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

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Administering a SQL Database Infrastructure

Exam A

QUESTION 1
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 collect performance metrics on multiple Microsoft SQL Server instances and store the data in a single repository.

You need to examine disk usage, query statistics, and server activity without building custom counters.

What should you use?

A. Activity Monitor
B. Sp_who3 stored procedure
C. Object Explorer in the Microsoft SQL Server Management Studio (SSMS)
D. SQL Server Data Collector
E. SQL Server Data Tools (SSDT)
F. SQL Server Configuration Manager

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The data collector is a core component of the data collection platform for SQL Server 2017 and the tools that are provided by SQL Server. The data collector provides one central point for data collection across your database servers and applications. This collection point can obtain data from a variety of sources and is not limited to performance data

QUESTION 2
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 are examining information about users, sessions, and processes in an on-premises Microsoft SQL Server 2016 Standard Edition server.

You need to identify waits for resources and return only the following information:
- a list of all databases on the SQL Server instance, along with information about the database files, their paths, and names
- a list of the queries recently executed that use most of memory, disk, and network resources

What should you use?

A. Activity Monitor
B. sp_who3 stored procedure
C. SQL Server Management Studio (SSMS) Object Explorer
D. SQL Server Data Collector
E. SQL Server Data Tools (SSDT)
F. SQL Server Configuration Manager

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server Data Tools (SSDT) is a Microsoft Visual Studio environment for creating business intelligence solutions. SSDT features the Report Designer authoring environment, where you can open, modify, preview, save, and deploy Reporting Services paginated report definitions, shared data sources, shared datasets, and report parts.

References: https://msdn.microsoft.com/en-us/library/hh272686(v=vs.103).aspx

QUESTION 3
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 have an on-premises server that runs Microsoft SQL Server 2016 Standard Edition.

You need to identify missing indexes.

What should you use?

A. Activity Monitor
B. Sp_who3
C. SQL Server Management Studio (SSMS) Object Explorer
D. SQL Server Data Collector
E. SQL Server Data Tools (SSDT)
F. SQL Server Configuration Manager

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Data Collector can gather performance information from multiple SQL Server instances and store it in a single repository. It has three built-in data collecting specifications (data collectors) designed to collect the most important performance metrics. The information collected by default is about disk usage, query statistics, and server activity.
The Query Statistics data collection set collects information about query statistics, activity, execution plans and text on the SQL Server instance.
Missing indexes can be found with the execution plans.

References: https://www.sqlshack.com/sql-server-performance-monitoring-data-collector/

QUESTION 4
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 are a database administrator for a company that has an on-premises Microsoft SQL Server environment and Microsoft Azure SQL Database instances. The environment hosts several customer databases, and each customer uses a dedicated instance. The environments that you manage are shown in the following table.

Customer	Cloud Type	Description
AdventureWorks Cycles	Private	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	Private	Tailspin Toys has a custom application that accesses a hosted database named **TSpinDB**. The application will monitor **TSpinDB** and capture information over time about which database objects are accessed and how frequently they are accessed.
Contoso, Ltd.	Private	The environment has a database named **ConDB** that was recently upgraded to Microsoft SQL Server 2016. Contoso reports that **ConDB** is slow to return results when the server is busy. You must modify the startup parameters to **ConDB** to optimize performance.
Wingtip Toys	Private	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 minimized data loss during import process.
Wide World Importers	Public	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.

You need to monitor WingDB and gather information for troubleshooting issues.

What should you use?

A. sp_updatestats
B. sp_lock
C. sys.dm_os_waiting_tasks
D. sys.dm_tran_active_snapshot_database_transactions
E. Activity Monitor
F. sp_monitor
G. sys.dm_tran_locks

Correct Answer: B
Section: (none)
Explanation

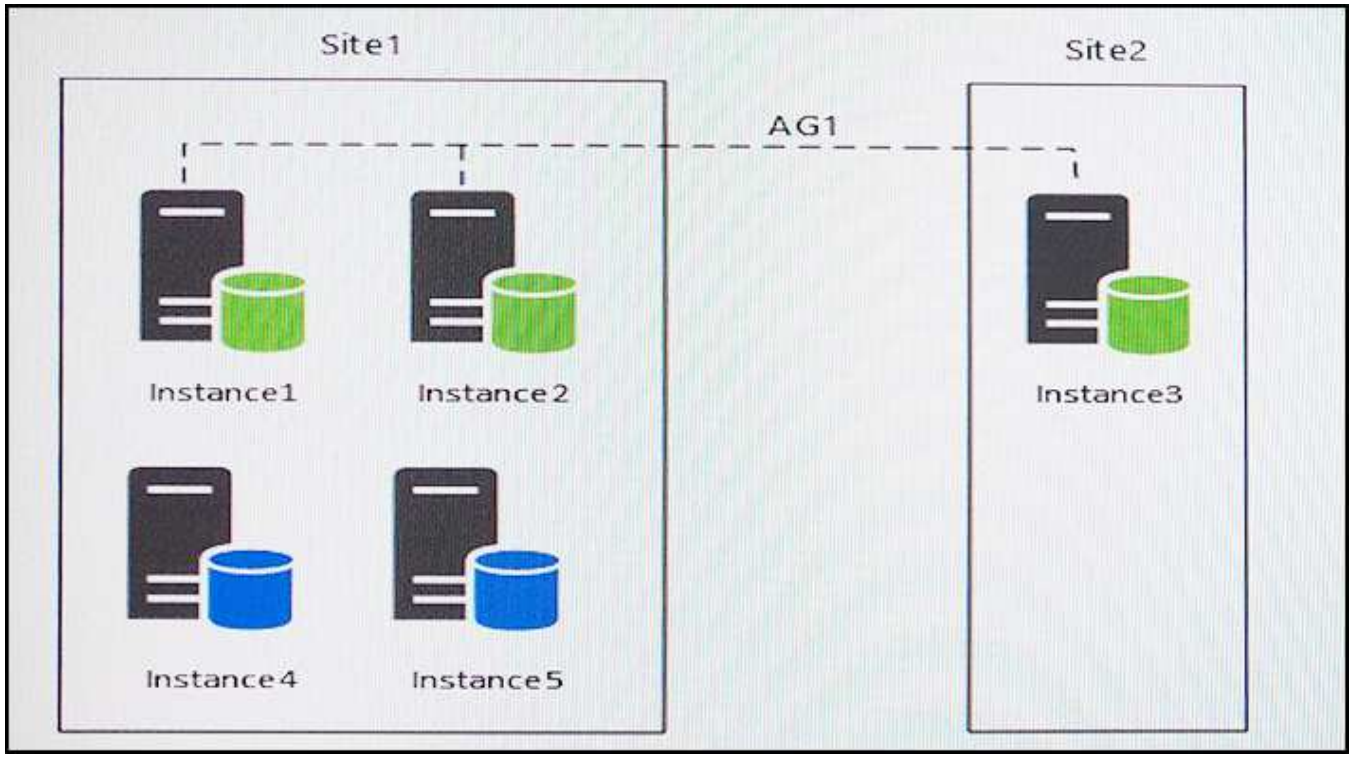
Explanation/Reference:
Explanation:
The sp_lock system stored procedure is packaged with SQL Server and will give you insight into the locks that are happening on your system. This procedure returns much of its information from the syslock info in the master database, which is a system table that contains information on all granted, converting, and waiting lock requests.

Note: sp_lock will be removed in a future version of Microsoft SQL Server. Avoid using this feature in new development work, and plan to modify applications that currently use this feature. To obtain information about locks in the SQL Server Database Engine, use the sys.dm_tran_locks dynamic management view. sys.dm_tran_locks returns information about currently active lock manager resources in SQL Server 2008 and later. Each row represents a currently active request to the lock manager for a lock that has been granted or is waiting to be granted.

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-stored-procedures/sp-lock-transact-sql

QUESTION 5
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 have five servers that run Microsoft Windows 2012 R2. Each server hosts a Microsoft SQL Server instance. The topology for the environment is shown in the following diagram.



You have an Always On Availability group named AG1. The details for AG1 are shown in the following table.

Instance	Node type
Instance1	Primary
Instance2	Synchronous readable secondary
Instance3	Asynchronous readable secondary

Instance1 experiences heavy read-write traffic. The instance hosts a database named OperationsMain that is four terabytes (TB) in size. The database has multiple data files and filegroups. One of the filegroups is read_only and is half of the total database size.

Instance4 and Instance5 are not part of AG1. Instance4 is engaged in heavy read-write I/O.

Instance5 hosts a database named StagedExternal. A nightly BULK INSERT process loads data into an empty table that has a rowstore clustered index and two nonclustered rowstore indexes.

You must minimize the growth of the StagedExternal database log file during the BULK INSERT operations and perform point-in-time recovery after the BULK INSERT transaction. Changes made must not interrupt the log backup chain.

You plan to add a new instance named Instance6 to a datacenter that is geographically distant from Site1 and Site2. You must minimize latency between the nodes in AG1.

All databases use the full recovery model. All backups are written to the network location \\SQLBackup\. A separate process copies backups to an offsite location. You should minimize both the time required to restore the databases and the space required to store backups. The recovery point objective (RPO) for each instance is shown in the following table.

Instance	Recovery point objective
Instance 1	5 minutes
Instance 2	5 minutes
Instance 3	5 minutes
Instance 4	60 minutes
Instance 5	24 hours

Full backups of OperationsMain take longer than six hours to complete. All SQL Server backups use the keyword COMPRESSION.

You plan to deploy the following solutions to the environment. The solutions will access a database named DB1 that is part of AG1.

- Reporting system: This solution accesses data inDB1with a login that is mapped to a database user that is a member of the db_datareader role. The user has EXECUTE permissions on the database. Queries make no changes to the data. The queries must be load balanced over variable read-only replicas.
- Operations system: This solution accesses data inDB1with a login that is mapped to a database user that is a member of the db_datareader and db_datawriter roles. The user has EXECUTE permissions on the database. Queries from the operations system will perform both DDL and DML operations.

The wait statistics monitoring requirements for the instances are described in the following table.

Instance	Description
Instance1	Aggregate wait statistics since the last server restart.
Instance4	Identify the most prominent wait types for all the commands originating from a session, between session connections, or between application pool resets.
Instance5	Identify all the wait types for queries currently running on the server.

You need to create a backup plan for Instance4.

Which backup plan should you create?

A. Weekly full backups, nightly differential. No transaction log backups are necessary.
B. Weekly full backups, nightly differential backups, transaction log backups every 5 minutes.
C. Weekly full backups, nightly differential backups, transaction log backups every 12 hours.
D. Weekly full backups, nightly differential backups, nightly transaction log backups.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
From scenario: Instance4 and Instance5 are not part of AG1. Instance4 is engaged in heavy read-write I/O. The recovery point objective of Instancse4 is 60 minutes. RecoveryPoint Objectives are commonly described as the amount of data that was lost during the outage and recovery period.

References: http://sqlmag.com/blog/sql-server-recovery-time-objectives-and-recovery-point-objectives

QUESTION 6
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.

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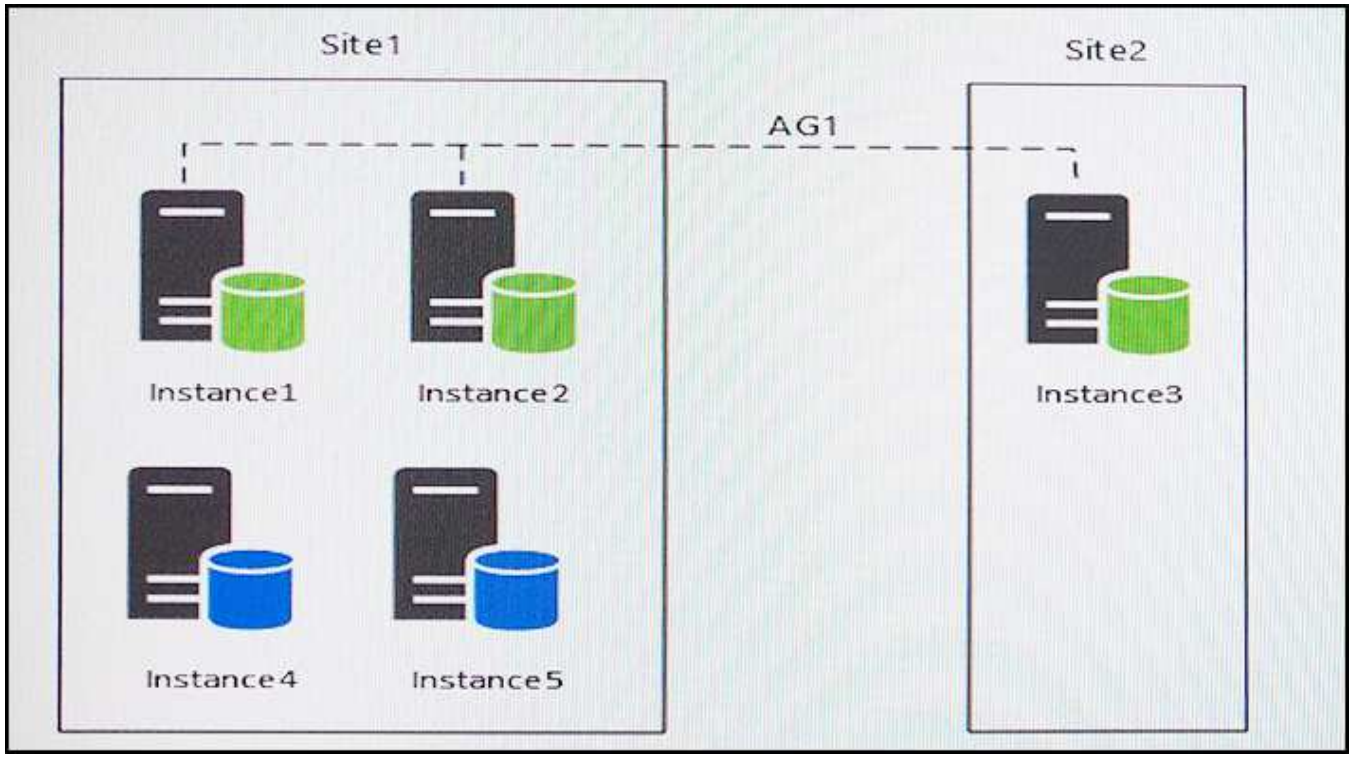

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Instance5 hosts a database named StagedExternal. A nightly BULK INSERT process loads data into an empty table that has a rowstore clustered index and two nonclustered rowstore indexes.

You must minimize the growth of the StagedExternal database log file during the BULK INSERT operations and perform point-in-time recovery after the BULK INSERT transaction. Changes made must not interrupt the log backup chain.

You plan to add a new instance named Instance6 to a datacenter that is geographically distant from Site1 and Site2. You must minimize latency between the nodes in AG1.

All databases use the full recovery model. All backups are written to the network location \\SQLBackup\. A separate process copies backups to an offsite location. You should minimize both the time required to restore the databases and the space required to store backups. The recovery point objective (RPO) for each instance is shown in the following table.

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Full backups of OperationsMain take longer than six hours to complete. All SQL Server backups use the keyword COMPRESSION.

You plan to deploy the following solutions to the environment. The solutions will access a database named DB1 that is part of AG1.

- Reporting system: This solution accesses data inDB1with a login that is mapped to a database user that is a member of the db_datareader role. The user has EXECUTE permissions on the database. Queries make no changes to the data. The queries must be load balanced over variable read-only replicas.
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The wait statistics monitoring requirements for the instances are described in the following table.

Instance	Description
Instance1	Aggregate wait statistics since the last server restart.
Instance4	Identify the most prominent wait types for all the commands originating from a session, between session connections, or between application pool resets.
Instance5	Identify all the wait types for queries currently running on the server.

You need to reduce the amount of time it takes to backup OperationsMain.

What should you do?

A. Modify the backup script to use the keyword SKIP in the FILE_SNAPSHOT statement.
B. Modify the backup script to use the keyword SKIP in the WITH statement
C. Modify the backup script to use the keyword NO_COMPRESSION in the WITH statement.
D. Modify the full database backups script to stripe the backup across multiple backup files.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
One of the filegroup is read_only should be as it only need to be backup up once. Partial backups are useful whenever you want to exclude read-only filegroups. A partial backup resembles a full database backup, but a partial backup does not contain all the filegroups. Instead, for a read-write database, a partial backup contains the data in the primary filegroup, every read-write filegroup, and, optionally, one or more read-only files. A partial backup of a read-only database contains only the primary filegroup.

From scenario: Instance1 experiences heavy read-write traffic. The instance hosts a database named OperationsMainthat is four terabytes (TB) in size. The database has multiple data files and filegroups. One of the filegroups is read_only and is half of the total database size.

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

QUESTION 7
A Microsoft SQL Server database named DB1 has two filegroups named FG1 and FG2. You implement a backup strategy that creates backups for the filegroups.

DB1 experiences a failure. You must restore FG1 and then FG2.

