log backups every 15 minutes.

Database Maintenance
The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed
Revoked all existing read and write access to the database, leaving the schema ownership in place.
Configured an Azure storage container secured with the storage account name MyStorageAccount with the primary access key StorageAccountKey on the cloud file server.
SQL Server 2014 has been configured on the satellite server and is ready for use.
On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

You need to implement changes to the system to reduce contention and improve performance of the SalesOrderDetail table.
Which three actions should you perform? Each correct answer presents part of the solution. (Choose three.)

A. Use (SNAPSHOT] hints in the report queries
B. ALTER DATABASE [ProdDB] SET READ_COMMITTED_SNAPSHOT ON
C. ALTER DATABASE [ProdDB] SET READ_COMMITTED_SNAPSHOT OFF
D. SET TRANSACTION ISOLATION LEVEL SNAPSHOT
E. Use (TABLOCK) hints in the report queries

F. SET TRANSACTION ISOLATION LEVEL SERIALIZABLE
G. ALTER DATABASE [ProdDB] SET ALLOW.SNAPSHOT ISOLATION ON H. Use (SNAPSHOT] hints in the update statements

Correct Answer: ABF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: The SalesOrderDetail table holds the details about each sale. It is in the Sales schema owned by the SalesStaff Windows group. This table is constantly being updated, inserted into, and read.
- Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.
- READ_COMMITTED_SNAPSHOT { ON | OFF } ON Enables Read-Committed Snapshot option at the database level. When it is enabled, DML statements start generating row versions even when no transaction uses Snapshot Isolation. Once this option is enabled, the transactions specifying the read committed isolation level use row versioning instead of locking.
When a transaction runs at the read committed isolation level, all statements see a snapshot of data as it exists at the start of the statement. OFF Turns off Read-Committed Snapshot option at the database level. Transactions specifying the READ COMMITTED isolation level use locking. ALTER DATABASE SET Options (Transact-SQL) SET Statements (Transact-SQL)

QUESTION 79
You manage database servers in a high security environment. Your company has the following auditing requirements:
- SQL Server auditing must be enabled on all server instances.
- Auditing results must be logged in the Windows Security even log.

A routine review shows that a SQL Server is writing auditing entries to Windows Application event log. You change the SQL Server audit target to Windows Security event long. SQL Server auditing stops working on the server.

You need to ensure that the server meets the auditing requirements.

Which two actions should you perform? Each correct answer presents part of the solution.

A. Grant the manage auditing and security log permission to the SQL Server service account.
B. Grant the generate security audits permission on the SQL Server service account.
C. Update Windows security policy to audit object access.
D. Restart the SQL Server Agent service.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
There are two key requirements for writing SQL Server server audits to the Windows Security log:
- The audit object access setting must be configured to capture the events.
- The account that the SQL Server service is running under must have the generate security audits permission to write to the Windows Security log.

References: https://docs.microsoft.com/en-us/sql/relational-databases/security/auditing/write-sql-server-audit-events-to-the-security-log

QUESTION 80
Background
Corporate Information
Fabrikam, Inc. is a retailer that sells electronics products on the Internet. The company has a headquarters site and one satellite sales office. You have been hired as the database administrator, and the company wants you to change the architecture of the Fabrikam ecommerce site to optimize performance and reduce downtime while keeping capital expenditures to a minimum. To help with the solution, Fabrikam has decided to use cloud resources as well as on-premise servers.

Physical Locations
All of the corporate executives, product managers, and support staff are stationed at the headquarters office. Half of the sales force works at this location. There is also a satellite sales office. The other half of the sales force works at the satellite office in order to have sales people closer to clients in that area. Only sales people work at the satellite location.

Problem Statement
To be successful, Fabrikam needs a website that is fast and has a high degree of system uptime. The current system operates on a single server and the company is not happy with the single point of failure this presents. The current nightly backups have been failing due to insufficient space on the available drives and manual drive cleanup often needing to happen to get past the errors. Additional space will not be made available for backups on the HQ or satellite servers. During your investigation, you discover that the sales force reports are causing significant contention.

Configuration
Windows Logins
The network administrators have set up Windows groups to make it easier to manage security. Users may belong to more than one group depending on their role. The groups have been set up as shown in the following table:

Group	Members
OurDomain\Management	All corporate executives
OurDomain\SalesStaff	All sales people
OurDomain\ProductionStaff	All product managers and support staff
OurDomain\AllUsers	Everyone
OurDomain\CustomerSupport	Customer support representatives

Server Configuration The IT department has configured two physical servers with Microsoft Windows Server 2012 R2 and SQL Server 2014 Enterprise Edition and one Windows Azure Server. There are two tiers of storage available for use by database files only a fast tier and a slower tier. Currently the data and log files are stored on the fast tier of storage only. If a possible use case exists, management would like to utilize the slower tier storage for data files. The servers are configured as shown in the following table:

Location	Server
Company headquarters	HQ_Server
Satellite sales office	Satellite_Server
Microsoft Windows Azure (cloud)	Cloud_File Server

Database
Currently all information is stored in a single database called ProdDB, created with the following script:

```
CREATE DATABASE ProdDB
GO
ALTER DATABASE ProdDB SET RECOVERY SIMPLE
GO
```

The Product table is in the Production schema owned by the ProductionStaff Windows group. It is the main table in the system so access to information in the Product table should be as fast as possible. The columns in the Product table are defined as shown in the following table:

Column	Data type
ProductID	INT
ProductName	VARCHAR(100)
ProductDescription	VARCHAR(MAX)
ProductPrice	SMALLMONEY
QuantityOnHand	INT
ProductCost	SMALLMONEY
ProductSupplierID	INT

The SalesOrderDetail table holds the details about each sale. It is in the Sales schema owned by the SalesStaff Windows group. This table is constantly being updated, inserted into, and read. The columns in the SalesOrderDetail table are defined as shown in the following table:

Column	Data type
SalesOrderDetailID	INT
ProductID	INT
SalePrice	SMALLMONEY
SaleQuantity	INT

Database Issues
The current database does not perform well. Additionally, a recent disk problem caused the system to go down, resulting in lost sales revenue. In reviewing the current system, you found that there are no automated maintenance procedures. The database is severely fragmented, and everyone has read and write access.