You need to ensure that the database remains in the RECOVERING state until the restoration of FG2 completes. After the restoration of FG2 completes, the database must be online.

What should you specify when you run the recovery command?

A. the WITH NORECOVERY clause for FG1 and the WITH RECOVERY clause for FG2
B. the WITH RECOVERY clause for FG1 and the WITH RECOVERY clause for FG2
C. the WITH RECOVERY clause for both FG1 and FG2
D. the WITH NORECOVERY clause for both FG1 and FG2

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 8
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 9
DRAG DROP

You administer a Microsoft SQL Server database named Contoso. You create a stored procedure named Sales.ReviewInvoice by running the following Transact-SQL statement:

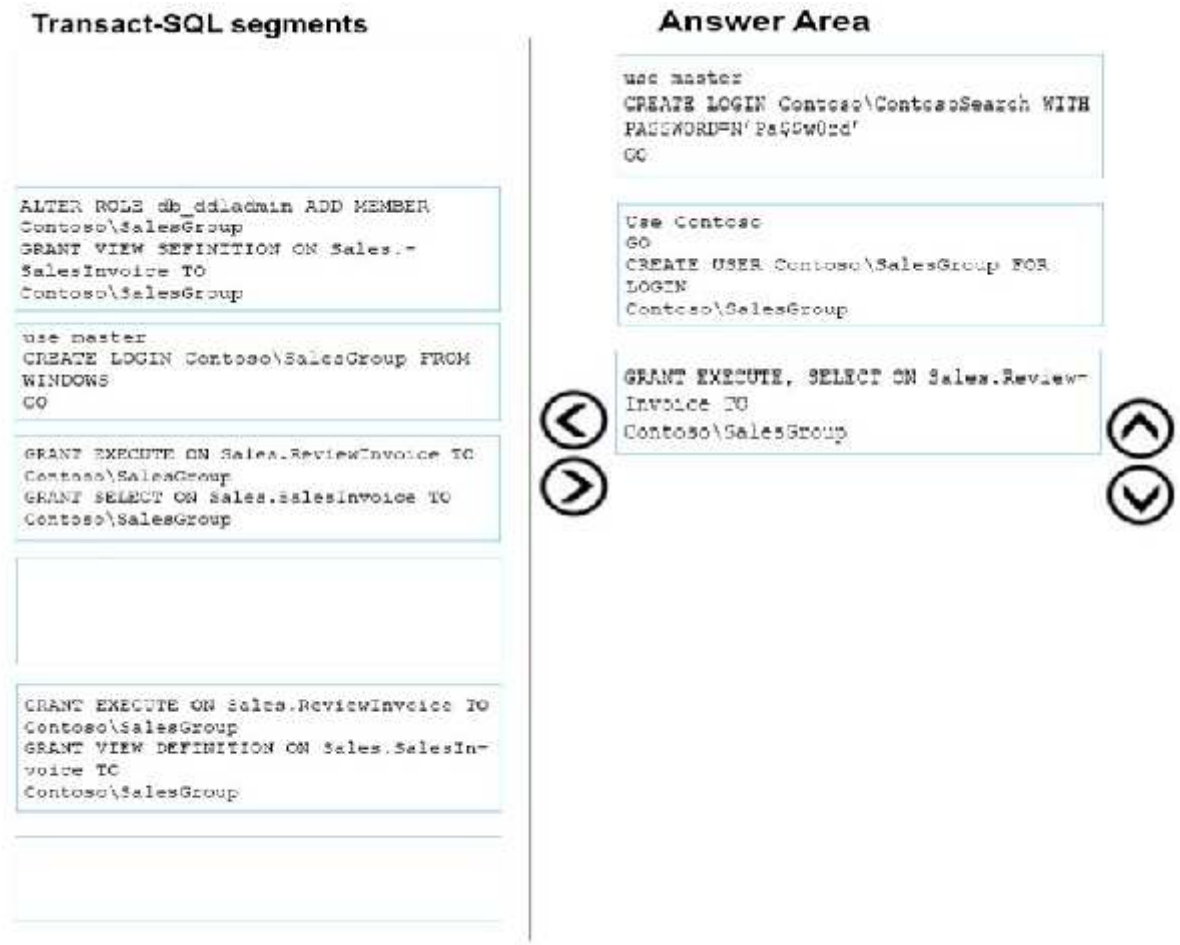
```
CREATE PROCEDURE Sales.ReviewInvoice (@SaleID int)
AS
     DECLARE @tsql nvarchar(4000) = 'SELECT SaleID, CustomerID, TotalAmount FROM Sales.SalesIn-
voice WHERE SaleID = '
     SET @tsql = @tsql + CAST(@saleID AS varchar(20))
     EXEC sp_executesql @TSQL
```

You need to create a Windows-authenticated login named ContosoSearch and ensure that ContosoSearch can run the Sales.ReviewInvoices stored procedure.

Which three 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:

QUESTION 10
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 11

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 12
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 DB1

SET QUERY_STORE (QUERY_CAPTURE_MODE = ALL)

B. ALTER DATABASE DB1
SET QUERY_STORE (MAX_STORAGE_SIZE_MB = 50)

C. ALTER DATABASE DB1
SET QUERY_STORE (CLEANUP_POLICY = (STALE_QUERY_THRESHOLD_DAYS = 14));

D. ALTER DATABASE DB1
SET QUERY_STORE (QUERY_CAPTURE_MODE = NONE)

E. ALTER DATABASE DB1
SET QUERY_STORE (OPERATION_MODE = READ_WRITE);

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When the actual state is read-only, use the readonly_reason column to determine the root cause. Typically you will find that Query Store transitioned to read-only mode because the size quota was exceeded.
Consider the following steps to switch Query Store to read-write mode and activate data collection:

- Increase the maximum storage size by using the MAX_STORAGE_SIZE_MB option of ALTER DATABASE.
- Clean up Query Store data by using the following statement:
- ALTER DATABASE [QueryStoreDB] SET QUERY_STORE CLEAR;

You can apply one or both of these steps by the executing the following statement that explicitly changes operation mode back to read-write:

ALTER DATABASE [QueryStoreDB]
SET QUERY_STORE (OPERATION_MODE = READ_WRITE);

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

QUESTION 13
HOTSPOT

A company has an on-premises Microsoft SQL Server environment and Microsoft Azure SQL Database instanced. The environments host several customer databases.

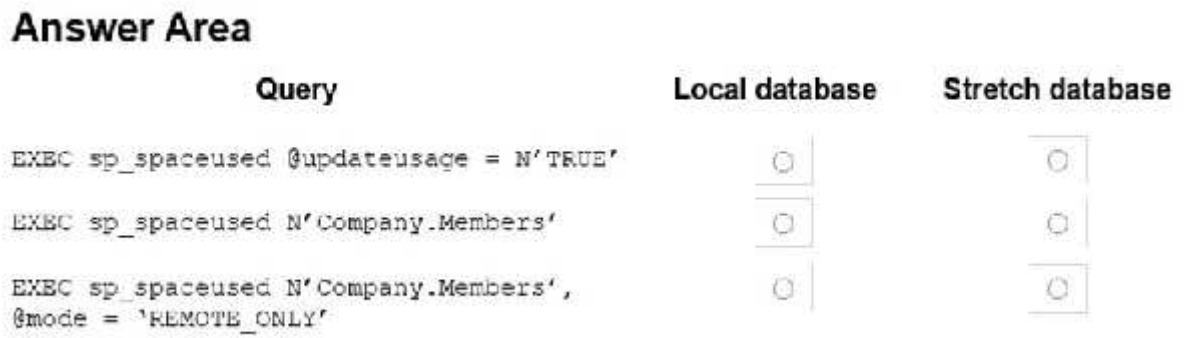
You host a local database and a Stretch database that has a table named Members for one specific customer.

You need to provide the customer with information about the space used in the databases.

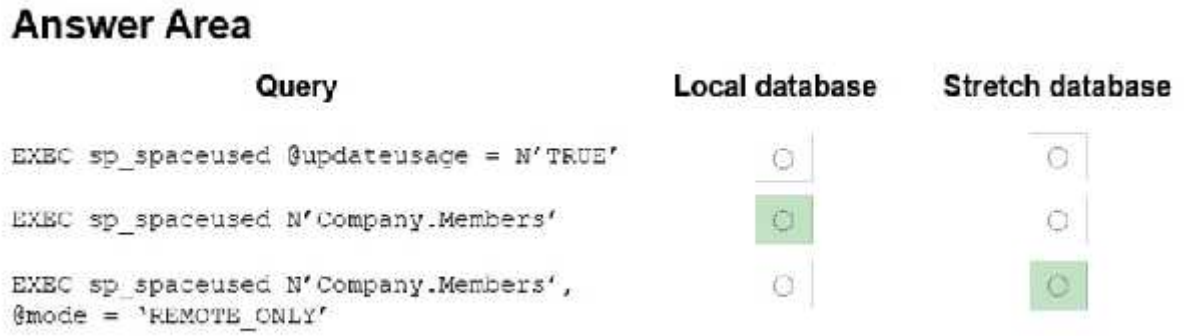
In the table below, identify the query that provides the required information for each database.

NOTE: Make only one selection in each column.

Hot Area:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

QUESTION 14
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:
Explanation:
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 15
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:
Explanation:
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 16
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 17
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:
Explanation:
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 18
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:
Explanation:
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 19
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:
Explanation:
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 20
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 21
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:
Explanation:
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 22
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:
Explanation:
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 23
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:
Explanation:
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 24
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:
Explanation:
The differential backup of the reporting database has failed, so it can't be used.

QUESTION 25
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:
Explanation:
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 26
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:
Explanation:
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 27
You administer several Microsoft SQL Server 2016 database servers.

Merge replication has been configured for an application that is distributed across offices throughout a wide area network (WAN). Many of the tables involved in replication use the XML and varchar (max) data types.

Occasionally, merge replication fails due to timeout errors.

You need to reduce the occurrence of these timeout errors.

What should you do?

A. Set the Merge agent on the problem subscribers to use the slow link agent profile.
B. Create a snapshot publication, and reconfigure the problem subscribers to use the snapshot publication.
C. Change the Merge agent on the problem subscribers to run continuously.

D. Set the Remote Connection Timeout on the Publisher to 0.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You might have different profiles for different instances of an agent. For example, a Merge Agent that connects to the Publisher and Distributor over a dialup connection could use a set of parameters that are better suited to the slower communications link by using the slow link profile.

Note: When replication is configured, a set of agent profiles is installed on the Distributor. An agent profile contains a set of parameters that are used each time an agent runs: each agent logs in to the Distributor during its startup process and queries for the parameters in its profile.

References: https://docs.microsoft.com/en-us/sql/relational-databases/replication/agents/replication-agent-profiles

QUESTION 28
You create an availability group named HaContoso that has replicas named Server01/HA, Server02/HA, and Server03/HA.

Currently, Server01l/HA is the primary replica.

You need to ensure that the following requirements are met:
- Backup operations occur on Server02/HA.
- If Server02/HA is unavailable, backup operations occur on Server03/HA.
- Backup operations do not occur on Server01/HA.

How should you configure HaContoso?

A. Set the backup preference of HaContoso to Prefer Secondary. Set the backup priority of Server02/HA to 20. Set the backup priority of Server03/HA to 10.
B. Set the backup preference of HaContoso to Secondary only. Set the backup priority of Server02/HA to 20. Set the backup priority of Server03/HA to 10.
C. Set the backup preference of HaContoso to Secondary only. Set the backup priority of Server02/HA to 10. Set the backup priority of Server03/HA to 20.
D. set the exclude replica of Server01/HA to true. Set the backup priority of Server02/HA to 10. Set the backup priority of Server03/HA to 20.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Secondary only: Specifies that backups should never be performed on the primary replica. If the primary replica is the only replica online, the backup should not occur.

Backup Priority (Lowest=1, Highest=100)
Specifies your priority for performing backups on this replica relative to the other replicas in the same availability group. The value is an integer in the range of 0..100. 1 indicates the lowest priority, and 100 indicates the highest priority. If Backup Priority = 1, the availability replica would be chosen for performing backups only if no higher priority availability replicas are currently available.

References: https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/configure-backup-on-availability-replicas-sql-server

QUESTION 29
You administer a Microsoft SQL Server 2016 instance that has several SQL Server Agent jobs configured.

SQL Server Agent jobs fail, the error messages returned by the job steps are truncated.

The following error message is an example of the truncated error message:

```
"Executed as user CONTOSO\ServiceAccount. ...0.4035.00 for 64-bit Copyright (C) Microsoft Corp 1984-2011. All rights
reserved. Started 63513 PM Error 2012-06-23 183536.87 Code 0XC001000E Source UserImport Description Code 0x00000000
Source Log Import Activity Descript... The package execution fa... The step failed."
```

You need to ensure that all the details of the job step failures are retained for SQL Server Agent jobs.

What should you do?

A. Expand agent logging to include information from all events.
B. Disable the Limit size of job history log feature.
C. Configure event forwarding.
D. Configure output files.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When you have a multiple-step job, then log all steps against a single file. Check the 'Append output to existing file' checkbox for all steps in the job that execute after the initial step. This results in a log file with all of the job steps from the last job execution. Each time the first step executes (each time the job is kicked-off) the file will be overwritten, so we have a record of the last set of output.

References: https://www.mssqltips.com/sqlservertip/1411/verbose-sql-server-agent-logging/

QUESTION 30

You administer a Microsoft SQL Server 2016 server that has SQL Server Integration Services (SSIS) installed.

You plan to deploy new SSIS packages to the server.

The SSIS packages use the Project Deployment Model together with parameters and Integration Services environment variables.

You need to configure the SQL Server environment to support these packages.

What should you do?

A. Create SSIS configuration files for the packages.
B. Create an Integration Services catalog.
C. Install Data Quality Services.
D. Install Master Data services.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Use can use Project Deployment Model for a project, containing packages and parameters, which is deployed to the SSISDB catalog on an instance of SQL Server.

References: https://docs.microsoft.com/en-us/sql/integration-services/packages/deploy-integration-services-ssis-projects-and-packages

QUESTION 31
You administer a Microsoft SQL Server 2016 server.

When transaction logs grow, SQL Server must send an email message to the database administrators.

You need to configure SQL Server to send the email messages.

What should you configure?

A. SQL Mail
B. An Extended Events session
C. Alerts and operators in SQL Server Agent
D. Policies under Policy-Based Management

Correct Answer: C

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Operators are aliases for people or groups that can receive electronic notification when jobs have completed or alerts have been raised. The SQL Server Agent service supports the notification of administrators through operators. Operators enable notification and monitoring capabilities of SQL Server Agent.

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

QUESTION 32
You administer two instances of Microsoft SQL Server 2016.

You deploy an application that uses a database on the named instance.

The application is unable to connect to the database on the named instance.

You need to ensure that the application can connect to the named instance.

What should you do?

A. Use the Data Quality Client to configure the application.
B. Start the SQL Server Browser Service.
C. Use the Master Data Services Configuration Manager to configure the application.
D. Start the SQL Server Integration Services Service.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The SQL ServerBrowser program runs as a Windows service. SQL Server Browser listens for incoming requests for Microsoft SQL Server resources and provides information about SQL Server instances installed on the computer. SQL Server Browser contributes to the following actions:
Browsing a list of available servers
Connecting to the correct server instance
Etc.

References: https://docs.microsoft.com/en-us/sql/tools/configuration-manager/sql-server-browser-service

QUESTION 33

You administer a Microsoft SQL Server 2016 database.

Users report that an application that accesses the database displays an error, but the error does not provide meaningful information.

No entries are found in the SQL Server log or Windows event logs related to the error.

You need to identify the root cause of the issue by retrieving the error message.

What should you do?

A. Create an Extended Events session by using the sqlserver.error_reported event.
B. Create a SQL Profiler session to capture all ErrorLog and EventLog events.
C. Flag all stored procedures for recompilation by using sp_recompile.
D. Execute sp_who.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Trapping SQL Server Errors with Extended Events
One very useful usage of Extended Events is the ability to trap SQL Server error without the need to have a server trace running (which, btw, is deprecated), with the additional feature of being able to query the data as soon as it comes in. This means that we a solution to monitor and trap errors as soon as they happen can be easily created, in order to help developers to fix problems as soon as they are detected. This is really, really, really helpful especially in very big applications, where the code base is quite old and there is no-one really knowing everything of the solution.

To start a 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
Etc.

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

QUESTION 34
You administer a Microsoft SQL Server 2016 instance that contains a financial database hosted on a storage area network (SAN). The financial database has the following characteristics:
- A data file of 2 terabytes is located on a dedicated LUN (drive D).
- A transaction log of 10 GB is located on a dedicated LUN (drive E).
- Drive D has 1 terabyte of free disk space.

- Drive E has 5 GB of free disk space.

The database is continually modified by users during business hours from Monday through Friday between 09:00 hours and 17:00 hours.

Five percent of the existing data is modified each day.

The Finance department loads large CSV files into a number of tables each business day at 11:15 hours and 15:15 hours by using the BCP or BULK INSERT commands.

Each data load adds 3 GB of data to the database.

These data load operations must occur in the minimum amount of time. A full database backup is performed every Sunday at 10:00 hours.

Backup operations will be performed every two hours (11:00, 13:00, 15:00, and 17:00) during business hours.

You implement log shipping of the financial database to another SQL Server 2016 instance. You decide to failover to this secondary database.

You need to ensure that all transactions will be replicated to the secondary database.

Which backup option should you use?

A. Differential
B. Transaction Log
C. FULL
D. SIMPLE
E. SKIP
F. RESTART
G. STANDBY
H. CHECKSUM
I. DBO_ONLY
J. COPY_ONLY
K. NORECOVERY
L. NO_CHECKSUM
M. CONTINUE_AFTER_ERROR
N. BULK_LOGGED

Correct Answer: K
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Roll back is controlled by the RESTORE statement through the [RECOVERY | NORECOVERY] options:

NORECOVERY specifies that roll back not occur. This allows roll forward to continue with the next statement in the sequence.

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

QUESTION 35
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:
Explanation:
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 36
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 37
You administer a Microsoft SQL Server 2016 database instance.

You create a new user named UserA. You need to ensure that UserA is able to create SQL Server Agent jobs and to execute SQL Server Agent jobs.

To which role should you add UserA?

A. Securityadmin
B. RSExecRole
C. SQLAgentUserRole
D. DatabaseMailUserRole

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 38
You administer a Microsoft SQL Server 2016 database.

You want to make a full backup of the database to a file on disk.

In doing so, you need to output the progress of the backup.

Which backup option should you use?

A. STATS
B. COMPRESSION
C. CHECKSUM
D. IN IT

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 39
You administer two Microsoft SQL Server 2016 servers named ProdSrv1 and ProdSrv2. ProdSrv1 is configured as a Distributor.

Both servers are configured to use the Windows NT Service virtual accounts for all SQL Services.

You are configuring snapshot replication from ProdSrv1 to ProdSrv2 by using ProdSrv2 as a pull subscriber.

The distribution agent on ProdSrv2 regularly fails, displaying the following error message:

```
"Cannot access the file. Operating system error code 5 (Access is denied.)."
```

You need to configure the distribution agent by granting only the minimum required access to all accounts.

What should you do?

A. Configure the Subscriber to use the Local System account.
B. Configure the SQL Server Agent service to run under the Local System account. Configure the Subscriber to use the SQL Server Agent service account.
C. Configure the SQL Server Agent service to run under a Windows domain account. Configure the Subscriber to use the SQL Server Agent service account. Grant FULL CONTROL access for the domain account to the ReplData share on ProdSrv1.
D. Configure the Subscriber to use a Windows domain account. Grant READ access for the domain account to the ReplData share on ProdSrv1.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 40
You are a database administrator for a Microsoft SQL Server 2016 environment.

You want to deploy a new application that will scale out the workload to at least five different SQL Server instances.

You need to ensure that for each copy of the database, users are able to read and write data that will then be synchronized between all of the database instances.

Which feature should you use?

A. Database Mirroring
B. Peer-to-Peer Replication
C. Log Shipping
D. Availability Groups

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 41
You administer a Microsoft SQL Server 2016 instance that has multiple databases.

You have a two-node SQL Server failover cluster.

The cluster uses a storage area network (SAN). You discover I/O issues. The SAN is at capacity and additional disks cannot be added.

You need to reduce the I/O workload on the SAN at a minimal cost.

What should you do?

A. Move user databases to a local disk.
B. Expand the tempdb data and log files.
C. Modify application code to use table variables.
D. Move the tempdb files to a local disk.

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:
Explanation:
You can configure TempDB on a local disk when you, for example, installing your SQL Server cluster.

References: https://www.mssqltips.com/sqlservertip/2817/sql-server-2012-cluster-with-tempdb-on-local-disk/

QUESTION 42
You administer a Microsoft SQL Server 2016 database that includes a table named Application.Events.

Application.Events contains millions of records about user activity in an application.

Records in Application.Events that are more than 90 days old are purged nightly.

When records are purged, table locks are causing contention with inserts.

You need to be able to modify Application.Events without requiring any changes to the applications that utilize Application.Events.

Which type of solution should you use?

A. Partitioned tables
B. Online index rebuild
C. Change data capture
D. Change tracking

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 43
You administer a Microsoft SQL Server 2016 environment.

One of the SQL Server 2016 instances contains a database named Sales.

You plan to migrate Sales to Windows Azure SQL Database.

To do so, you need to implement a contained database.

What should you do? (Each correct answer presents part of the solution. Choose all that apply.)

A. Set database containment to AZURE.
B. Enable server property contained database authentication.
C. Disable server property cross db ownership chaining.
D. Set database containment to PARTIAL.
E. Disable server property contained database authentication.
F. Set database containment to FULL.

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

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

You need to track all SELECT statements issued in the Contoso database only by users in a role named Sales.

What should you create?

A. An Alert
B. A Resource Pool
C. An Extended Event session
D. A Server Audit Specification
E. A SQL Profiler Trace
F. A Database Audit Specification
G. A Policy
H. A Data Collector Set

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:

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

You need to collect data for a long period of time to troubleshoot wait statistics when querying Contoso.

You also need to ensure minimum impact to the server.

What should you create?

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

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 46
You plan to install Microsoft SQL Server 2016 for a web hosting company.

The company plans to host multiple web sites, each supported by a SQL Server database.

You need to select an edition of SQL Server that features backup compression of databases, basic data integration features, and low total cost of ownership.

Which edition should you choose?

A. Express Edition with Tools
B. Standard Edition
C. Web Edition

D. Express Edition with Advanced Services

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Backup compression is supported on SQL Server 2016 editions: Enterprise, Standard, and Developer.

References: https://docs.microsoft.com/en-us/sql/sql-server/editions-and-components-of-sql-server-2016

QUESTION 47
You plan to install a Microsoft SQL Server 2016 instance.

The instance will support a database that has the following requirements:
- Store Excel workbooks on the file system.
- Access the workbooks through Transact-SQL.
- Include the workbooks in database backups.
- During installation, you need to ensure that the requirements will be met.

Which feature should you use?

A. Excel Services
B. FILESTREAM
C. SQL Server Integration Services (SSIS)
D. OpenXML

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 48
You administer a Microsoft SQL Server 2016 database.

You have a SQL Server Agent job instance that runs using the service account.

You have a job step within the job that requires elevated privileges.

You need to ensure that the job step can run using a different user account.

What should you use?

A. a schedule
B. an alert
C. an operator
D. a proxy

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 49
You install a Microsoft SQL Server 2016 instance.

The instance will store data extracted from two databases running on Windows Azure SQL Database.

You hire a data steward to perform interactive data cleansing and ad hoc querying and updating of the database.

You need to ensure that the data steward is given the correct client tools to perform these tasks.

Which set of tools should you install?

A. SQL Server Management Studio and Distributed Replay Client
B. Master Data Services and Data Quality Client
C. Data Quality Client and Distributed Replay Client
D. Data Quality Client and SQL Server Management Studio

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 50
You administer a Microsoft SQL Server 2016 instance.

You discover that the SQL Agent Error Log file is rapidly growing in size.

You need to ensure that the SQL Agent Error Log file does not grow rapidly when SQL Server agent jobs execute.

What should you do?

A. Execute the sp_cycle_agent_errorlog stored procedure.
B. Configure event forwarding.
C. Enable the Auto Shrink option on the master database.
D. Enable the Auto Shrink option on the msdb database.
E. Disable the Include execution trace messages feature.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Because the Include execution trace messages option can cause the error log to become large, only include execution trace messages in SQL Server Agent error logs when investigating a specific SQL Server Agent problem.

References: https://docs.microsoft.com/en-us/sql/ssms/agent/write-execution-trace-messages-to-sql-server-agent-log-ssms

QUESTION 51
You are a database administrator for a Microsoft SQL Server 2016 instance.

You need to ensure that data can be replicated from a production server to two reporting servers in real time.

You also need to ensure that data on the reporting server is always accessible.

Which solution should you use?

A. Availability Groups
B. Extended Events
C. Snapshot Replication
D. Policy Based Management

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 52
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 53
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:
Explanation:
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 54
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:
Explanation:
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 55

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 56
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 57
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:
Explanation:
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 58
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:
Explanation:
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 59
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 60
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 61
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 62
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 63
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 64
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:
Explanation:
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 65
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:
Explanation:
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 66
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 67
You administer a Microsoft SQL Server 2016 database.

You need to ensure that the size of the transaction log file does not exceed 2 GB.

What should you do?

A. Execute sp_configure 'max log size', 2G.
B. use the ALTER DATABASE...SET LOGFILE command along with the maxsize parameter.
C. In SQL Server Management Studio, right-click the instance and select Database Settings. Set the maximum size of the file for the transaction log.
D. in SQL Server Management Studio, right-click the database, select Properties, and then click Files. Open the Transaction log Autogrowth window and set the maximum size of the file.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 68
You administer a Microsoft SQL Server 2016 server.

The MSSQLSERVER service uses a domain account named CONTOSO\SQLService.

You plan to configure Instant File Initialization.

You need to ensure that Data File Autogrow operations use Instant File Initialization.

What should you do? Choose all that apply.

A. Restart the SQL Server Agent Service.
B. Disable snapshot isolation.
C. Restart the SQL Server Service.
D. Add the CONTOSO\SQLService account to the Perform Volume Maintenance Tasks local security policy.
E. Add the CONTOSO\SQLService account to the Server Operators fixed server role.
F. Enable snapshot isolation.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
How To Enable Instant File Initialization
1. Open Local Security Policy and go to Local Policies –> User Rights Assignment.
2. Double click Perform Volume Maintenance Tasks and add your SQL Server database engine service account.
3. Restart the SQL Server service using SQL Server Configuration Manager and this setting should now be enabled.

References: http://msdn.microsoft.com/en-us/library/ms175935.aspx

QUESTION 69
You administer a Microsoft SQL Server 2016 database.

The database contains a Product table created by using the following definition:

```
CREATE TABLE dbo.Product
      (ProductID INT PRIMARY KEY,
      Name VARCHAR(50) NOT NULL,
      Color VARCHAR(15) NOT NULL,
      Size VARCHAR(5) NOT NULL,
      Style CHAR(2) NULL,
      Weight DECIMAL(8,2) NULL);
```

You need to ensure that the minimum amount of disk space is used to store the data in the Product table.

What should you do?

A. Convert all indexes to Column Store indexes.
B. Implement Unicode Compression.
C. Implement row-level compression.
D. Implement page-level compression.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 70
You administer a Microsoft SQL Server 2016 instance.

After a routine shutdown, the drive that contains tempdb fails.

You need to be able to start the SQL Server.

What should you do?

A. Modify tempdb location in startup parameters.
B. Start SQL Server in minimal configuration mode.
C. Start SQL Server in single-user mode.
D. Configure SQL Server to bypass Windows application logging.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 71
You administer a single server that contains a Microsoft SQL Server 2016 default instance.

You plan to install a new application that requires the deployment of a database on the server. The application login requires sysadmin permissions.

You need to ensure that the application login is unable to access other production databases.

What should you do?

A. Use the SQL Server default instance and configure an affinity mask.
B. Install a new named SQL Server instance on the server.
C. Use the SQL Server default instance and enable Contained Databases.
D. Install a new default SQL Server instance on the server.

Correct Answer: B

Section: (none)
Explanation

Explanation/Reference:
Explanation:
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 72
You administer a Microsoft SQL Server 2016 Enterprise Edition server that uses 64 cores.

You discover performance issues when large amounts of data are written to tables under heavy system load.

You need to limit the number of cores that handle I/O.

What should you configure?

A. Processor affinity
B. Lightweight pooling
C. Max worker threads
D. I/O affinity

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
References: http://msdn.microsoft.com/en-us/library/ms189629.aspx

QUESTION 73
You administer a Microsoft SQL Server 2016 instance. The instance contains a database that supports a retail sales application.

The application generates hundreds of transactions per second and is online 24 hours per day and 7 days per week. You plan to define a backup strategy for the database.

You need to ensure that the following requirements are met:
- No more than 5 minutes worth of transactions are lost.

- Data can be recovered by using the minimum amount of administrative effort.

What should you do? Choose all that apply.

A. Configure the database to use the SIMPLE recovery model.
B. Create a DIFFERENTIAL database backup every 4 hours.
C. Create a LOG backup every 5 minutes.
D. Configure the database to use the FULL recovery model.
E. Create a FULL database backup every 24 hours.
F. Create a DIFFERENTIAL database backup every 24 hours.

Correct Answer: BCDE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If there are only three options, the CDE (exclude differential backup), is the best answer.

QUESTION 74
You administer a Microsoft SQL Server 2016 database that contains a table named OrderDetail. You discover that the NCI_OrderDetail_CustomerID non-clustered index is fragmented.

You need to reduce fragmentation.

You need to achieve this goal without taking the index offline.

Which Transact-SQL batch should you use?

A. CREATE INDEX NCI_OrderDetail_CustomerID
ON OrderDetail.CustomerID WITH DROP EXISTING
B. ALTER INDEX NCI_OrderDetail_CustomerID ON
OrderDetail.CustomerID REORGANIZE
C. ALTER INDEX ALL ON OrderDetail REBUILD
D. ALTER INDEX NCI_OrderDetail_CustomerID ON
OrderDetail.CustomerID REBUILD

Correct Answer: B
Section: (none)

Explanation

Explanation/Reference:
References: http://msdn.microsoft.com/en-us/library/ms188388.aspx

QUESTION 75
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 76
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:
Explanation:
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 77

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:
Explanation:
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 78
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 79
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 80
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 81
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 82
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 83
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 84
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.

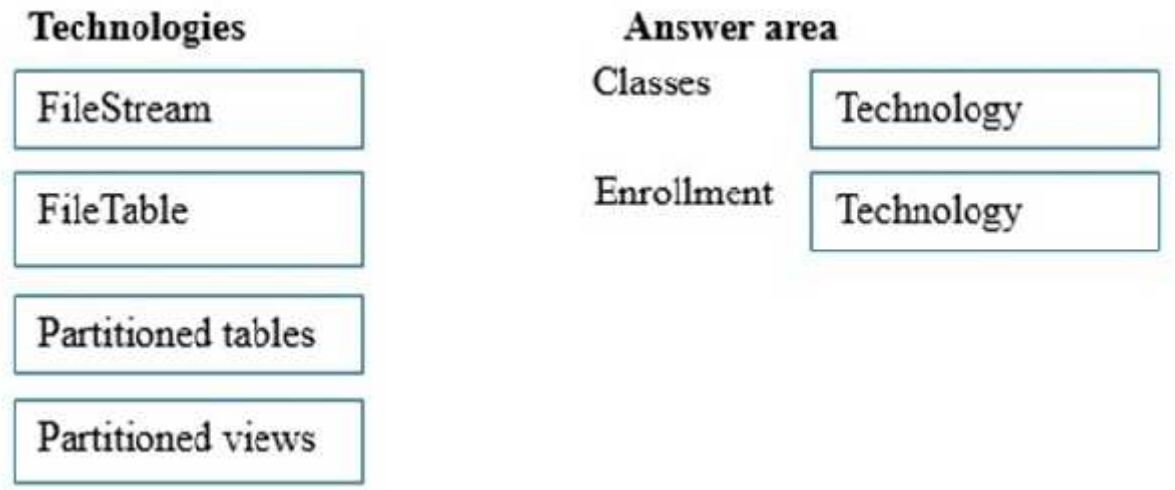
QUESTION 85
DRAG DROP

You are designing a database for a university.

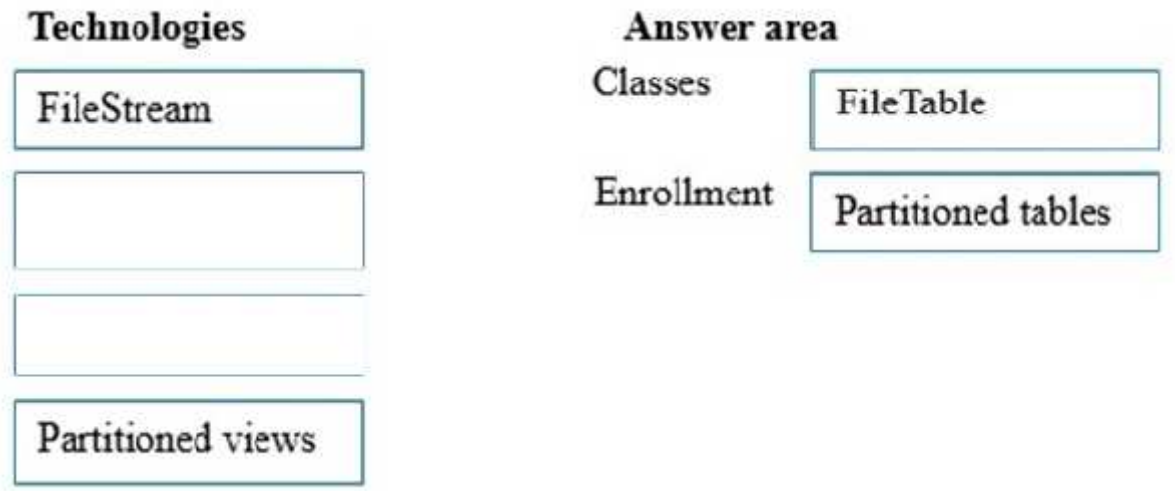
The database will contain two tables named Classes and Enrollment that have the following specifications:
- Classes will store brochures in the XPS format. The brochures must be structured in folders and must be accessible by using UNC paths.
- Enrollment will store information about students and their classes. Performance must be enhanced for queries of the current enrollments.