Requirements
Database
The database should be configured to maximize uptime and to ensure that very little data is lost in the event of a server failure. To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memoryoptimized table. The auto-update statistics option is set off on this database. Only product managers are allowed to add products or to make changes to the name, description, price, cost, and supplier. The changes are made in an internal database and pushed to the Product table in ProdDB during system maintenance time. Product managers and others working at the headquarters location also should be able to generate reports that include supplier and cost information.

Customer data access
Customers access the company's website to order products, so they must be able to read product information such asname, description, and price from the Product table. When customers place orders, stored procedures calledby the website update product quantityon-hand values. This means the product table is constantly updated at randomtimes.

Customer support data access
Customer support representatives need to be able to view and not update or change product information. Management does not want the customer support representatives to be able to see the product cost or any supplier information.

Sales force data access
Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

Historical Data
The system should keep historical information about customers who access the site so that sales people can see how frequently customers log in and how long they stay on the site.

The information should be stored in a table called Customer Access. Supporting this requirement should have minimal impact on production website performance.

Backups
The recovery strategy for Fabrikam needs to include the ability to do point in time restores and minimize the risk of data loss by performing transaction log backups every 15 minutes.

Database Maintenance
The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed
- Revoked all existing read and write access to the database, leaving the schema ownership in place.
- Configured an Azure storage container secured with the storage account name MyStorageAccount with the primary access key StorageAccountKey on the cloud file server.
- SQL Server 2014 has been configured on the satellite server and is ready for use.
- On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

You need to change the ProdDB database.

Which two database options should you change to meet the requirements? Each correct answer presents part of the solution. (Choose two.)

A. CONTAINS FILESTREAM
B. Change recovery model to FULL
C. CONTAINMENT = PARTIAL
D. Change recovery model to BULK_LOGGED
E. COLLATE IN.MEMORY
F. CONTAINS MEMORY OPTIMIZED DATA

Correct Answer: EF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memory-optimized table. Collations and Code Pages FileGroupDefinition.ContainsMemoryOptimizedData Property (Microsoft.SqlServer.TransactSql.ScriptDom)

QUESTION 81
Background
Corporate Information

Fabrikam, Inc. is a retailer that sells electronics products on the Internet. The company has a headquarters site and one satellite sales office. You have been hired as the database administrator, and the company wants you to change the architecture of the Fabrikam ecommerce site to optimize performance and reduce downtime while keeping capital expenditures to a minimum. To help with the solution, Fabrikam has decided to use cloud resources as well as on-premise servers.

Physical Locations
All of the corporate executives, product managers, and support staff are stationed at the headquarters office. Half of the sales force works at this location. There is also a satellite sales office. The other half of the sales force works at the satellite office in order to have sales people closer to clients in that area. Only sales people work at the satellite location.

Problem Statement
To be successful, Fabrikam needs a website that is fast and has a high degree of system uptime. The current system operates on a single server and the company is not happy with the single point of failure this presents. The current nightly backups have been failing due to insufficient space on the available drives and manual drive cleanup often needing to happen to get past the errors. Additional space will not be made available for backups on the HQ or satellite servers. During your investigation, you discover that the sales force reports are causing significant contention.

Configuration
Windows Logins
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Group	Members
OurDomain\Management	All corporate executives
OurDomain\SalesStaff	All sales people
OurDomain\ProductionStaff	All product managers and support staff
OurDomain\AllUsers	Everyone
OurDomain\CustomerSupport	Customer support representatives

Server Configuration The IT department has configured two physical servers with Microsoft Windows Server 2012 R2 and SQL Server 2014 Enterprise Edition and one Windows Azure Server. There are two tiers of storage available for use by database files only a fast tier and a slower tier. Currently the data and log files are stored on the fast tier of storage only. If a possible use case exists, management would like to utilize the slower tier storage for data files. The servers are configured as shown in the following table:

Location	Server
Company headquarters	HQ_Server
Satellite sales office	Satellite_Server
Microsoft Windows Azure (cloud)	Cloud_File Server

Database
Currently all information is stored in a single database called ProdDB, created with the following script:

```
CREATE DATABASE ProdDB
GO
ALTER DATABASE ProdDB SET RECOVERY SIMPLE
GO
```

The Product table is in the Production schema owned by the ProductionStaff Windows group. It is the main table in the system so access to information in the Product table should be as fast as possible. The columns in the Product table are defined as shown in the following table:

Column	Data type
ProductID	INT
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ProductDescription	VARCHAR(MAX)
ProductPrice	SMALLMONEY
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ProductCost	SMALLMONEY
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The SalesOrderDetail table holds the details about each sale. It is in the Sales schema owned by the SalesStaff Windows group. This table is constantly being updated, inserted into, and read. The columns in the SalesOrderDetail table are defined as shown in the following table:

Column	Data type
SalesOrderDetailID	INT
ProductID	INT
SalePrice	SMALLMONEY
SaleQuantity	INT

Database Issues
The current database does not perform well. Additionally, a recent disk problem caused the system to go down, resulting in lost sales revenue. In reviewing the current system, you found that there are no automated maintenance procedures. The database is severely fragmented, and everyone has read and write access.

Requirements
Database
The database should be configured to maximize uptime and to ensure that very little data is lost in the event of a server failure. To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memoryoptimized table. The auto-update statistics option is set off on this database. Only product managers are allowed to add products or to make changes to the name, description, price, cost, and supplier. The changes are made in an internal database and pushed to the Product table in ProdDB during system maintenance time. Product managers and others working at the headquarters location also should be able to generate reports that include supplier and cost information.

Customer data access
Customers access the company's website to order products, so they must be able to read product information such asname, description, and price from the Product table. When customers place orders, stored procedures calledby the website update product quantityon-hand values. This means the product table is constantly updated at randomtimes.

Customer support data access
Customer support representatives need to be able to view and not update or change product information. Management does not want the customer support representatives to be able to see the product cost or any supplier information.

Sales force data access
Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

Historical Data
The system should keep historical information about customers who access the site so that sales people can see how frequently customers log in and how long they stay on the site.

The information should be stored in a table called Customer Access. Supporting this requirement should have minimal impact on production website performance.

Backups
The recovery strategy for Fabrikam needs to include the ability to do point in time restores and minimize the risk of data loss by performing transaction log backups every 15 minutes.

Database Maintenance
The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed
- Revoked all existing read and write access to the database, leaving the schema ownership in place.
- Configured an Azure storage container secured with the storage account name MyStorageAccount with the primary access key StorageAccountKey on the cloud file server.
- SQL Server 2014 has been configured on the satellite server and is ready for use.
- On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

You need to recommend a solution to back up DB1. What should you include in the recommendation?

A. Azure Table Storage
B. Azure Queue storage
C. Azure Blob storage
D. Azure Document DB

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
For SQL Server the Azure Blob Storage service offers a better alternative to the often used tape option to archive backups. Tape storage might require physical transportation to an off-site facility and measures to protect the media. Storing your backups in Azure Blob Storage provides an instant, highly available, and a durable archiving option.

References: https://azure.microsoft.com/en-us/documentation/articles/storage-use-storage-sql-server-backup/restore

QUESTION 82
Background
Corporate Information
Fabrikam, Inc. is a retailer that sells electronics products on the Internet. The company has a headquarters site and one satellite sales office. You have been hired as the database administrator, and the company wants you to change the architecture of the Fabrikam ecommerce site to optimize performance and reduce downtime while keeping capital expenditures to a minimum. To help with the solution, Fabrikam has decided to use cloud resources as well as on-premise servers.

Physical Locations
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Problem Statement
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Server Configuration The IT department has configured two physical servers with Microsoft Windows Server 2012 R2 and SQL Server 2014 Enterprise Edition and one Windows Azure Server. There are two tiers of storage available for use by database files only a fast tier and a slower tier. Currently the data and log files are stored on the fast tier of storage only. If a possible use case exists, management would like to utilize the slower tier storage for data files. The servers are configured as shown in the following table:

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Database Issues
The current database does not perform well. Additionally, a recent disk problem caused the system to go down, resulting in lost sales revenue. In reviewing the current system, you found that there are no automated maintenance procedures. The database is severely fragmented, and everyone has read and write access.

Requirements

Database

The database should be configured to maximize uptime and to ensure that very little data is lost in the event of a server failure. To help with performance, the database needs to be modified so that it can support in-memory data, specifically for the Product table, which the CIO has indicated should be a memoryoptimized table. The auto-update statistics option is set off on this database. Only product managers are allowed to add products or to make changes to the name, description, price, cost, and supplier. The changes are made in an internal database and pushed to the Product table in ProdDB during system maintenance time. Product managers and others working at the headquarters location also should be able to generate reports that include supplier and cost information.

Customer data access

Customers access the company's website to order products, so they must be able to read product information such asname, description, and price from the Product table. When customers place orders, stored procedures calledby the website update product quantityon-hand values. This means the product table is constantly updated at randomtimes.

Customer support data access

Customer support representatives need to be able to view and not update or change product information. Management does not want the customer support representatives to be able to see the product cost or any supplier information.

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Sales people at both the headquarters office and the satellite office must generate reports that read from the Product and SalesOrderDetail tables. No updates or inserts are ever made by sales people. These reports are run at random times and there can be no reporting downtime to refresh the data set except during the monthly maintenance window. The reports that run from the satellite office are process intensive queries with large data sets. Regardless of which office runs a sales force report, the SalesOrderDetail table should only return valid, committed order data; any orders not yet committed should be ignored.

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Database Maintenance

The company has defined a maintenance window every month when the server can be unavailable. Any maintenance functions that require exclusive access should be accomplished during that window.

Project milestones completed

- Revoked all existing read and write access to the database, leaving the schema ownership in place.
- Configured an Azure storage container secured with the storage account name MyStorageAccount with the primary access key StorageAccountKey on the cloud file server.
- SQL Server 2014 has been configured on the satellite server and is ready for use.

- On each database server, the fast storage has been assigned to drive letter F:, and the slow storage has been assigned to drive letter D:.

What should you create in Azure to support the creation of the backups for DB1?

A. an Azure Content Delivery Network (CDN) endpoint
B. a Service Bus namespace
C. a storage account
D. a cloud service

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 83
Which feature should you enable and configure so session requests addressed to a specific instance can be allocated to different processor resources based on session request properties?

A. Resource Governor
B. Windows System Resource Manager
C. Processor affinity
D. I/O affinity

Correct Answer: C
Section: (none)
Explanation

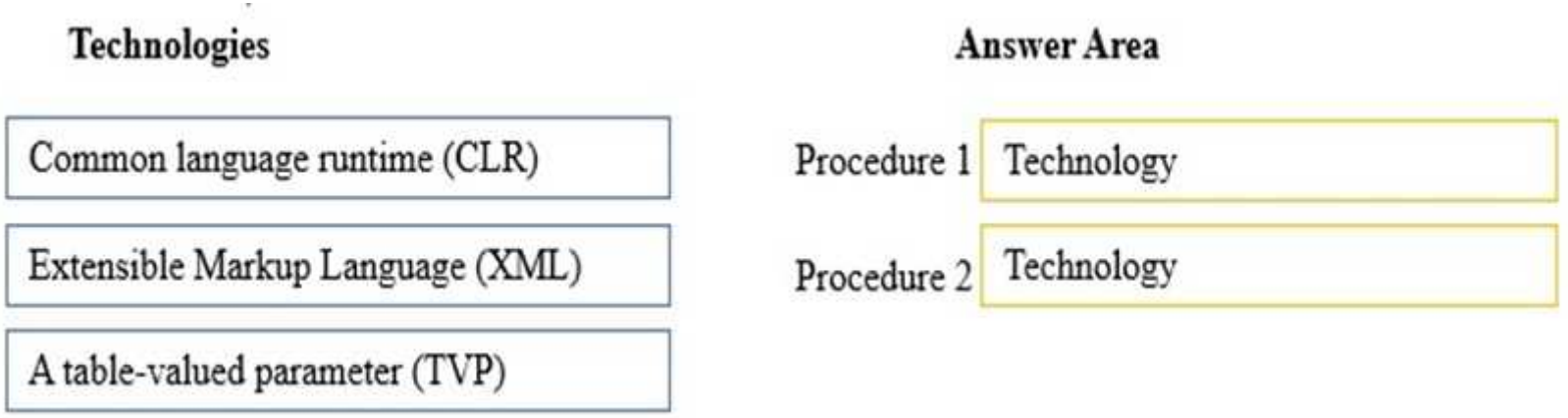
Explanation/Reference:

QUESTION 84
DRAG DROP

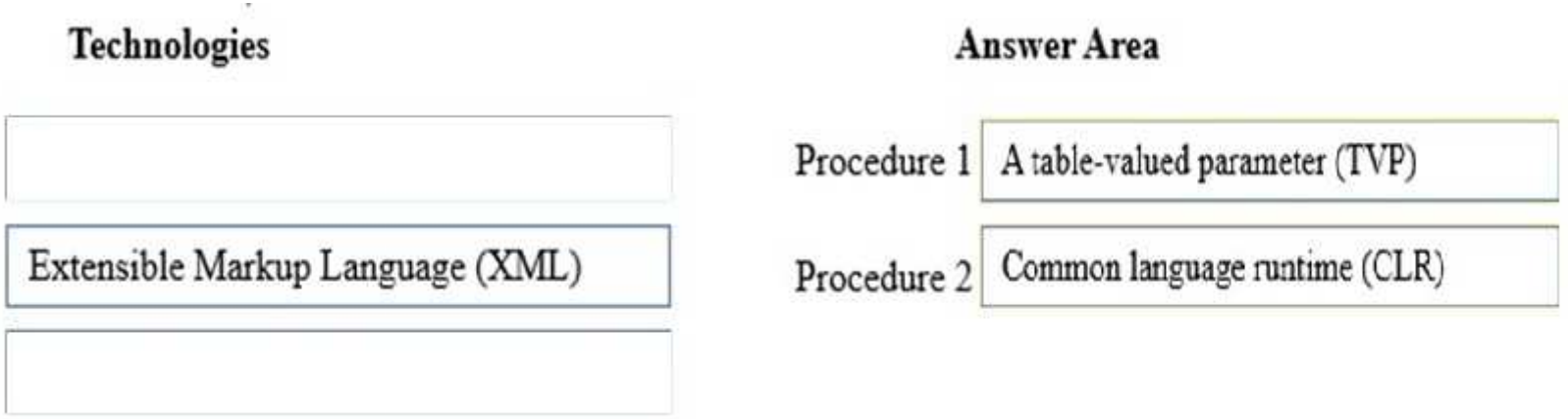
You are designing two stored procedures named Procedure1 and Procedure2. You identify the following requirements:
- Procedure1 must take a parameter that ensures that multiple rows of data can pass into the stored procedure.
- Procedure2 must use business logic that resides in a Microsoft .NET Framework assembly.

You need to identify the appropriate technology for each stored procedure.
Which technologies should you identify? To answer, drag the appropriate technology to the correct stored procedure in the answer area. (Answer choices may be used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:
Explanation:

References:
http://msdn.microsoft.com/en-us/library/ms131102.aspx
http://msdn.microsoft.com/en-us/library/bb522446.aspx
http://msdn.microsoft.com/en-us/library/bb510489.aspx

QUESTION 85
You are using dynamic management views to monitor an SQL Server server named SQL1. A database administrator named Dba1 must monitor the health of SQL1.

You need to ensure that Dba1 can access dynamic management views for SQL1.

The solution must use the principle of least privilege. Which permissions should you assign to Dba1?

A. VIEW ANY DEFINITION
B. VIEW SERVER STATE
C. VIEW DEFINITION
D. CONTROL SERVER

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To query a dynamic management view or function requires SELECT permission on object and VIEW SERVER STATE or VIEW DATABASE STATE permission.

References: https://msdn.microsoft.com/en-us/library/ms188754.aspx

QUESTION 86
You have a customer who has several SQL Server 2012 database servers. You are designing a data warehouse for the customer. The data warehouse will use columnstore indexes.

The customer identifies that the following must be supported for the column store indexes.
- Data manipulation language (DML) statements
- Nonclustered columnstore indexes
- Clustered columnstore indexes - Partitioning

You need to identify which technology requires the customer to implement an SQL Server 2014 database. What should you identify?

A. clustered columnstore indexes

B. nonclustered columnstore indexes
C. data manipulation language (DML) statements
D. partitioning

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server 2014 has the features of SQL Server 2012 plus updateable clustered columnstore indexes. This feature is required here as DML statements must be supported in the warehouse.

References: https://msdn.microsoft.com/en-us/library/gg492088(v=sql.120).aspx

QUESTION 87
You are designing a Windows Azure SQL Database for an order fulfillment system. You create a table named Sales.Orders with the following script.

```
CREATE TABLE Sales.Orders
(
  OrderID int IDENTITY(1,1) NOT NULL PRIMARY KEY,
  OrderDate datetimeoffset NOT NULL,
  CustomerID int NOT NULL
);
```

Each order is tracked by using one of the following statuses:
- Fulfilled
- Shipped
- Ordered
- Received

You need to design the database to ensure that that you can retrieve the following information:
- The current status of an order
- The previous status of an order.
- The date when the status changed.
- The solution must minimize storage.

More than one answer choice may achieve the goal. Select the BEST answer.

A. To the Sales.Orders table, add three columns named Status, PreviousStatus and ChangeDate. Update rows as the order status changes.

B. Create a new table named Sales.OrderStatus that contains three columns named OrderID, StatusDate, and Status. Insert new rows into the table as the order status changes.
C. Implement change data capture on the Sales.Orders table.
D. To the Sales.Orders table, add three columns named FulfilledDate, ShippedDate, and ReceivedDate. Update the value of each column from null to the appropriate date as the order status changes.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 88
You have an SQL Server 2014 server named SQL1. You are designing a performance monitoring solution. You need to monitor the following events on SQL1:
- A deadlock graph
- Missing column statistics
- CPU performance statistics
- A batch of completed Transact-SQL statements

Which two tools should you use? Each correct answer presents a complete solution.