You need to identify which SQL Server technology meets the specifications of each table. Which technologies should you identify? To answer, drag the appropriate technology to the correct table in the answer area.

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:
Explanation:
The FileTable feature brings support for the Windows file namespace and compatibility with Windows applications to the file data stored in SQL Server. FileTable lets an application integrate its storage and data management components, and provides integrated SQL Server services including full-text search and semantic search-over unstructured data and metadata. In other words, you can store files and documents in special tables in SQL Server called FileTables, but access them from Windows applications as if they were stored in the file system, without making any changes to your client applications.

QUESTION 86
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 87
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 88
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 89
You plan to create a database.

The database will be used by a Microsoft .NET application for a special event that will last for two days.

During the event, data must be highly available.

After the event, the database will be deleted.

You need to recommend a solution to implement the database while minimizing costs.

The solution must not affect any existing applications.

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

A. SQL Server 2014 Enterprise
B. SQL Server 2014 Standard
C. SQL Azure
D. SQL Server 2014 Express with Advanced Services

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation: Programmability (AMO, ADOMD.Net, OLEDB, XML/A, ASSL) supported by Standard and Enterprise editions only. References: Features Supported by the Editions of SQL Server 2014.

QUESTION 90
You are designing a database named DB1.

Changes will be deployed to DB1 every Wednesday night.

You need to recommend a strategy to deploy the changes to DB1.

The strategy must meet the following requirements:
- The strategy must not disrupt backup operations.
- DB1 must be unavailable to users while the changes are deployed.
- You must be able to undo quickly the entire operation.

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

A. Perform a copy-only database backup before the changes are deployed.
   If the deployment fails, restore the database to another server and recover the original.
   Objects from the restored database.
B. Create a database snapshot.
   If the deployment fails, recover the objects from the database snapshot.
C. Create a database snapshot.
   If the deployment fails, revert the database to the database snapshot.
D. Perform a full database backup before the changes are deployed.
   If the deployment fails, restore the database to another server and recover the original objects from the restored database.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 91

You are designing a SQL Server database for an order fulfillment system. You create a table named Sales.Orders by using the following script:

```
CREATE TABLE Sales.Orders
 (
      OrderID int IDENTITY (1,1) NOT NULL PRIMARY KEY,
      OrderDate date 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 you can retrieve the status of an order on a given date.

The solution must ensure that new statuses can be added in the future.

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

A. To the Sales.Orders table, add a column named Status that will store the order status. Update the Status column 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: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 92
You have two SQL Server 2012 instances named SQLDev and SQLProd.

You plan to create a new database on SQLProd that will use SQL Server Authentication.

You need to ensure that when the new database is copied from SQLProd to SQLDev, users can connect to the database on SQLDev if they do not have a login on the SQLDev instance.

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

A. SQL Server Integration Services (SSIS) scripts
B. Extended Events
C. Triggers
D. SQL Server Analysis Services (SSAS) scripts
E. Contained database

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A fully contained database includes all the settings and metadata required to define the database and has no configuration dependencies on the instance of the SQL Server Database Engine where the database is installed.

QUESTION 93
Your company has offices in Seattle and Montreal.

The network contains two servers named Server1 and Server2 that have SQL Server 2012 installed. The servers are located in separate building within your campus.

The latency of the WAN link between the buildings is less than 10 ms.

You plan to implement an AlwaysOn availability group on both servers.

You need to recommend a failover type for the availability group.

What should you recommend?

A. Asynchronous automatic failover
B. Synchronous manual failover
C. Asynchronous manual failover
D. Synchronous automatic failover

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:

QUESTION 94
You have a database named DB1.

You plan to create a stored procedure that will insert rows into three different tables. Each insert must use the same identifying value for each table, but the value must increase from one invocation of the stored procedure to the next.

Occasionally, the identifying value must be reset to its initial value. You need to design a mechanism to hold the identifying values for the stored procedure to use.

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

A. Create a sequence object that holds the next value in the sequence.
Retrieve the next value by using the stored procedure.
Reset the value by using an ALTER SEQUENCE statement as needed.
B. Create a sequence object that holds the next value in the sequence.
Retrieve the next value by using the stored procedure.
Increment the sequence object to the next value by using an ALTER SEQUENCE statement.
Reset the value as needed by using a different ALTER SEQUENCE statement.
C. Create a fourth table that holds the next value in the sequence.
At the end each transaction, update the value by using the stored procedure.
Reset the value as needed by using an UPDATE statement.
D. Create an identity column in each of the three tables.
Use the same seed and the same increment for each table.
Insert new rows into the tables by using the stored procedure.
Use the DBCC CHECKIDENT command to reset the columns as needed.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- an application can obtain the next sequence number without inserting the row by calling the NEXT VALUE FOR function.
- ALTER SEQUENCE Includes argument:

RESTART [WITH <constant>]

The next value that will be returned by the sequence object. If provided, the RESTART WITH value must be an integer that is less than or equal to the maximum and greater than or equal to the minimum value of the sequence object. If the WITH value is omitted, the sequence numbering restarts based on the original CREATE SEQUENCE options.
- CREATE SEQUENCE
Creates a sequence object and specifies its properties. A sequence is a user-defined schema bound object that generates a sequence of numeric values according to the specification with which the sequence was created. The sequence of numeric values is generated in an ascending or descending order at a defined interval and can be configured to restart (cycle) when exhausted.

QUESTION 95
You plan to create a database.

The database will be used by a Microsoft .NET application for a special event that will last for two days. During the event, data must be highly available. After the event, the database will be deleted. You need to recommend a solution to implement the database while minimizing costs. The solution must not affect any existing applications.

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

A. Max Degree of Parallelism
B. Resource Governor
C. Windows System Resource Manager (WSRM)
D. Processor affinity

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 96
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 for the deployment of SQL Server 2014. The solution must meet the business requirements. What should you include in the recommendation?

A. Create a new instance of SQL Server 2014 on the server that hosts the SQL Server 2008 instance.
B. Upgrade the existing SQL Server 2008 instance to SQL Server 2014.
C. Deploy two servers that have SQL Server 2014 installed and implement Failover Clustering.
D. Deploy two servers that have SQL Server 2014 installed and implement database mirroring.

Correct Answer: C

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: The databases must be available if the SQL Server service fails.

QUESTION 97
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
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All database files will be stored in a highly available SAN.
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Business Requirements

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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 improve the performance of usp.UpdateInventory.
The solution must minimize the amount of development effort. What should you include in the recommendation?

A. A table variable
B. A common table expression
C. A subquery
D. A cursor

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: Database2 will contain a stored procedure named usp_UpdateInventory. Usp_UpdateInventory will manipulate a table that contains a self-join that has an unlimited number of hierarchies.
- A table variable can be very useful to store temporary data and return the data in the table format.
- Example: The following example uses a self-join to find the products that are supplied by more than one vendor. Because this query involves a join of the ProductVendor table with itself, the ProductVendor table appears in two roles. To distinguish these roles, you must give the ProductVendor table two different aliases (pv1 and pv2) in the FROM clause. These aliases are used to qualify the column names in the rest of the query. This is an example of the self-join Transact-SQL statement:

```
USE AdventureWorks2008R2;
GO
SELECT DISTINCT pv1.ProductID, pv1.VendorID
FROM Purchasing.ProductVendor pv1
INNER JOIN Purchasing.ProductVendor pv2
ON pv1.ProductID = pv2.ProductID
AND pv1.VendorID <> pv2.VendorID
ORDER BY pv1.ProductID
```

Incorrect Answers:
B: Using a CTE offers the advantages of improved readability and ease in maintenance of complex queries. The query can be divided into separate, simple, logical building blocks. These simple blocks can then be used to build more complex, interim CTEs until the final result set is generated

QUESTION 98
Overview
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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 disk monitoring solution that meets the business requirements.
What should you include in the recommendation?

A. a SQL Server Agent alert
B. a dynamic management view
C. a maintenance plan
D. an audit

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Dynamic Management Views and Functions (Transact-SQL)

QUESTION 99
Overview
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Planned Changes
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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 for Application1 that meets the security requirements. What should you include in the recommendation?

A. Encrypted columns
B. Certificate Authentication
C. Secure Socket Layer (SSL)
D. Signed stored procedures

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario:
- Data from Database2 will be accessed periodically by an external application named Application1
- Application developers must be denied direct access to the database tables. Applications must be denied direct access to the tables.
Tutorial: Signing Stored Procedures with a Certificate

QUESTION 100
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.
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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 feature to support your backup solution. What should you include in the recommendation?

A. Transparent Data Encryption (TDE)
B. Column-level encryption
C. An NTFS file permission
D. A Secure Sockets Layer (SSL)

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: You must encrypt the backup files to meet regulatory compliance requirements. The encryption strategy must minimize changes to the databases and to the applications.
- Transparent data encryption (TDE) performs real-time I/O encryption and decryption of the data and log files. The encryption uses a database encryption key (DEK), which is stored in the database boot record for availability during recovery.
Transparent Data Encryption (TDE)

QUESTION 101
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 102
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 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 103
Overview
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Litware is a book publishing house. Litware has a main office and a branch office.
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You have an existing desktop application that uses a SQL Server 2008 database named App1_DB.
App1_DB will remain in production.

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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.
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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.
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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 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 104
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.

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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.
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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.
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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.
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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.

During performance testing, you discover that database INSERT operations against the Inventory table are slow.
You need to recommend a solution to reduce the amount of time it takes to complete the INSERT operations. What should you recommend?

A. Partition the nonclustered index.
B. Partition the Inventory table.snapshot replication
C. Create a column store index.Master Data Services
D. Drop the clustered index.change data capture

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
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.

QUESTION 105
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

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

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:

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 addresses the index fragmentation and index width issue. What should you include in the recommendation? (Each correct answer presents part of the solution. Choose all that apply.)

A. Change the data type of the lastModified column to smalldatetime.
B. Remove the lastModified column from the clustered index.
C. Change the data type of the modifiedBy column to tinyint.
D. Change the data type of the id column to bigint.
E. Remove the modifiedBy column from the clustered index.
F. Remove the id column from the clustered index.

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: 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)

QUESTION 106
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
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lastModified	datetime
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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 addresses the concurrency requirement. What should you recommend?

A. Call the stored procedures in a Distributed Transaction Coordinator (DTC) transaction.
B. Modify the stored procedures to update tables in the same order for all of the stored procedures.
C. Make calls to Sales.Proc1 and Sales.Proc2 synchronously.

D. Break each stored procedure into two separate procedures, one that changes Sales.Table1 and one that changes Sales.Table2.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Concurrency Requirements
You must reduce the likelihood of deadlocks occurring when Sales.Proc1 and Sales.Proc2 execute.

QUESTION 107
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 addresses the backup issue.
The solution must minimize the amount of development effort.
What should you include in the recommendation?

A. Indexed views
B. Filegroups
C. Table partitioning
D. Indexes

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Backup Issues
Customers who have large amounts of historical purchase order data report that backup time is unacceptable.

- For very large databases (and by that, I mean, at least 500gb, but more like 5-10tb or more), it can become too expensive to regularly run a straight full backup. So, where needed, you can choose to backup smaller pieces of the database by choosing to back up one of the files or file groups that make up a database.

QUESTION 108
Overview
Application Overview

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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.
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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.
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
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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 changes to the ERP application to resolve the search issue.
The solution must minimize the impact on other queries generated from the ERP application.
What should you recommend changing?

A. The collation of the Products table
B. The index on the ProductName column
C. The collation of the ProductName column
D. The data type of the ProductName column

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
References:

http://technet.microsoft.com/en-us/library/aa214408(v=sql.80).aspx

QUESTION 109
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.
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Tables
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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
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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 meets the data recovery requirement. What should you include in the recommendation?

A. A differential backup
B. A transaction log backup
C. Snapshot isolation
D. A database snapshot

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 110
Overview
Application Overview

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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
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Index Fragmentation Issues
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Design Requirements
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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 resolves the missing data issue.
The solution must minimize the amount of development effort. What should you recommend?

A. Denormalize the Products table.
B. Denormalize the OrderDetails table.
C. Normalize the OrderDetails table.
D. Normalize the Products table.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario:
- 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.
- 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.

QUESTION 111
Overview
Application Overview

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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.
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GO

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UPDATE Sales.Table1 …
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Installation Issues
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Design Requirements
File Storage Requirements
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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 112
Overview
Application Overview

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```

Customer Problems

Installation Issues
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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 113
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COMMIT TRAN
GO

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COMMIT TRAN
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```

Customer Problems

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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.

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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 114
Overview
Application Overview

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AS
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UPDATE Sales.Table1 …
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COMMIT TRAN
GO

CREATE PROC Sales.Proc2
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```

Customer Problems

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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 115
Overview
Application Overview

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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

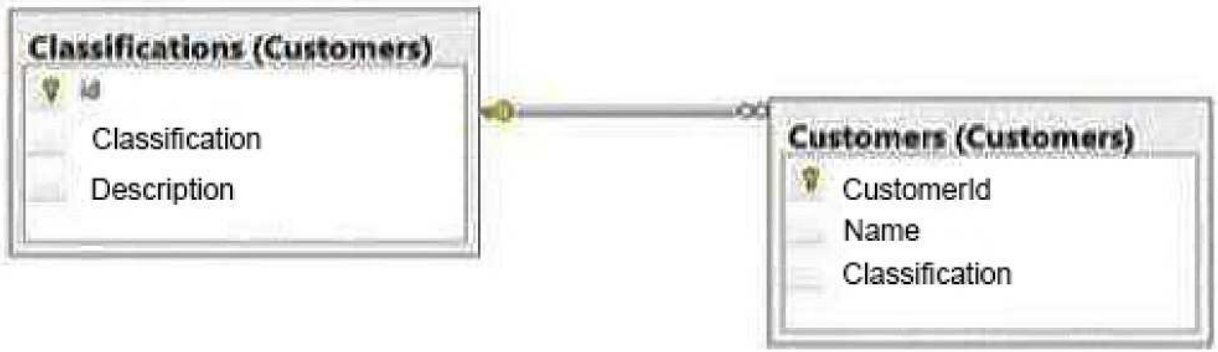
Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 116
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.

QUESTION 117
Overview
General Overview
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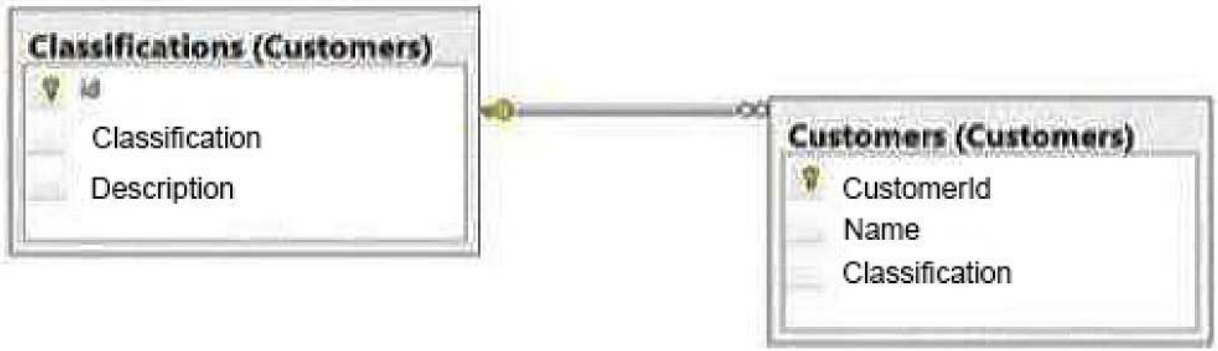
Servers and databases are managed by a team of database administrators. Currently, all of the database administrators have the same level of permissions on all of the servers and all of the databases.
The Customers database contains two tables named Customers and Classifications.
The following graphic 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.

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 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.

QUESTION 118
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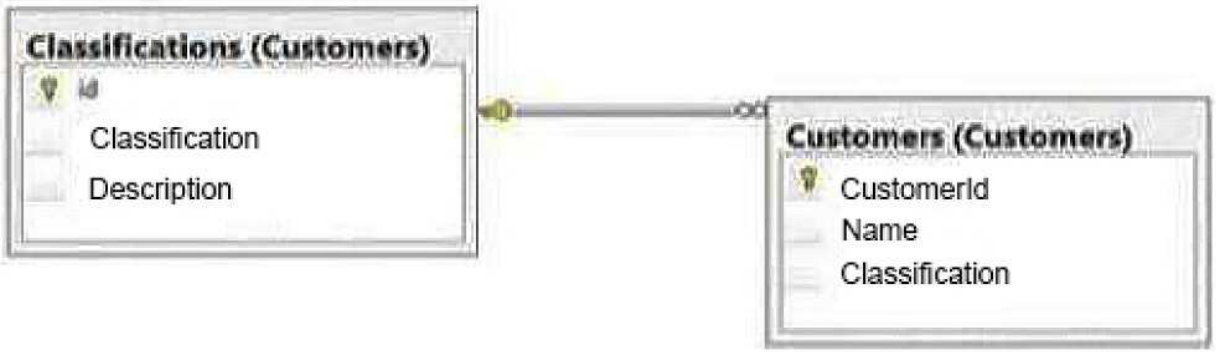

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Data Recovery
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Storage
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Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored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

You need to recommend a solution to 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 119

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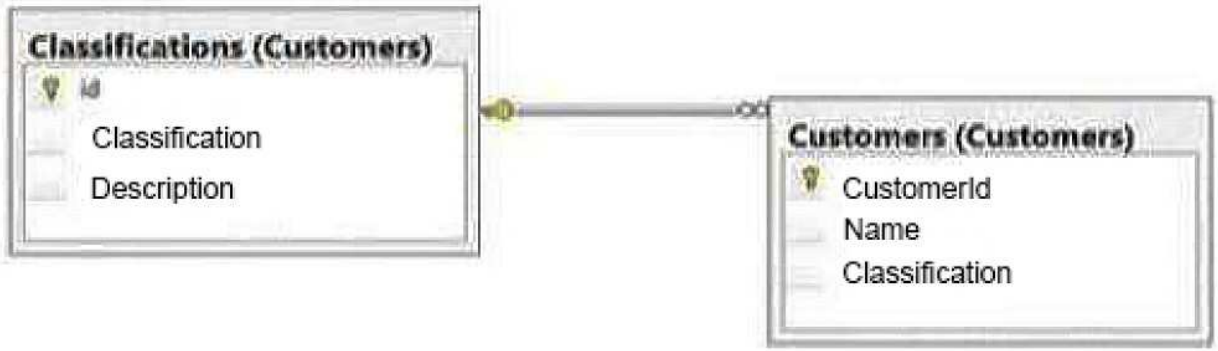

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Error Handling
There is currently no error handling code in any stored procedure.
You plan to log errors in called stored procedures and nested stored procedures. Nested stored procedures are never called directly.

You need to recommend a 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 120
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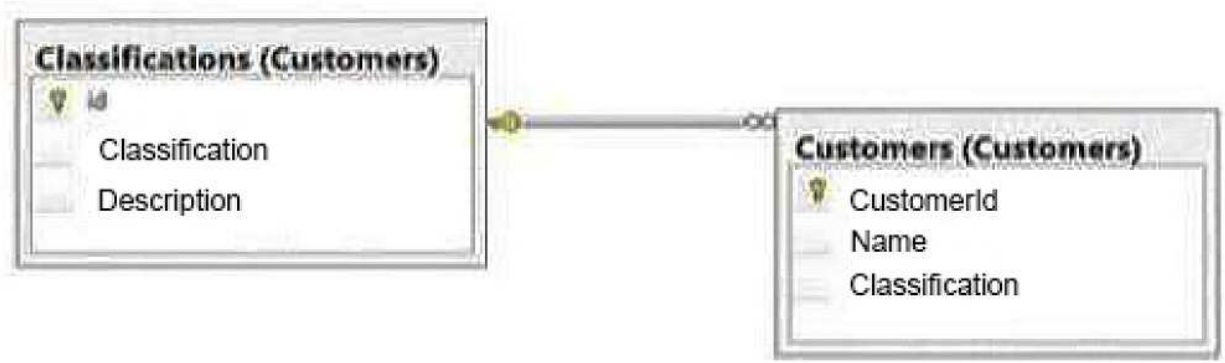

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You must be able to recover data from the Inventory database if a storage failure occurs. You have a Recovery Time Objective (RTO) of 5 minutes.

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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 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.

QUESTION 121
Overview
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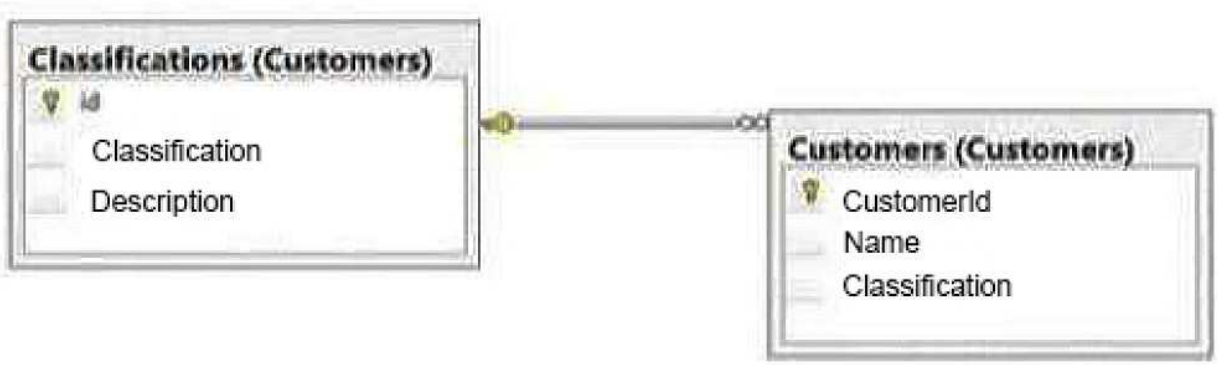

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Stored Procedures
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Design Requirements
Data Recovery
You must be able to recover data from the Inventory database if a storage failure occurs. You have a Recovery Time Objective (RTO) of 5 minutes.

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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 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.

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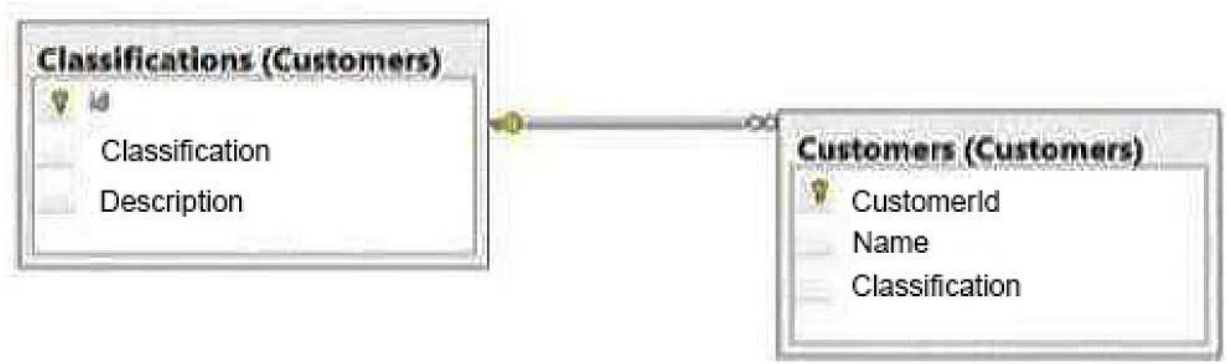

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Design Requirements
Data Recovery
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Error Handling
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You need to recommend a change to USP_3 to ensure that the procedure completes only if all of 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.

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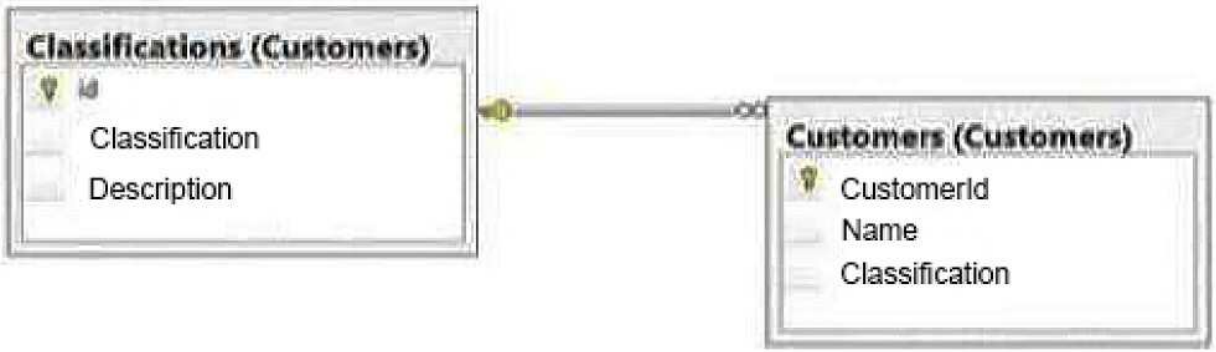

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Design Requirements
Data Recovery
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You must be able to recover data from the Dev database if data is lost accidentally. You have a Recovery Point Objective (RPO) of one day.

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 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.

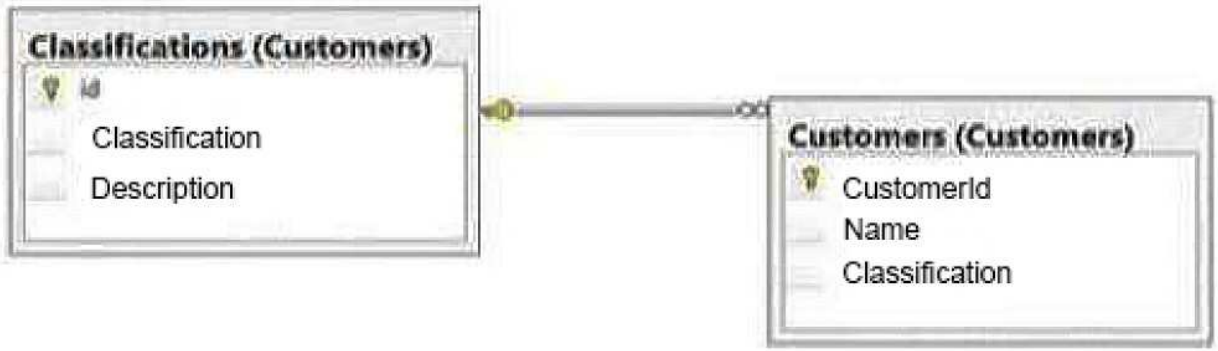
Correct Answer: B
Section: (none)
Explanation

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 124

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.

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 that meets the data recovery requirement. What should you include in the recommendation?

A. A database snapshot
B. A transaction log backup
C. Snapshot isolation
D. A differential backup

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
References: http://stackoverflow.com/questions/5299812/alternatives-to-snapshot-functionality-sql-serverstandard

QUESTION 125
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.

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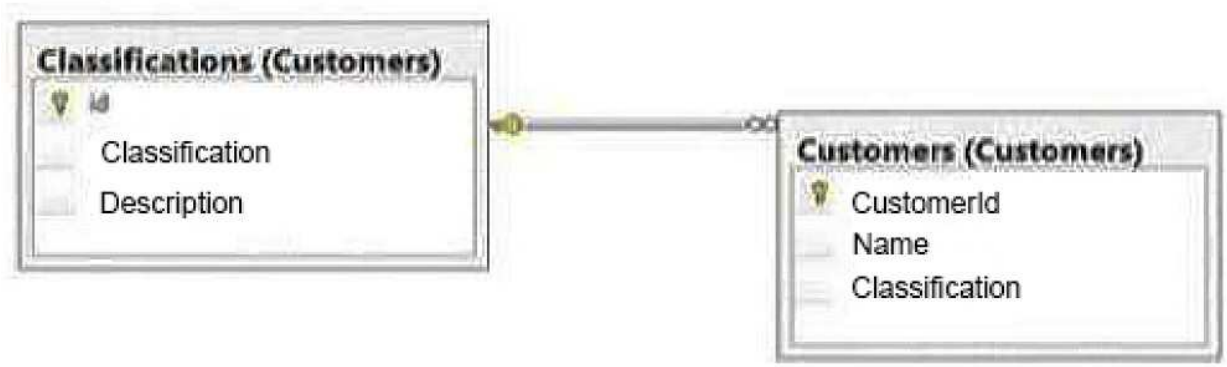
Each office contains databases named Sales, Inventory, Customers, Products, Personnel, and Dev.
Servers and databases are managed by a team of database administrators. Currently, all of the database administrators have the same level of permissions on all of the servers and all of the databases.
The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



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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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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 to minimize the amount of time it takes to execute USP_2. What should you recommend?

A. A database snapshot
B. A table variable
C. A temporary table
D. Snapshot isolation

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
A stored procedure named USP_2 is used to generate a product list.
USP_2 takes several minutes to run due to locks on the tables the procedure accesses.

QUESTION 126
You need to address the Sales Director's requirements regarding the customer classification. You need to recommend a solution for changing the classifications.

What should you recommend?

A. Add each classification change to a new row in the Customers table.
B. Record each change to the classification of each customer in a new row in the Customers table.
C. Add a new row to the Customers table for each new classification.
D. Record each change to the classification of each customer in a new table in the Customers database.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 127
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

Databases
You plan to implement databases named Customers, Sales, Products, Current_Inventory, and TempReporting.
The Sales database contains a table named OrderTotals and a table named SalesInfo.
A stored procedure named SPUpdateSalesInfo reads data in the OrderTotals table and modifies data in the SalesInfo table.
The stored procedure then reads data in the OrderTotals table a second time and makes further changes to the information in the SalesInfo table.
The Current_Inventory database contains a large table named Inv_Current. The Inv_Current table has a clustered index for the primary key and a nonclustered index. The primary key column uses the identity property.
The data in the Inv_Current table is over 120GB in size. The tables in the Current_Inventory database are accessed by multiple queries in the Sales database.
Another table in the Current_Inventory database contains a self-join with an unlimited number of hierarchies. This table is modified by a stored procedure named SPUpdate2.
An external application named ExternalApp1 will periodically query the Current_Inventory database to generate statistical information. The TempReporting database contains a single table named GenInfo.
A stored procedure named SPUPdateGenInfo combines data from multiple databases and generates millions of rows of data in the GenInfo table.
The GenInfo table is used for reports.
When the information in GenInfo is generated, a reporting process reads data from the Inv_Current table and queries information in the GenInfo table based on that data.
The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.

- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
- In the event of a SQL Server failure, the databases must remain available.
- Software licensing and database storage costs must be minimized.
- Development effort must be minimized.
- The Tempdb databases must be monitored for insufficient free space.
- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

The performance of the SPUpdate2 stored procedure needs to be improved.
Your solution must meet the design requirements.
What should your solution include?

A. A common table expression.
B. A derived table.
C. A Cursor.
D. A table variable.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 128
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

Databases
You plan to implement databases named Customers, Sales, Products, Current_Inventory, and TempReporting.

The Sales database contains a table named OrderTotals and a table named SalesInfo.
A stored procedure named SPUpdateSalesInfo reads data in the OrderTotals table and modifies data in the SalesInfo table.
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The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
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- Deadlocks must be analyzed with the use of Deadlock Graphs.
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- Software licensing and database storage costs must be minimized.
- Development effort must be minimized.
- The Tempdb databases must be monitored for insufficient free space.
- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to configure a synchronization solution to copy data from the Current_Inventory database the DesABCopAppDB database.
What should you configure?

A. Transactional Replication.
B. Database Mirroring.
C. Snapshot Replication.
D. Incremental Backups

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 129
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

Databases
You plan to implement databases named Customers, Sales, Products, Current_Inventory, and TempReporting.
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A stored procedure named SPUpdateSalesInfo reads data in the OrderTotals table and modifies data in the SalesInfo table.
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data.
The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
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SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
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- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
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- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to enable users to modify data in the database tables using UPDATE operations.
You need to implement a solution that meets the design requirements.
What should you configure?

A. You should configure a server role.
B. You should configure a database role.
C. You should configure functions that use the EXECUTE AS statement.
D. You should configure stored procedures that use the EXECUTE AS statement.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 130
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

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The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements

Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
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- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to ensure that the account used to generate reports can only connect during certain hours.
What should you configure?

A. A CHECK constraint.
B. Windows Server Resource Manager (WSRM).
C. Logon Triggers.
D. Login Auditing.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 131
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

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Current System
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SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
- In the event of a SQL Server failure, the databases must remain available.
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- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.

- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to meet the design requirement for the ProductTypes table in the Product database. Which of the following would be the best solution?

A. A PRIMARY KEY constraint.
B. A CHECK constraint.
C. A UNIQUE constraint.
D. A Data Definitions Language (DDL) trigger.
E. A FOREIGN KEY constraint.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 132
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

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The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
- In the event of a SQL Server failure, the databases must remain available.
- Software licensing and database storage costs must be minimized.
- Development effort must be minimized.
- The Tempdb databases must be monitored for insufficient free space.
- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to plan the SQL Server 2012 deployment that meets the design requirements.
Which of the following steps should you perform?

A. Upgrade the existing SQL Server 2005 server to SQL Server 2012.
B. Install one new server running SQL Server 2012.
C. Install two new servers running SQL Server 2012
D. Configure Failover Clustering
E. Configure AllwaysOn

Correct Answer: ABE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 133
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

Databases
You plan to implement databases named Customers, Sales, Products, Current_Inventory, and TempReporting.
The Sales database contains a table named OrderTotals and a table named SalesInfo.
A stored procedure named SPUpdateSalesInfo reads data in the OrderTotals table and modifies data in the SalesInfo table.
The stored procedure then reads data in the OrderTotals table a second time and makes further changes to the information in the SalesInfo table.
The Current_Inventory database contains a large table named Inv_Current. The Inv_Current table has a clustered index for the primary key and a nonclustered index. The primary key column uses the identity property.
The data in the Inv_Current table is over 120GB in size. The tables in the Current_Inventory database are accessed by multiple queries in the Sales database.
Another table in the Current_Inventory database contains a self-join with an unlimited number of hierarchies. This table is modified by a stored procedure named SPUpdate2.
An external application named ExternalApp1 will periodically query the Current_Inventory database to generate statistical information. The TempReporting database contains a single table named GenInfo.
A stored procedure named SPUPdateGenInfo combines data from multiple databases and generates millions of rows of data in the GenInfo table.