A. dynamic management views
B. Database Engine Tuning Advisor
C. SQL Server Profiler
D. Activity Monitor
E. Data Profile Viewer

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
B: Database Engine Tuning Advisor examines how queries are processed in the databases you specify.
When you run a Profiler Trace and feed it to the Database Engine Tuning Advisor, it also looks for missing column statistics, and it can automatically create them for you. C: Use SQL Server Profiler to identify the cause of a deadlock. A deadlock occurs when there is a cyclic dependency between two or more threads, or processes, for some set of resources within SQL Server. Using SQL Server Profiler, you can create a trace that records, replays, and displays deadlock events for analysis.

References: https://msdn.microsoft.com/en-us/library/ms188246.aspx

QUESTION 89
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this sections, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have a data warehouse that stored sales data. One fact table has 100 million rows.

You must reduce storage needs for the data warehouse.

You need to implement a solution that uses column-based storage and provides real-time analytics for the operational workload.

Solution: You remove all clustered indexes, sort the transactions in the table, and create a clustered index on the table, so that the table is not a heap.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Columnstore indexes are the standard for storing and querying large data warehousing fact tables. It uses column-based data storage and query processing to achieve up to 10x query performance gains in your data warehouse over traditional row-oriented storage, and up to 10x data compression over the uncompressed data size.

In SQL Server, rowstore refers to table where the underlying data storage format is a heap, a clustered index, or a memory-optimized table.

References: https://docs.microsoft.com/en-us/sql/relational-databases/indexes/columnstore-indexes-overview

QUESTION 90
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this sections, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have a data warehouse that stored sales data. One fact table has 100 million rows.

You must reduce storage needs for the data warehouse.

You need to implement a solution that uses column-based storage and provides real-time analytics for the operational workload.

Solution: You load the data in a heap table.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
It is better to use a clustered index.

Columnstore indexes are the standard for storing and querying large data warehousing fact tables. It uses column-based data storage and query processing to achieve up to 10x query performance gains in your data warehouse over traditional row-oriented storage, and up to 10x data compression over the uncompressed data size.

In SQL Server, rowstore refers to table where the underlying data storage format is a heap, a clustered index, or a memory-optimized table.

References: https://docs.microsoft.com/en-us/sql/relational-databases/indexes/columnstore-indexes-overview

QUESTION 91
HOTSPOT
Note: This question is part of a series of questions that use the same scenario. For your convenience, the scenario is repeated in each question. Each question presents a different goal and answer choices, but the text of the scenario is exactly the same in each question in this series.

You maintain a Microsoft SQL Server instance that contains the following databases **SalesDb1**, **SalesDb2**, and **SalesDb3**. Each database has tabled named Products and Sales. The following table shows the configuration of each database.

Option of configuration	SalesDb1	SalesDb2	SalesDb3
Recovery model	Full	Full	Simple
Query Store operation model	Read Write	Off	Off
Auto Update Statistics	True	False	False
Auto Update Statistics asynchronously	False	False	False
Sales data age	< 1 month	1 to 6 months	> 6 months

The backup strategies for each database are described in the following table.

Database	Strategy	Backup file names
SalesDb1	Full database backups occur daily at 00:00. Log backups occur every hour.	SalesDb1Full_*.bak SalesDb1Log.bak
SalesDb2	Full database backups occur every three months. Differential backups occur every month. Logs are not backed up.	SalesDb2Delta_*.bak SalesDb2Full_*.bak
SalesDb3	Full database backups occur every five years. Differential backups occur every six months.	SalesDb3Delta_*.bak SalesDb3Full_*.bak

Each full or differential backup operation writes into a new file and uses a different sequence number. You observe the following database corruption issues.

Database	Error	Description
SalesDb2	824	Some data pages that store table row data are torn. All backups for **SalesDb2** are lost.
SalesDb3	823	You observe bad checksum issues for data pages that store table row data. All backups are available. No new data has been added to the table since the latest differential backup.

SalesDb3 reports a number of database corruption issues related to error 823 and 824 when reading data pages. You must display the following information about the corrupted pages:

- database name
- impacted file id
- impacted file physical name
- impacted page id
- event type that identifies the error type
- error count

Users report performance issues when they run queries against **SalesDb2.** You plan to monitor query statistics and execution plans for **SalesDb2** by using Query Store. The monitoring strategy must meet the following requirements:

- Perform automatic data cleanup when query store disk usage reaches 500 megabyte (MB).
- Capture queries based on resource consumption.
- Use a stale query threshold value of 60 days.

The query optimizer generates suboptimal execution plans for a number of queries on the Sales table in **SalesDb2**. You will create a maintenance plan that updates statistics for the table. The plan should only update statistics that were automatically created and have not been updated for 30 days. The update should be based on all data in the table.

Both SalesDb1 and SalesDb2 experience blocking and deadlock issues. You create an Extended Events session to monitor the databases. (Click the Exhibit button.)

You need to create and configure the Extended Events session.

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

Select the events you want to capture from the event library

Event library: **Select events**

deadlock **in Event names only**

Name	Category ▼	Channel
xml_deadlock report	deadlock_monitor	Admin
scheduler_monitor_deadlock_ring_buffer_recorded	scheduling	Operational
lock_deadlock_chain	lock	Analytic
lock_deadlock	lock	Analytic
database_xml_deadlock_report	deadlock_monitor	Admin

>
<

Name		
lock_timeout	2	✓
lock_escalation	2	✓
lock-cancel	2	✓
blocked_process_report	4	✓

Event Fields Description

Hot Area:

Answer Area

The selected event **[answer choice]** can capture information about whether row or page locks are frequently converted into table locks.

- lock_timeout
- lock_escalation
- lock_cancel
- blocked_process_report

To capture deadlock graphs in both SalesDb1 and SalesDb2, event **[answer choice]** needs to be added into Selected events panel.

- lock_deadlock
- lock_deadlock_chain
- xml_deadlock_report
- scheduler_monitor_deadlock_ring_buffer_recorded
- database_xml_deadlock_report

Correct Answer:

Answer Area

The selected event **[answer choice]** can capture information about whether row or page locks are frequently converted into table locks.