The GenInfo table is used for reports.
When the information in GenInfo is generated, a reporting process reads data from the Inv_Current table and queries information in the GenInfo table based on that data.
The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers

A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
- In the event of a SQL Server failure, the databases must remain available.
- Software licensing and database storage costs must be minimized.
- Development effort must be minimized.
- The Tempdb databases must be monitored for insufficient free space.
- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to recommend a solution to meet the design requirement of logging all failed authentication requests.
What should you recommend?

A. Object Access Auditing
B. C2 Audit Mode
C. Logon Triggers.
D. Login Auditing.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 134
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

Databases
You plan to implement databases named Customers, Sales, Products, Current_Inventory, and TempReporting.
The Sales database contains a table named OrderTotals and a table named SalesInfo.
A stored procedure named SPUpdateSalesInfo reads data in the OrderTotals table and modifies data in the SalesInfo table.
The stored procedure then reads data in the OrderTotals table a second time and makes further changes to the information in the SalesInfo table.
The Current_Inventory database contains a large table named Inv_Current. The Inv_Current table has a clustered index for the primary key and a nonclustered index. The primary key column uses the identity property.
The data in the Inv_Current table is over 120GB in size. The tables in the Current_Inventory database are accessed by multiple queries in the Sales database.
Another table in the Current_Inventory database contains a self-join with an unlimited number of hierarchies. This table is modified by a stored procedure named SPUpdate2.
An external application named ExternalApp1 will periodically query the Current_Inventory database to generate statistical information. The TempReporting database contains a single table named GenInfo.
A stored procedure named SPUPdateGenInfo combines data from multiple databases and generates millions of rows of data in the GenInfo table.
The GenInfo table is used for reports.
When the information in GenInfo is generated, a reporting process reads data from the Inv_Current table and queries information in the GenInfo table based on that data.
The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
- In the event of a SQL Server failure, the databases must remain available.
- Software licensing and database storage costs must be minimized.
- Development effort must be minimized.

- The Tempdb databases must be monitored for insufficient free space.
- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

The performance of the SPUpdate2 stored procedure needs to be improved.
Your solution must meet the design requirements.
What should your solution include?

A. A common table expression.
B. A derived table.
C. A Cursor.
D. A table variable.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 135
General Overview
You are the Senior Database Administrator (DBA) for a software development company named Leafield Solutions. The company develops software applications custom designed to meet customer requirements.

Requirements Leafield Solutions has been asked by a customer to develop a web-based Enterprise Resource Planning and Management application. The new application will eventually replace a desktop application that the customer is currently using. The current application will remain in use while the users are trained to use the new webbased application.

You need to design the SQL Server and database infrastructure for the web-based application.

Databases
You plan to implement databases named Customers, Sales, Products, Current_Inventory, and TempReporting.
The Sales database contains a table named OrderTotals and a table named SalesInfo.
A stored procedure named SPUpdateSalesInfo reads data in the OrderTotals table and modifies data in the SalesInfo table.
The stored procedure then reads data in the OrderTotals table a second time and makes further changes to the information in the SalesInfo table.
The Current_Inventory database contains a large table named Inv_Current. The Inv_Current table has a clustered index for the primary key and a nonclustered

index. The primary key column uses the identity property.
The data in the Inv_Current table is over 120GB in size. The tables in the Current_Inventory database are accessed by multiple queries in the Sales database.
Another table in the Current_Inventory database contains a self-join with an unlimited number of hierarchies. This table is modified by a stored procedure named SPUpdate2.
An external application named ExternalApp1 will periodically query the Current_Inventory database to generate statistical information. The TempReporting database contains a single table named GenInfo.
A stored procedure named SPUPdateGenInfo combines data from multiple databases and generates millions of rows of data in the GenInfo table.
The GenInfo table is used for reports.
When the information in GenInfo is generated, a reporting process reads data from the Inv_Current table and queries information in the GenInfo table based on that data.
The GenInfo table is deleted after the reporting process completes. The Products database contains tables named ProductNames and ProductTypes.

Current System
The current desktop application uses data stored in a SQL Server 2005 database named DesABCopAppDB. This database will remain online and data from the Current_Inventory database will be copied to it as soon as data is changed in the Current_Inventory database.

SQL Servers
A new SQL Server 2012 instance will be deployed to host the databases for the new system. The databases will be hosted on a Storage Area Network (SAN) that provides highly available storage.

Design Requirements
Your SQL Server infrastructure and database design must meet the following requirements:

- Confidential information in the Current_ Inventory database that is accessed by ExternalApp1 must be securely stored.
- Direct access to database tables by developers or applications must be denied.
- The account used to generate reports must have restrictions on the hours when it is allowed to make a connection.
- Deadlocks must be analyzed with the use of Deadlock Graphs.
- In the event of a SQL Server failure, the databases must remain available.
- Software licensing and database storage costs must be minimized.
- Development effort must be minimized.
- The Tempdb databases must be monitored for insufficient free space.
- Failed authentication requests must be logged.
- Every time a new row is added to the ProductTypes table in the Products database, a user defined function that validates the row must be called before the row is added to the table.
- When SPUpdateSalesInfo queries data in the OrderTotals table the first time, the same rows must be returned along with any newly added rows when SPUpdateSalesInfo queries data in the OrderTotals table the second time.

You need to configure a synchronization solution to copy data from the Current_Inventory database the DesABCopAppDB database.
What should you configure?

A. Transactional Replication.

B. Database Mirroring.
C. Snapshot Replication.
D. Incremental Backups

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 136
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

The sales and marketing departments contain a total of 60 users. Each user uses a custom application that stores data in a SQL Server database.

Each user has a separate database.

A server named ABC-SQL1 hosts the 60 databases.

You need to configure a backup solution for all the databases.

The solution must ensure that any new databases configured on ABC-SQL1 are automatically added to the backup schedule. The backup schedule consists of a full backup every night, a differential backup every hour and a transaction log backup every 15 minutes.

How should you configure the backup solution?

A. You should configure SQL Server Agent jobs.
B. You should configure Change Data Capture.
C. You should configure Policy-Based Management.
D. You should configure a Maintenance Plan.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 137
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

You are configuring a highly-available database solution using an AlwaysOn availability group on two servers running SQL Server 2012.

The two servers are in separate datacenters.

The two datacenters are connected by a fast WAN link with a network latency of less than 10ms.

Which of the following failover types should you configure for the availability group?

A. You should configure the asynchronous manual failover failover type.
B. You should configure the synchronous manual failover failover type.
C. You should configure the synchronous automatic failover failover type.
D. You should configure the Asynchronous automatic failover failover type.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 138
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

You are configuring a highly-available database solution using an AlwaysOn availability group on two servers running SQL Server 2012. The two servers are in separate datacenters.

The two datacenters are connected by a WAN link with a network latency of more than 200ms.

Which of the following failover types should you configure for the availability group?

A. You should configure the asynchronous manual failover failover type.
B. You should configure the synchronous manual failover failover type.

C. You should configure the synchronous automatic failover failover type.
D. You should configure the Asynchronous automatic failover failover type.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 139
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

You have a database named CorpDB.

A full backup of CorpDB is taken every week.

A differential backup of CorpDB is taken every night at midnight.

A transaction log backup of CorpDB is taken at 8am, 12pm, 4pm and 8pm.

You plan to deploy some changes to CorpDB at after the 4pm log backup completes.

You need to ensure that you can undo the changes quickly if the deployment fails.

During the deployment of the changes, no other changes must be made by users to the database. You need a backup and recovery strategy for deploying the changes.

Which two of the following actions would meet the backup and recovery requirements whilst ensuring the regular backup schedule is not disrupted? (Choose two.)

A. Take a full backup of the database before deploying the changes.
B. Take a copy-only backup of the database before deploying the changes.
C. Take a snapshot of the database before deploying the changes.
D. Restore the database from the backup.
E. Restore the snapshot to another server and recover the required objects from the snapshot.
F. Revert the database to the snapshot.

Correct Answer: CF

Section: (none)
Explanation

Explanation/Reference:

QUESTION 140
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

You have a database named CorpDB. CorpDB contains 2TB of data.

You plan to import a large amount of data into tables in CorpDB.

You want to minimize the size of the transaction log while the data is imported.

What should you do?

A. You should configure the recovery model of the database to Full.
B. You should configure the recovery model of the database to Bulk-Logged.
C. You should start a new transaction log file.
D. You should configure a new filegroup for the existing log file.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 141
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

You have a database named CorpDB. CorpDB contains a table named SalesInfo.

You discover that some table has been deleted from the SalesInfo table.

You are unable to find out who deleted the information.

You need to implement a solution to monitor the deletion of any further information from the SalesInfo table. You want to minimize the development effort required for the solution.

What should you configure?

A. You should configure table permissions.
B. You should configure a user role.
C. You should configure change data capture.
D. You should configure a trigger.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 142
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

You have a database named CorpDB.

You plan to create a stored procedure to access data in CorpDB.

You need to ensure that the stored procedure supports dirty reads. What should you do?

A. You should configure the stored procedure to use the READ UNCOMMITTED isolation level.
B. You should configure the stored procedure to use the READ COMMITTED isolation level.
C. You should configure the stored procedure to use the READ SERIALIZABLE isolation level.
D. You should configure the stored procedure to use the REPEATABLE READ isolation level.
E. You should configure the stored procedure to use the SNAPSHOT isolation level.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 143
You work as a Developer at ABC.com.

All databases are hosted on Windows Server 2012 servers running SQL Server 2012.

The company has a database named Products.

Tables in the Products database contain data including part numbers, product name, color, type and size.

Users in the Marketing department have created brochures for each product.

The brochures have been created in the XML Paper Specification (XPS) format.

You have been asked to add a table to the Products database to store the product brochures.

The brochures need to be stored in a folder structure.

Company users will also need to access the brochures from Windows applications using UNC paths. How can you meet these requirements?

A. By implementing the XMLNAMESPACES feature.
B. By implementing the FILEGROUP feature.
C. By implementing the FILETABLE feature.
D. By implementing the FILESTREAM feature.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 144
You work as a Developer at ABC.com.

All databases are hosted on Windows Server 2012 servers running SQL Server 2012.

You are developing a custom CRM application named CorpCRM.

The application will store usernames and passwords in a SQL Server 2012 database named CorpCRMDB1.

You need to ensure the usernames and passwords are secure.

Which of the following would be most suitable password storage solution?

A. One-way encryption
B. Reversible encryption
C. Encrypting File System (EFS)
D. Secure Sockets Layer (SSL)

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 145
You need to ensure that a stored procedure fails if an INSERT statement within the stored procedure fails.

What action should you take?

A. THROW 51000, 'Abort!'
B. SET XACT_ABORT OFF
C. SET XACT_ABORT ON
D. TRY....CATCH

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 146
You need to grant access to an OLTP database regardless of the user operating the application.

Which strategy should you use?

A. Application role
B. Database user
C. Server login
D. Server role

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 147
You use a contained database named ContosoDb within a domain. You need to create a user who can log on to the ContosoDb database.

You also need to ensure that you can port the database to different database servers within the domain without additional user account configurations.

Which type of user should you create?

A. User mapped to a certificate
B. SQL user without login
C. Domain user
D. SQL user with login

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 148
You create a stored procedure that retrieves all of the rows from a table named Table1.

You need to recommend a solution to ensure that all of the statements in the stored procedure can be executed if another transaction is modifying rows in Table1 simultaneously.

What should you recommend?

A. Snapshot isolation
B. A database snapshot
C. Filegroups
D. Indexes

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Once snapshot isolation is enabled, updated row versions for each transaction are maintained in tempdb. A unique transaction sequence number identifies each transaction, and these unique numbers are recorded for each row version.
The transaction works with the most recent row versions having a sequence number before the sequence number of the transaction.
Newer row versions created after the transaction has begun are ignored by the transaction.

QUESTION 149
You have a SQL Server instance on a server named Server1. You need to recommend a solution to perform the following tasks every week:
- Rebuild the indexes by using a new fill factor.
- Run a custom T-SQL command.
- Back up the databases.

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

A. A trigger
B. An alert
C. A maintenance plan
D. Windows PowerShell
E. A system policy

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Maintenance plans create a workflow of the tasks required to make sure that your database is optimized, regularly backed up, and free of inconsistencies.

QUESTION 150

You create an availability group that has replicas named HA/Server01 and HA/Server02. Currently, HA/Server01 is the primary replica.

You have multiple queries that read data and produce reports from the database.

You need to offload the reporting workload to the secondary replica when HA/Server01 is the primary replica.

What should you do?

A. Set the Availability Mode property of HA/Server02 to Asynchronous commit.
B. Set the Readable Secondary property of HA/Server02 to Read-intent only.
C. Set the Connections in Primary Role property of HA/Server01 to Allow read/write connections.
D. Set the Availability Mode property of HA/Server01 to Asynchronous commit.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
References: https://msdn.microsoft.com/en-us/library/jj542414.aspx

QUESTION 151
You administer two Microsoft SQL Server 2012 servers.
Each server resides in a different, untrusted domain.
You plan to configure database mirroring.
You need to be able to create database mirroring endpoints on both servers.
What should you do?

A. Configure the SQL Server service account to use Network Service.
B. Use a server certificate.
C. Use a database certificate.
D. Configure the SQL Server service account to use Local System.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 152

You administer a Microsoft SQL Server 2012 instance.

You need to configure a new database to support FILETABLES.

What should you do? Choose all that apply.

A. Disable FILESTREAM on the Database.
B. Enable FILESTREAM on the Server Instance.
C. Configure the Database for Partial Containment.
D. Create a non-empty FILESTREAM file group.
E. Enable Contained Databases on the Server Instance.
F. Set the FILESTREAM directory name on the Database.

Correct Answer: BDF
Section: (none)
Explanation

Explanation/Reference:
References: http://msdn.microsoft.com/en-us/library/gg509097.aspx

QUESTION 153
You work as a Database Administrator (DBA) at ABC.com.

All databases are hosted on Windows Server 2012 servers running SQL Server 2012.

The Sales department uses a database named SalesDB.

SalesDB contains a large table named Orders that lists every order ever received by the company. You want to improve the performance of SalesDB.

You want to configure the database to provide the fastest possible access to the most recent orders.

Historical orders can be stored using a slower storage solution.

How can you achieve this goal?

A. By configuring database mirroring.
B. By configuring a failover cluster.
C. By partitioning the Orders table.
D. By partitioning a partitioned view of the Orders table.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 154
You work as a Database Administrator (DBA) at ABC.com.

You are in the process of deploying new servers running SQL Server 2012.

You need to deploy a SQL Server 2012 server to host databases used to host databases used by Research and Development department.

The databases used by the Research and Development department will store sensitive data.

A company security policy states that if Research and Development department database files are moved to another server, the files must be encrypted.

Which of the following solutions would meet the encryption requirement?

A. Encrypting File System (EFS).
B. Transparent Data Encryption (TDE).
C. Windows Bitlocker Drive Encryption.
D. Secure Sockets Layer (SSL)

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 155
You work as a Database Administrator (DBA) for a company named ABC.com.

The company has a Windows Azure subscription.

The company uses a cloud based SQL Server environment hosted on SQL Azure.

Developers in your company are creating an ecommerce website.

You are designing a database for the website.

The database will be hosted on SQL Azure.

The database will store and reuse web site login details and customer credit card numbers.

You need to ensure the username, passwords and credit card details are securely stored in the database.

Which of the following would be the most suitable secure storage solution?

A. Secure Sockets Layer (SSL)
B. IPSec
C. Data encryption
D. Transparent Data Encryption (TDE)
E. Encrypting File System (EFS)

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 156
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure.

A server named ABC-SQL1 hosts multiple databases that are accessed using OLTP (Online Transaction Processing) applications.

You are concerned about the lack of redundancy provided by this single server solution.

You want to configure a solution that ensures high-availability for the databases while minimizing costs.

You need to ensure that the databases remain online in the event of a hardware failure of ABCSQL1.

You configure a second server named ABC-SQL2 and install SQL Server 2012.

Which of the following solutions would provide the high-availability and enable users to run reports on both copies of the databases?

A. AlwaysOn availability groups
B. A failover cluster
C. Database mirroring
D. Transaction log shipping

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 157
You work as a Database Administrator (DBA) for a company named ABC.com.

The company uses a Microsoft SQL Server 2012 infrastructure. Computer users use custom applications that store data in SQL Server databases hosted on a server named ABC-SQL1.

You discover that the Windows Application event log on ABC-SQL1 contains error events.

You need to configure a solution that will run an application whenever an event with a specific event ID number is generated in the Windows Application event log.

What should you configure?

A. You should configure an alert and a job.
B. You should configure an alert and a maintenance plan.
C. You should configure a trigger and a maintenance plan.
D. You should configure a trigger and a job.
E. You should configure an alert and a trigger.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 158
You need to move a database in between servers.

You need to guarantee database users will be able to login in the database with a minimum of management effort.

A. Application role
B. Database user
C. Server login
D. Server role

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 159
You have two databases named DB1 and DB2 that are located on the same server.

You plan to create a stored procedure named SProc1 in DB1. SProc1 will query a table named Table2 in DB2. You need to recommend a solution to ensure that SProc1 can access Table2 without granting users direct access to Table2.

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

A. Contained databases
B. Application roles
C. Cross-database ownership chaining
D. Digital certificates

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
An application role is a database principal that enables an application to run with its own, userlike permissions. You can use application roles to enable access to specific data to only those users who connect through a particular application. Unlike database roles, application roles contain no members and are inactive by default.

QUESTION 160
You have a server named Server1 that has 16 processors.

You plan to deploy multiple instances of SQL Server 2014 to Server1.

You need to recommend a method to allocate processors to each instance.

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

A. Processor affinity
B. Windows System Resource Manager (WSRM)
C. Max Degree of Parallelism
D. Resource Governor

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
CPU affinity management through Windows System Resource Manager is not recommended for SQL Server multi-instance management. Instead, use the processor affinity settings in SQL Server.

QUESTION 161
You have a query that is used by a reporting dashboard. Users report that the query sometimes takes a long time to run. You need to recommend a solution to identify what is causing the issue.

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

A. Set the blocked process threshold, and then run SQL Server Profiler.
B. Set the blocked process threshold, and then create an alert.
C. Enable trace flag 1204, and then create an alert.
D. Create a job that queries the sys.dm_os_waiting_tasks dynamic management view.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Step 1: Turn on the blocked process report. This will look for any blocking taking 20 seconds or longer.
- Make sure you don't have any pending changes

```
SELECT *
FROM sys.configurations
WHERE value <> value_in_use;
GO
exec sp_configure 'show advanced options', 1;
GO
RECONFIGURE
GO
exec sp_configure 'blocked process threshold (s)', 20;
GO
RECONFIGURE
GO
```

Step 2: Set up a trace to capture the blocked process report. Run it as a server side trace.

QUESTION 162
You are troubleshooting an application that runs a query.

The application frequently causes deadlocks. You need to identify the isolation level used by the query when a deadlock occurs.

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. Enable trace flag 1222, and then view the SQL Server error log.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- sys.dm_exec_sessions
Returns one row per authenticated session on SQL Server. sys.dm_exec_sessions is a serverscope view that shows information about all active user connections and internal tasks. Include the column:
transaction_isolation_level smallint
Transaction isolation level of the session.
0 = Unspecified

1 = ReadUncomitted
2 = ReadCommitted
3 = Repeatable
4 = Serializable
5 = Snapshot Is not nullable.

QUESTION 163
You administer a SQL Server 2014 instance.

Users report that the SQL Server has seemed slow today.

A large database was being restored for much of the day, which could be causing issues.

You want to write a query of the system views that will report the following:
- Number of users that have a connection to the server
- Whether a user's connection is active
- Whether any connections are blocked
- What queries are being executed
- Whether the database restore is still executing and, if it is, what percentage of the restore is complete.

Which system objects should you use in your query to best achieve this task?

A. sys.dm_exec_requests, sys.dm_exec_sessions, sys.objects
B. sys.dm_exec_sessions, sys.dm_exec_query_stats, sys.dm_exec_query_text,sys.objects
C. sys.sysprocesses, sys.dm_exec_query_text, sys.objects
D. sys.dm_exec_requests, sys.dm_exec_sessions, sys.dm_exec_query_text

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- sys.dm_exec_requests
Returns information about each request that is executing within SQL Server.
- sys.dm_exec_sessions
Returns one row per authenticated session on SQL Server. sys.dm_exec_sessions is a serverscope view that shows information about all active user connections and internal tasks. This information includes client version, client program name, client login time, login user, current session setting, and more.
- sys.dm_exec_query_text
Returns the text of the SQL batch that is identified by the specified sql_handle.

Incorrect Answers:
- sys.dm_exec_query_stats Returns aggregate performance statistics for cached query plans in SQL Server.
The view contains one row per query statement within the cached plan, and the lifetime of the rows are tied to the plan itself.
- sys.objects
Contains a row for each user-defined, schema-scoped object that is created within a database.

QUESTION 164
You have a database hosted on SQL Server 2012 R2.

The database contains 5 million rows.

You need to recommend a repeatable method to migrate the database to SQL Azure.

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

A. Create a SQL Server Integration Services (SSIS) package, and then run the package.
B. Back up the database, and then restore the database.
C. Extract a data-tier application, and then import the application.
D. Generate scripts to create all of the all database objects and all of the data, and then execute the scripts by using SQL Azure.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server Integration Services
Most flexibility
Data Transfer Efficiency:
Good
- SSIS can be used to perform a broad range of data migration tasks. SSIS provides support for complex workflow and data transformation between the source and destination. It is a good choice to transfer of data for databases that require many changes to work on Microsoft Azure SQL Database.
You can use SSIS data transfer packages with another mechanism for transferring the database schema, such as a Data-tier Application package.

Incorrect Answers:
D: Generate Scripts Wizard Has explicit option for Azure SQL Database scripts generation Data Transfer Efficiency: Poor Good for smaller database
- Using the Generate Scripts wizard to migrate a SQL Server database to Azure SQL Database should be limited to:
Teams who have experience with the wizard.
Migrating simple databases that need few schema changes to run on Azure SQL Database.
The scripts generated from the source database can be modified before being used to create the new version of the database on Azure SQL Database, but using a database project in the SQL Server Data Tools has richer support for making schema changes. Migrating small databases that do not have much data.

The wizard generates scripts that use insert statements instead of bulk copies to transfer the data. The insert statements can be throttled when the tables contain too much data, and are not as fast as bulk copies.

QUESTION 165
You have a server named Server1 that has 2 processors. You plan to deploy multiple instances of SQL Server 2014 to Server1. Each instance will have multiple databases.

You need to recommend a method to allocate processor time to each database.

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

A. Resource Governor
B. Max Degree of Parallelism
C. Windows System Resource Manager (WSRM)
D. Processor affinity

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server Resource Governor is a feature than you can use to manage SQL Server workload and system resource consumption. Resource Governor enables you to specify limits on the amount of CPU, physical IO, and memory that incoming application requests can use.

Incorrect Answers:
D: PROCESS AFFINITY Enables hardware threads to be associated with CPUs.

QUESTION 166
You have a SQL Server 2014 environment That includes four servers.

The servers are configured as shown in the following table.

Server name	SQL Server 2014 edition	SQL Server version	Details
Server1	Enterprise	SQL Server 2014	A production Online Transaction Processing (OLTP) server
Server2	Web	SQL Server 2014	A test server
Server3	Standard	SQL Server 2012	A production report server
Server4	Express	SQL Server 2008 R2	A witness server

You plan to configure Policy-Based Management to enforce the following rules:
- On Server1, enable SQL Server password policies and enable the default trace.
- On Server3, ensure that the names of user-defined stored procedures begin with the prefix "usp_" and ensure that all databases use a casesensitive collation.

You need to recommend which server you must configure as a Central Management Server.

Which server should you recommend? (Each correct answer presents a complete solution. Choose all that apply.)

A. Server1
B. Server2
C. Server3
D. Seiver4

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Need Standard or Enterprise edition of SQL Server.

QUESTION 167
You are the administrator for a SQL Server 2014 instance that stores the data for an online transaction processing sales system.

The company takes full backups every week; differential backups on the days with no full backups; and hourly transaction backups.

These backups are stored on a backup server in the company's data center. Every week, the company places the full backup on a tape and sends it to a third-party backup storage system. The company is worried that a disaster might occur that could destroy their computer center and cause them to lose orders.

You need to determine the best method for providing the smallest amount of data loss and downtime without leasing or purchasing additional physical locations.

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

A. Set up SQL Server Always On with a SQL Azure database as a replica.
B. Set up SQL Server Always On by using a SQL Server on a Windows Azure Virtual Machine.
C. Put the differential backup on tape and send it to the third-party backup storage system.
D. Use the Microsoft SQL Server Backup to Microsoft Windows Azure Tool to direct all backups to a different geographical location.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server 2012 was the first version to provide the ability to back up databases to the Cloud, and SQL Server 2014 improves on the process.
Microsoft SQL Server Backup to Windows Azure Tool enables backup to Windows Azure Blob Storage and encrypts and compresses SQL Server backups stored locally or in the cloud.

QUESTION 168
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 are the database administrator for a company that hosts Microsoft SQL Server. You manage both on-premises and Microsoft Azure SQL Database environments. A service account has the required permissions to backup all databases.

You have a user database named HRDB that contains sensitive human resources data. The HRDB backup files must be encrypted.

You need to grant the service account that backs up the HRDB database the permission necessary to access the encryption key. Your solution must use the principle of least privilege.

Which permission should you grant?

A. DDLAdmin
B. db_datawriter
C. dbcreator
D. dbo
E. View Database State

F. View ServerState
G. View Definition
H. sysadmin

Correct Answer: G
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The user account performing the restore must have VIEW DEFINITION permissions on the certificate or key.

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

QUESTION 169
DRAG DROP

You plan to install two SQL Server 2012 environments named Environment1 and Environment2. Your company identifies the following availability requirements for each environment:
- Environment1 must have mirroring with manual failover implemented.
- Environment2 must have AlwaysOn with automatic failover implemented.

You need to identify the minimum number of SQL Server 2012 servers that must be deployed to each environment to ensure that all data remains available if a physical server fails.

How many servers should you identify? To answer, drag the appropriate number to the correct environment in the answer area

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:
References:
http://msdn.microsoft.com/en-us/library/ms189852.aspx http://msdn.microsoft.com/en-us/library/hh510230.aspx

QUESTION 170
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 are designing your maintenance plan.
Which command should you use only during the monthly maintenance window?

A. DBCC INDEXDEFRAG (ProdDB, SalesOrderDetail, SODIndex)
B. ALTER INDEX SODIndex ON SalesOrderDetail REORGANIZE
C. ALTER INDEX SODIndex ON SalesOrderDetail REBUILD
D. ALTER INDEX SODIndex ON SalesOrderDetail REBUILD WITH (ONLINE * ON)

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
- Scenario: 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.
- After the degree of fragmentation is known, use the following table to determine the best method to correct the fragmentation.

avg_fragmentation_in_percent value	
/ > 5% and < = 30%	then use ALTER INDEX REORGANIZE
/ > 30%	then use ALTER INDEX REBUILD WITH (ONLINE = ON)
ALTER INDEX (Transact-SQL)	

QUESTION 171
Background
Corporate Information
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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

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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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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
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Sales force data access
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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 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 172
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ProductID	INT
SalePrice	SMALLMONEY
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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.

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 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 173
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 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 174
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 175
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:
Explanation:
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 176
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 177
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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Customer data access
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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:.

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 178
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:.

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 179
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 180
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 181
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 182
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 183
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 184
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: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You should use a column-store index, not a clustered index.

Note: 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 185
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:
Explanation:
You should use a column-store index.

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

QUESTION 186
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.

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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 generate a new certificate on new instance.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Certificates are of no use in this scenario. You should use a column-store index.

QUESTION 187
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 attempt to restore a database on a new SQL Server instance and receive the following error message:
```
“Msg 33111, Level 16, State 3, Line 2
Cannot find server certificate with thumbprint ‘0x7315277C70764B1F252DC7A5101F6F66EFB1069D.”
```

You need to ensure that you can restore the database successfully.

Solution: You add the backup set password to the restore command.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The error is related to the certificate.

References: https://dba.stackexchange.com/questions/3388/restore-encrypted-database-to-another-server?rq=1

QUESTION 188
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 attempt to restore a database on a new SQL Server instance and receive the following error message:
"Msg 33111, Level 16, State 3, Line 2
Cannot find server certificate with thumbprint '0x7315277C70764B1F252DC7A5101F6F66EFB1069D."

You need to ensure that you can restore the database successfully.

Solution: You restore the certificate on the new instance.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

In order to successfully make the restore in a different server you will need to create a master certificate in the detonation and transfer the certificates and backups in that order.

References: https://deibymarcos.wordpress.com/2017/11/15/how-to-restore-encrypted-databases-cannot-find-server-certificate-with-thumbprint/

QUESTION 189
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 server named Server1 that has Microsoft SQL Server installed.

Server1 has SQL Server Adult configured to send audit event records to a file.

You need to ensure that a database user named User1 can review the audit data.

Solution: You grant the VIEW ANY DEFINITION permission to User1.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Each feature and command for SQL Server Audit has individual permission requirements.

Unless otherwise specified, viewing catalog views requires a principal to have one of the following:
- The VIEW SERVER STATE permission.
- The VIEW AUDIT STATE permission (gives only the principal access to the sys.server_audits catalog view).
- Membership in the sysadmin fixed server role.
- The CONTROL SERVER permission.
- The ALTER ANY AUDIT permission.

A principal must have the VIEW SERVER STATE or ALTER ANY AUDIT permission to use the Dynamic Management Views.

References: https://technet.microsoft.com/en-us/library/cc280665(v=sql.105).aspx

QUESTION 190
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 Microsoft Azure SQL database that has Blob Auditing configured.

You need to review the audit logs.

Solution: You download the log files by using Microsoft Azure Storage Explorer, and then you open the files by using Microsoft SQL Server Management Studio (SSMS).

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
There are several methods you can use to view blob auditing logs:
- After downloading several files or a subfolder that contains log files, you can merge them locally by using Merge Audit Files in SQL Server Management Studio.
- Use the Azure portal.
- Use the system function sys.fn_get_audit_file (T-SQL) to return the audit log data in tabular format.

References: https://docs.microsoft.com/en-us/azure/sql-database/sql-database-auditing

QUESTION 191
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 Microsoft Azure SQL database that has Blob Auditing configured.

You need to review the audit logs.

Solution: From Microsoft SQL Server Management Studio, you connect to the database, and then you execute the following statement.