- lock_timeout
- **lock_escalation**
- lock_cancel
- blocked_process_report

To capture deadlock graphs in both SalesDb1 and SalesDb2, event **[answer choice]** needs to be added into Selected events panel.

- lock_deadlock
- lock_deadlock_chain
- xml_deadlock_report
- scheduler_monitor_deadlock_ring_buffer_recorded
- **database_xml_deadlock_report**

Section: (none)
Explanation

Explanation/Reference:
Lock escalation is the process of converting many fine-grain locks into fewer coarse-grain locks, reducing system overhead while increasing the probability of concurrency contention.

References:
https://technet.microsoft.com/en-us/library/ms184286(v=sql.105).aspx
https://blobeater.blog/2017/02/06/using-extended-events-in-azure/

QUESTION 92
Note: This question is part of a series of questions that use the same scenario. For your convenience, the scenario is repeated in each question. Each question presents a different goal and answer choices, but the text of the scenario is exactly the same in each question in this series.

You maintain a Microsoft SQL Server instance that contains the following databases **SalesDb1**, **SalesDb2**, and **SalesDb3**. Each database has tabled named Products and Sales. The following table shows the configuration of each database.

Option of configuration	SalesDb1	SalesDb2	SalesDb3
Recovery model	Full	Full	Simple
Query Store operation model	Read Write	Off	Off
Auto Update Statistics	True	False	False
Auto Update Statistics asynchronously	False	False	False
Sales data age	< 1 month	1 to 6 months	> 6 months

The backup strategies for each database are described in the following table.

Database	Strategy	Backup file names
SalesDb1	Full database backups occur daily at 00:00. Log backups occur every hour.	SalesDb1Full_*.bak SalesDb1Log.bak
SalesDb2	Full database backups occur every three months. Differential backups occur every month. Logs are not backed up.	SalesDb2Delta_*.bak SalesDb2Full_*.bak
SalesDb3	Full database backups occur every five years. Differential backups occur every six months.	SalesDb3Delta_*.bak SalesDb3Full_*.bak

Each full or differential backup operation writes into a new file and uses a different sequence number. You observe the following database corruption issues.

Database	Error	Description
SalesDb2	824	Some data pages that store table row data are torn. All backups for **SalesDb2** are lost.
SalesDb3	823	You observe bad checksum issues for data pages that store table row data. All backups are available. No new data has been added to the table since the latest differential backup.

SalesDb3 reports a number of database corruption issues related to error 823 and 824 when reading data pages. You must display the following information about the corrupted pages:

- database name
- impacted file id
- impacted file physical name
- impacted page id
- event type that identifies the error type
- error count

Users report performance issues when they run queries against **SalesDb2.** You plan to monitor query statistics and execution plans for **SalesDb2** by using Query Store. The monitoring strategy must meet the following requirements:

- Perform automatic data cleanup when query store disk usage reaches 500 megabyte (MB).
- Capture queries based on resource consumption.
- Use a stale query threshold value of 60 days.

The query optimizer generates suboptimal execution plans for a number of queries on the Sales table in **SalesDb2**. You will create a maintenance plan that updates statistics for the table. The plan should only update statistics that were automatically created and have not been updated for 30 days. The update should be based on all data in the table.

You need to view the information about the corrupted pages on SalesDb3.

How should you complete the Transact-SQL statement?

Select two.

A. SELECT * FROM msdb.. corrupted_pages
B. SELECT * FROM msdb..suspect_pages
C. SELECT * FROM system..corrupted_pages
D. SELECT * FROM system..suspect_pages

E. WHERE event_type = 1
F. WHERE event_type = 2
G. WHERE event_type = 3

Correct Answer: BF
Section: (none)
Explanation

Explanation/Reference:
suspect_pages contains one row per page that failed with a minor 823 error or an 824 error. Pages are listed in this table because they are suspected of being bad, but they might actually be fine. When a suspect page is repaired, its status is updated in the event_type column.

The suspect_pages table resides in the msdb database.
SalesDb3 has pages with checksum errors. Checksum errors have the event_type value 2.

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/manage-the-suspect-pages-table-sql-server

QUESTION 93
Note: This question is part of a series of questions that use the same or similar answer choices. An answer choice may be correct for more than one question in the series. Each question is independent of the other questions in this series. Information and details provided in a question apply only to that question.

You need to deploy a new Microsoft SQL Server environment that meets the following requirements:
- The SQL Server instance must be highly available.
- There must be minimal downtime incurred during hardware failure or operating system maintenance.
- All instance-level security settings and SQL Server Agent jobs must be available without additional synchronization tasks.

What should you implement?

A. a Microsoft Azure Stretch Database
B. log shipping
C. an Always On Availability Group with all replicas in synchronous-commit mode
D. a file share witness
E. a Microsoft SQL Server failover cluster instance (FCI)
F. a Windows cluster with a shared-nothing architecture
G. an Always On Availability Group with secondary replicas in asynchronous-commit mode

Correct Answer: E
Section: (none)

Explanation

Explanation/Reference:
As part of the SQL Server Always On offering, Always On Failover Cluster Instances leverages Windows Server Failover Clustering (WSFC) functionality to provide local high availability through redundancy at the server-instance level—a failover cluster instance (FCI). An FCI is a single instance of SQL Server that is installed across Windows Server Failover Clustering (WSFC) nodes and, possibly, across multiple subnets.

When there is hardware or software failure of a server, the applications or clients connecting to the server will experience downtime. When a SQL Server instance is configured to be an FCI (instead of a standalone instance), the high availability of that SQL Server instance is protected by the presence of redundant nodes in the FCI.

References: https://docs.microsoft.com/en-us/sql/sql-server/failover-clusters/windows/always-on-failover-cluster-instances-sql-server

QUESTION 94
You have a database named DB1.

Users report that a database application that updates the data in DB1 is unresponsive.

You need to identify which process prevents the application from responding.

What should you do?

A. Run DBCC INPUTBUFFER.
B. Query sys.dm_exec_session_wait_stats.
C. Run sp_autostats.
D. Run sp_who.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Sys.dm_exec_session_wait_stats returns information about all the waits encountered by threads that executed for each session. You can use this view to diagnose performance issues with the SQL Server session and also with specific queries and batches.

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-dynamic-management-views/sys-dm-exec-session-wait-stats-transact-sql

QUESTION 95
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You support an application that stores data in a Microsoft SQL Server database. You have a query that returns data for a report that users run frequently.

The query optimizer sometimes generates a poorly-performing plan for the query when certain parameters are used. You observe that this is due to the distribution of data within a specific table that the query uses.

You need to ensure that the query optimizer always uses the query plan that you prefer.

Solution: You create a copy of the plan guide for the query plan.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
PLAN should be used as it forces the query optimizer not to recompile a query due to changes in statistics.

References: https://docs.microsoft.com/en-us/sql/t-sql/queries/hints-transact-sql-query?view=sql-server-2017

QUESTION 96
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You support an application that stores data in a Microsoft SQL Server database. You have a query that returns data for a report that users run frequently.

The query optimizer sometimes generates a poorly-performing plan for the query when certain parameters are used. You observe that this is due to the distribution of data within a specific table that the query uses.

You need to ensure that the query optimizer always uses the query plan that you prefer.

Solution: You add the KEEPFIXED PLAN query hint to the query.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
PLAN forces the query optimizer not to recompile a query due to changes in statistics. Specifying KEEPFIXED PLAN makes sure that a query will be recompiled only if the schema of the underlying tables is changed or if sp_recompile is executed against those tables.

References: https://docs.microsoft.com/en-us/sql/t-sql/queries/hints-transact-sql-query?view=sql-server-2017

QUESTION 97
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have a data warehouse that stores sales data. One fact table has 100 million rows.

You must reduce storage needs for the data warehouse.

You need to implement a solution that uses column-based storage and provides real-time analytics for the operational workload.

Solution: You remove any clustered indexes and load the table for processing.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

Explanation:
Clustered columnstore tables offer both the highest level of data compression as well as the best overall query performance. Clustered columnstore tables will generally outperform clustered index or heap tables and are usually the best choice for large tables. For these reasons, clustered columnstore is the best place to start when you are unsure of how to index your table.

Note: Dimensional tables can be used to reduce the size of fact tables.
Dimension tables contain attribute data that might change but usually changes infrequently. For example, a customer's name and address are stored in a dimension table and updated only when the customer's profile changes. To minimize the size of a large fact table, the customer's name and address do not need to be in every row of a fact table. Instead, the fact table and the dimension table can share a customer ID. A query can join the two tables to associate a customer's profile and transactions.

References: https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-tables-overview

QUESTION 98
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company is developing a new business intelligence application that will access data in a Microsoft Azure SQL Database instance. All objects in the instance have the same owner.

A new security principal named BI_User requires permission to run stored procedures in the database. The stored procedures read from and write to tables in the database. None of the stored procedures perform IDENTIFY_INSERT operations or dynamic SQL commands.

The scope of permissions and authentication of BI_User should be limited to the database. When granting permissions, you should use the principle of least privilege.

You need to create the required security principals and grant the appropriate permissions.

Solution: You run the following Transact-SQL statement in the **master** database:

```
CREATE LOGIN BI_User WITH PASSWORD = 'Pa$$wørd'
```

You run the following Transact-SQL statement in the business intelligence database:

```
CREATE USER BI_User FROM LOGIN BI_User
GRANT EXECUTE TO BI_User
EXEC sp_addrolemember 'db_datareader', 'BI_user'
EXEC sp_addrolemember 'db_datawriter', 'BI_user'
```

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
One method of creating multiple lines of defense around your database is to implement all data access using stored procedures or user-defined functions. You revoke or deny all permissions to underlying objects, such as tables, and grant EXECUTE permissions on stored procedures. This effectively creates a security perimeter around your data and database objects.

Best Practices
Simply writing stored procedures isn't enough to adequately secure your application. You should also consider the following potential security holes.

- Grant EXECUTE permissions on the stored procedures for database roles you want to be able to access the data.
- Revoke or deny all permissions to the underlying tables for all roles and users in the database, including the public role. All users inherit permissions from public. Therefore denying permissions to public means that only owners and sysadmin members have access; all other users will be unable to inherit permissions from membership in other roles.
- Do not add users or roles to the sysadmin or db_owner roles. System administrators and database owners can access all database objects.

References: https://docs.microsoft.com/en-us/dotnet/framework/data/adonet/sql/managing-permissions-with-stored-procedures-in-sql-server

QUESTION 99
HOTSPOT

Note: This question is part of a series of questions that use the same scenario. For your convenience, the scenario is repeated in each question. Each question presents a different goal and answer choices, but the text of the scenario is exactly the same in each question in this series.

Start of repeated scenario.

You are a database administrator for a company that has on-premises Microsoft SQL Server environment. There are two domains in separate forests. There are no trust relationships between the domains. The environment hosts several customer databases, and each customer uses a dedicated instance running SQL Server 2016 Standard edition. The customer environments are shown in the following table.

Customer	Domain	Description
AdventureWorks Cycles	DomainB	The environment includes a database named **Adventureworks** that contains a single schema named ADVSchema. You must implement auditing for all objects in the ADVSchema schema. You must also implement auditing to record access to data that is considered sensitive by the company.
Tailspin Toys	DomainA	Tailspin Toys has a database named **TSpinDB.** Tailspin Toys requires a custom application that monitors **TSpinDB** and captures information over time about which database objects are accessed and how frequently they are accessed.
Contoso, Ltd.	DomainB	The environment has a database named ConDB and is also running SQL Server Reporting Services (SSRS).
Wingtip Toys	DomainA	Wingtip Toys has a database named **WingDB**. All tables in the database have indexes. Users report system response time is slow during peak activity periods. You observe that the performance issues are related to locking. Wingtip Toys receives data updates from suppliers each week. You must implement a process for importing the data into **WingDB**. You must use minimal logging and minimize data loss during the import process.
Wide World Importers	DomainB	The environment includes a database named WDWDB. Neither auditing nor statistics are configured for WDWDB. You must log any deletion of views and all database record update operations.

End of repeated scenario.

You need to configure auditing for the AdventureWorks environment. How should you complete the Transact-SQL statement? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

```
USE master
GO
```

CREATE DATABASE AUDIT
ALTER DATABASE AUDIT
CREATE SERVER AUDIT
ALTER SERVER AUDIT

```
AuditADVAccess
    TO FILE ( FILEPATH = `C:\ADVAudit\` )
    WHERE object_name = `SensitiveData`
GO
```

CREATE DATABASE AUDIT
ALTER DATABASE AUDIT
CREATE SERVER AUDIT
ALTER SERVER AUDIT

```
AuditADVAccess WITH (STATE = ON)
GO
Use Adventureworks
```

CREATE DATABASE AUDIT
ALTER DATABASE AUDIT
CREATE SERVER AUDIT
ALTER SERVER AUDIT

```
SPECIFICATION [FilterForSensitiveData]
```

FOR SERVER AUDIT
FOR DATABASE AUDIT

```
[AuditADVAccess]
```

Correct Answer:

Answer Area

```
USE master
GO
```

▼ AuditADVAccess

- CREATE DATABASE AUDIT
- ALTER DATABASE AUDIT
- **CREATE SERVER AUDIT**
- ALTER SERVER AUDIT

```
    TO FILE ( FILEPATH = 'C:\ADVAudit\' )
    WHERE object_name = 'SensitiveData'
GO
```

▼ AuditADVAccess WITH (STATE = ON)

- CREATE DATABASE AUDIT
- ALTER DATABASE AUDIT
- CREATE SERVER AUDIT
- **ALTER SERVER AUDIT**

```
GO
Use Adventureworks
```

▼ SPECIFICATION [FilterForSensitiveData]

- **CREATE DATABASE AUDIT**
- ALTER DATABASE AUDIT
- CREATE SERVER AUDIT
- ALTER SERVER AUDIT

▼ [AuditADVAccess]

- **FOR SERVER AUDIT**
- FOR DATABASE AUDIT

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:

The environment includes a database named **Adventureworks** that contains a single schema named ADVSchema. You must implement auditing for all objects in the ADVSchema schema. You must also implement auditing to record access to data that is considered sensitive by the company.

You must implement auditing for all objects in the ADVSchema schema.

Box 1: CREATE SERVER AUDIT
Create the server audit.

Box 2: ALTER SERVER AUDIT
Enable the server audit.

Box 3: CREATE DATABASE AUDIT
Create the database audit specification.

Box 4: FOR SERVER AUDIT

Example: The following example creates a server audit called Payrole_Security_Audit and then a database audit specification called Payrole_Security_Audit that audits SELECT and INSERT statements by the dbo user, for the HumanResources.EmployeePayHistory table in the AdventureWorks2012 database.

```
USE master ;
GO
-- Create the server audit.
CREATE SERVER AUDIT Payrole_Security_Audit
    TO FILE ( FILEPATH =
'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA' ) ;
GO
-- Enable the server audit.
ALTER SERVER AUDIT Payrole_Security_Audit
WITH (STATE = ON) ;
```

```
GO
-- Move to the target database.
USE AdventureWorks2012 ;
GO
-- Create the database audit specification.
CREATE DATABASE AUDIT SPECIFICATION Audit_Pay_Tables
FOR SERVER AUDIT Payrole_Security_Audit
ADD (SELECT , INSERT
    ON HumanResources.EmployeePayHistory BY dbo )
WITH (STATE = ON) ;
GO
```

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/create-database-audit-specification-transact-sql?view=sql-server-2017

QUESTION 100
HOTSPOT

Your company hosts Microsoft SQL Server instances for customers. One customer requires that the SQL Server instance send an email when an alert is generated in the Sales database.

You need to create the alert.

How should you complete the Transact-SQL statement? To answer, select the appropriate options in the answer area.

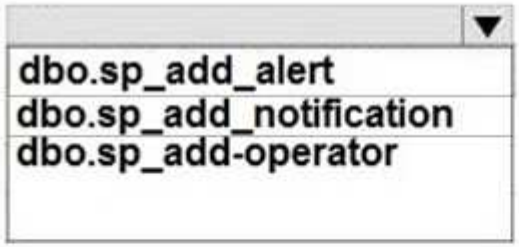
Hot Area:

Answer Area

USE

GO

EXEC

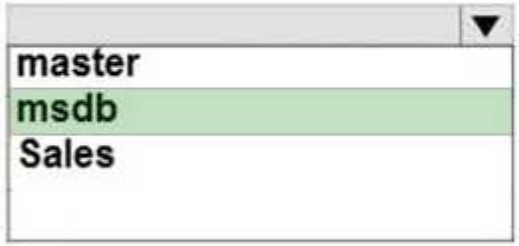



```
@name = N'TestAlert',
@message_id = 55001,
@severity = 0
@notification_message = N'An alert has
been raised';
GO
```

Correct Answer:

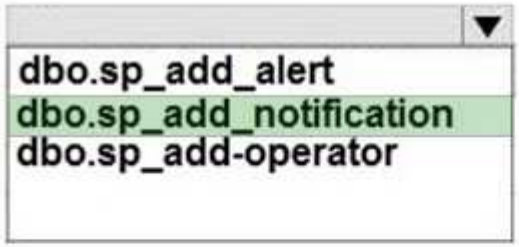
Answer Area

USE



GO

EXEC




```
@name = N'TestAlert',
@message_id = 55001,
@severity = 0
@notification_message = N'An alert has
been raised';
GO
```

Section: (none)
Explanation

Explanation/Reference:
Explanation:
The following example adds an e-mail notification for the specified alert (Test Alert).

NOTE: This example assumes that Test Alert already exists and that François Ajenstat is a valid operator name.

```
USE msdb ;
GO

EXEC dbo.sp_add_notification
 @alert_name = N'Test Alert',
 @operator_name = N'François Ajenstat',
 @notification_method = 1 ;
GO
```

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-stored-procedures/sp-add-notification-transact-sql?view=sql-server-2017