```
select * from sys.dm_db_audit_file
('https://Server1.blob.core.windows.net/sqldbauditlogs/ Server1Audits/2016-
12-17/07_38_23_00_0.xel',default,default);
```

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The fn_get_audit_file, not dm_db_audit_file, the returns information from an audit file created by a server audit in SQL Server.

This example reads from a file that is named ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel:

SELECT * FROM sys.fn_get_audit_file ('https://mystorage.blob.core.windows.net/sqldbauditlogs/ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel',default,default);

Note: Blob auditing logs are saved as a collection of blob files within a container named sqldbauditlogs.

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-functions/sys-fn-get-audit-file-transact-sql

QUESTION 192
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.

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You have a Microsoft Azure SQL database that has Blob Auditing configured.

You need to review the audit logs.

Solution: From Microsoft SQL Server Management Studio, you connect to the database, and then you execute the following statement.

```
select
FROM sys.dm_db_audit_file
('http://Server1.blob.core.windows.net/sqldbauditlogs/ Server1Audits/2016-12-
17/07_38_23_00_0.xel',default,default);
```

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The fn_get_audit_file, not dm_db_audit_file, the returns information from an audit file created by a server audit in SQL Server.

This example reads from a file that is named ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel:

SELECT * FROM sys.fn_get_audit_file ('https://mystorage.blob.core.windows.net/sqldbauditlogs/ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel',default,default);

Note: Blob auditing logs are saved as a collection of blob files within a container named sqldbauditlogs.

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-functions/sys-fn-get-audit-file-transact-sql

QUESTION 193
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 database named DB1 that is 640 GB and is updated frequently.

You enable log shipping for DB1 and configure backup and restore to occur every 30 minutes.

You discover that the hard disks on the database server are almost full.

You need to reduce the amount of disk space used by the log shipping process.

Solution: You increase the frequency of the transaction log backups to every 10 minutes.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You should compress the transaction log backups.

References: https://docs.microsoft.com/en-us/sql/database-engine/log-shipping/configure-log-shipping-sql-server?view=sql-server-2017

QUESTION 194
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.

A company has offices in Vancouver, Tokyo, and Paris. The company uses Microsoft SQL Server 2016 Standard edition. You must design a reporting solution that uses data from a point of sale (POS) application's transactional database.

After data is entered into the POS system, users must be able to run reports within 24 hours. Latency must be minimized.

You need to implemented a solution that minimizes licensing costs.

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: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Stretch Database targets transactional databases with large amounts of cold data, typically stored in a small number of tables. These tables may contain more than a billion rows.

Stretch Database provides the following benefits:
- Provides cost-effective availability for cold data
- Doesn't require changes to queries or applications
- Streamlines on-premises data maintenance
- Keeps your data secure even during migration

References: https://docs.microsoft.com/en-us/sql/sql-server/stretch-database/stretch-database

QUESTION 195
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:
Explanation:
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 196
HOTSPOT

You have a Microsoft SQL Server instance that hosts a database named DB1 that contains 800 gigabyte (GB) of data. The database is used 24 hours each day. You implement indexes and set the value of the Auto Update Statistics option set to True.

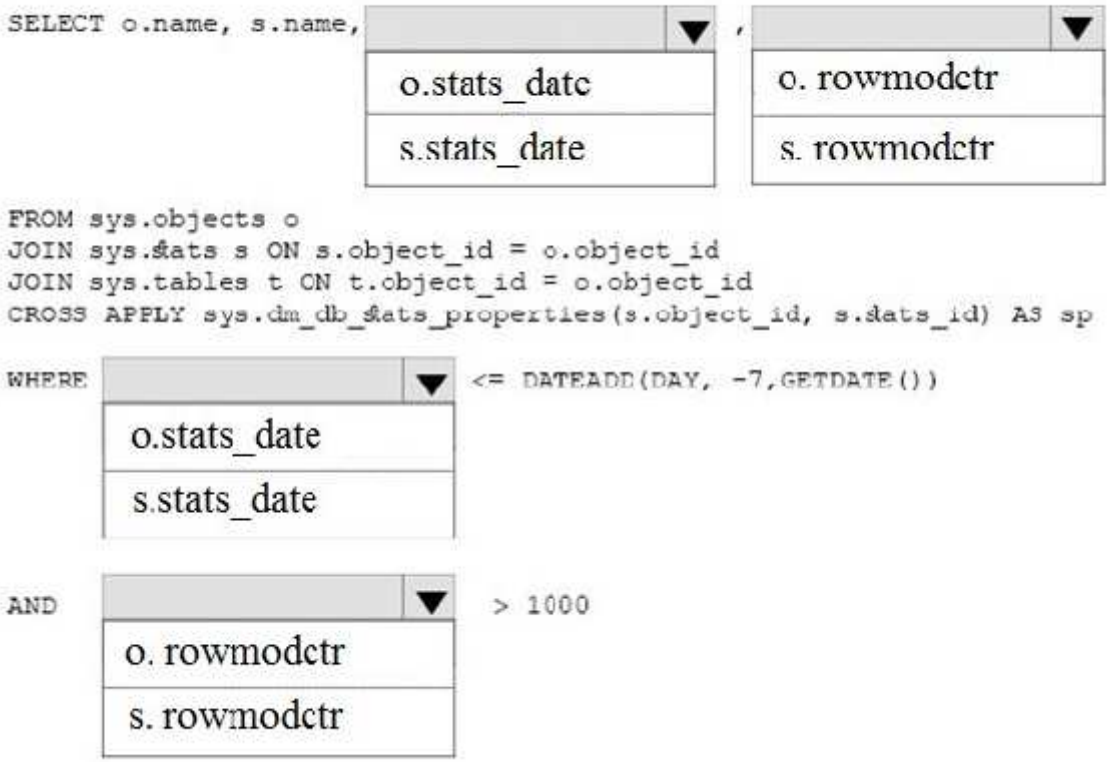
Users report that queries take a long time to complete.

You need to identify tables that meet the following requirements:
- More than 1,000 rows have changed.
- The statistics have not been updated in over a week.

How should you complete the Transact-SQL statement?

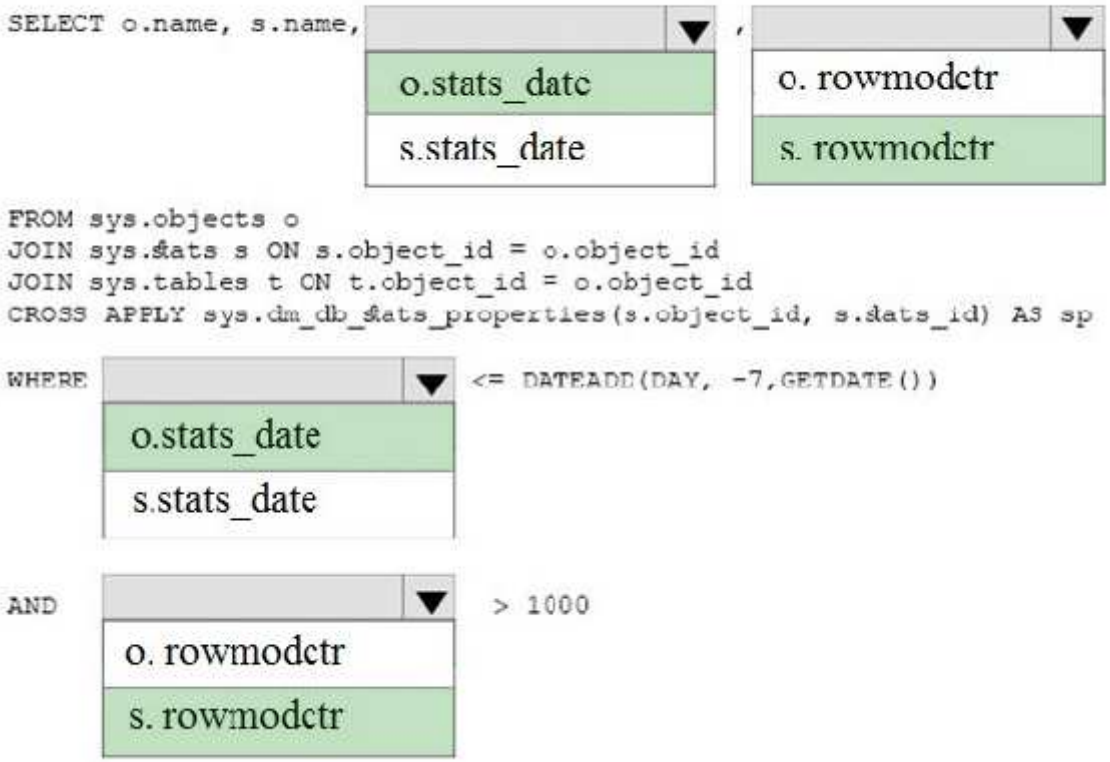
Hot Area:

Answer Area



Correct Answer:

Answer Area



Section: (none)
Explanation

Explanation/Reference:
Explanation:
Example:
SELECT obj.name, obj.object_id, stat.name, stat.stats_id, last_updated, modification_counter
FROM sys.objects AS obj
JOIN sys.stats stat ON stat.object_id = obj.object_id
CROSS APPLY sys.dm_db_stats_properties(stat.object_id, stat.stats_id) AS sp

```
WHERE modification_counter > 1000
order by modification_counter desc;
```

sys.sysindexes contains one row for each index and table in the current database.

rowmodctr counts the total number of inserted, deleted, or updated rows since the last time statistics were updated for the table.

Example 2:

```
SELECT
  id                  AS [Table ID]
, OBJECT_NAME(id)       AS [Table Name]
, name                AS [Index Name]
, STATS_DATE(id, indid) AS [LastUpdated]
, rowmodctr           AS [Rows Modified]
FROM sys.sysindexes
WHERE STATS_DATE(id, indid)<=DATEADD(DAY,-1,GETDATE())
AND rowmodctr>10 AND (OBJECTPROPERTY(id,'IsUserTable'))=1
```

References: https://social.msdn.microsoft.com/Forums/sqlserver/en-US/493b90e3-cdb8-4a16-8249-849ba0f82fcb/how-to-find-outdated-statistics-in-sql-server?forum=transactsql

QUESTION 197
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.
E. Query sys.dm_db_resource_stats.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

Explanation:
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 198
You have 10 Microsoft SQL Server 2016 servers.

You deploy a management data warehouse named DW1. You configure DW1 to gather all the performance data from the servers.

You configure a Data Collector on a SQL server named SV1.

You query the data warehouse on DW1 and discover that data from SV1 is unavailable.

You need to ensure that you can review the performance data from SV1 when you query DW1.

What should you do?

A. Start the SQL Server Agent service on DW1.
B. Execute the msdb.sp_syscollector_set_warehouse_connection_user stored procedure on SV1.
C. Execute the msdb.sp_syscollector_enable_collector stored procedure on DW1.
D. Start the SQL Server Agent service on SV1.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
sp_syscollector_enable_collector enables the data collector.

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-stored-procedures/sp-syscollector-enable-collector-transact-sql

QUESTION 199
You manage a Microsoft SQL Server environment. You plan to configure Database Mail.

You need to ensure that all users can access a private Database Mail profile.

What should you do?

A. On the tempdb database, add the DatabaseMailUserRole to userid 0.
B. On the msdb database, add the DatabaseMailUserRole to the public user.
C. On the master database, add the DatabaseMailUserRole to the public user.
D. On the profile, grant access to the public user.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
For each private profile, Database Mail maintains a list of users that are permitted to send e-mail using that profile. Public profiles are available to users or roles in the msdb database who are also members of the DatabaseMailUserRole.

By default, a profile is private, and no users are granted access to the profile. To make the profile public, grant access to the user 'public' or the user id 0.

Note: Profiles are either public or private. A private profile is accessible only to specific users or roles. A public profile allows any user or role with access to the mail host database (msdb) to send e-mail using that profile.

References: https://technet.microsoft.com/en-us/library/ms189879(v=sql.105).aspx

QUESTION 200
A company has an on-premises Microsoft SQL Server environment and Microsoft Azure SQL Database instances. The environment hosts several customer databases.

A customer that uses an on-premises instance reports that queries take a long time to complete.

You need to reconfigure table statistics so that the query optimizer can use the optimal query execution plans available.

Which Transact-SQL segment should you use?

A. `sp_autostats`
B. `AUTO_UPDATE_STATISTICS_ASYNC`
C. `SET AUTO_UPDATE_STATISTICS ON`
D. `CREATE STATISTICS`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You can turn on automatic statistics update by running this SQL statement:

SET AUTO_UPDATE_STATISTICS ON

Incorrect Answers:
A: sp_autostats without options just displays the settings.
B: The AUTO_UPDATE_STATISTICS_ASYNC option affects how automatic statistics updates are applied to your SQL Server database. When this option is enabled, the Query Optimizer will not wait for the update of statistics, but will run the query first and update the outdated statistics afterwards. When this option is disabled, the Query Optimizer will update the outdated statistics before compiling the query therefore possibly getting a better plan based on the most current statistics. This is referred to as synchronous statistics updates.

References: https://www.mssqltips.com/sqlservertip/2766/sql-server-auto-update-and-auto-create-statistics-options/

QUESTION 201
You are a database administrator at Contoso, Ltd. You are preparing to move a global sales application from a development environment to a production environment.

You have a database named Contoso that has a schema named Sales. All objects in the database have the same owner. The schema has a large number of views and stored procedures. None of the stored procedures perform IDENTITY_INSERT operations or dynamic SQL commands. You create all views by using the WITH SCHEMABINDING option.

All employees in the sales division are members of an Active Directory Domain Services (AD DS) security group named Contoso\Sales.

The following database objects are the only objects queried when a user from Contoso\Sales is using the application.

Views
- SalesReport
- SalesInvoice

Stored procedures
- InvoiceExecute – performs read/write operations
- InvoiceSearch – performs read-only operations

When granting permissions to the database, you should use the principle of least privilege.

You create a new user-defined database role named SalesRole and add Contoso\Sales as a member of SalesRole.

You need to grant all employees in the Sales division permission to use the views and stored procedures.

Which two solutions will meet the requirements? Each correct answer presents a complete solution.

A. Grant the SELECT permission on the Sales schema to SalesRole.
Grant the EXECUTE permission on the Sales.InvoiceExecute and Sales.InvoiceSearch to SalesRole.

B. Grant the SELECT permission on Sales.SalesReport and Sales.SalesInvoice to Contoro\Sales.
Grant the EXECUTE permission on Sales.InvoiceExecute and Sales.InvoiceSearch to Contoso\Sales.

C. Grant the SELECT permission on Sales.SalesReport and Sales.SalesInvoice to SalesRole.
Grant the EXECUTE permission on Sales.InvoiceExecute and Sales.InvoiceSearch to SalesRole.

D. Grant the SELECT permission on Sales.SalesReport and Sales.SalesInvoice to SalesRole.
Grant the EXECUTE permission on Sales.InvoiceExecute and Sales.InvoiceSearch to SalesRole.
Grant the SELECT permission on all tables referenced by Sales.SalesReport, Sales.SalesInvoice, and Sales.InvoiceSearch to SalesRole.
Grant the SELECT, INSERT, UPDATE, and DELETE permissions on all tables referenced by Sales.InvoiceExecute to SalesRole.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Incorrect Answers:
A: There is no Sales Schema.
D: No need for DELETE permissions.

QUESTION 202
Your company stored customer data, including credit card numbers, in a Microsoft SQL Server database. The CreditCardNum column is configured as a varchar (16). When viewing the CreditCardNum column, only the last four digits of the card number should be displayed.

You have the following Transact-SQL statement. (Line numbers are included for reference only.)

```
01   CREATE TABLE CustomerData(
02        CustomerID int IDENTITY PPIMARY KEY,
03        FirstName varchar(50) NOT NULL,
04        LastName varchar(50) NOT NULL.
05
06        Address varchar(200) NULL
07
```

You need to implement dynamic data masking for the CreditCardNum column.

Which Transact-SQL segment should you insert at line 05?

A.
```
CreditCardNum varchar(16) MASKED WITH (FUNCTION = 'partial(4,
XXXXXXXXXXXX",0)') NULL,
```

B.
```
CreditCardNum varchar(16) MASKED WITH (FUNCTION = 'partial(4,
XXXXXXXXXXXX",12)') NULL,
```

C.
```
CreditCardNum varchar(16) MASKED WITH (FUNCTION = 'partial(0,
XXXXXXXXXXXX",4)') NULL,
```

D.
```
CreditCardNum varchar(16) MASKED WITH (FUNCTION = 'partial(12,
XXXXXXXXXXXX",4)') NULL,
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Example:
Using "partial" function
ALTER TABLE Ari_Users_Tbl ALTER COLUMN [CreditCard]
ADD MASKED WITH (FUNCTION = 'partial(0,"XXXX-XXXX-XXXX-",4)')

References: https://social.technet.microsoft.com/wiki/contents/articles/35003.sql-server-exposing-masked-data.aspx#Goal_2_Find_the_CreditCard_number_for_UserID_1

QUESTION 203
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 force the desired plan.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

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

When FORCEPLAN is set to ON, the SQL Server query optimizer processes a join in the same order as the tables appear in the FROM clause of a query. In addition, setting FORCEPLAN to ON forces the use of a nested loop join unless other types of joins are required to construct a plan for the query, or they are requested with join hints or query hints.

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

QUESTION 204
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 205
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 206
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:
You should use a column-store index

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

QUESTION 207
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:
It is enough to grant EXECUTE permissions on the stored procedures for database roles you want to be able to access the data. We do not need to add roles to this user.

Note:
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 208
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 database:

```
CREATE USER BI_User WITH PASSWORD = 'Pa$$wørd'
GRANT EXECUTE TO 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:
We need to add a login.
Secondly, it is enough to grant EXECUTE permissions on the stored procedures for database roles you want to be able to access the data. We do not need to add roles to this user.

Note: 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 209
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:

```
CREATE USER BI_User WITH PASSWORD = 'Pa$$wørd'
GRANT EXECUTE TO BI_User
```

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A login would also be needed.

Note:
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 210
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 attempt to restore a database on a new SQL Server instance and receive the following error message:
“Msg 33111, Level 16, State 3, Line 2

Cannot find server certificate with thumbprint '0x7315277C70764B1F252DC7A5101F6F66EFB1069D'."

You need to ensure that you can restore the database successfully.

Solution: You disable BitLocker Drive Encryption (BitLocker) on the drive that contains the database backup.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

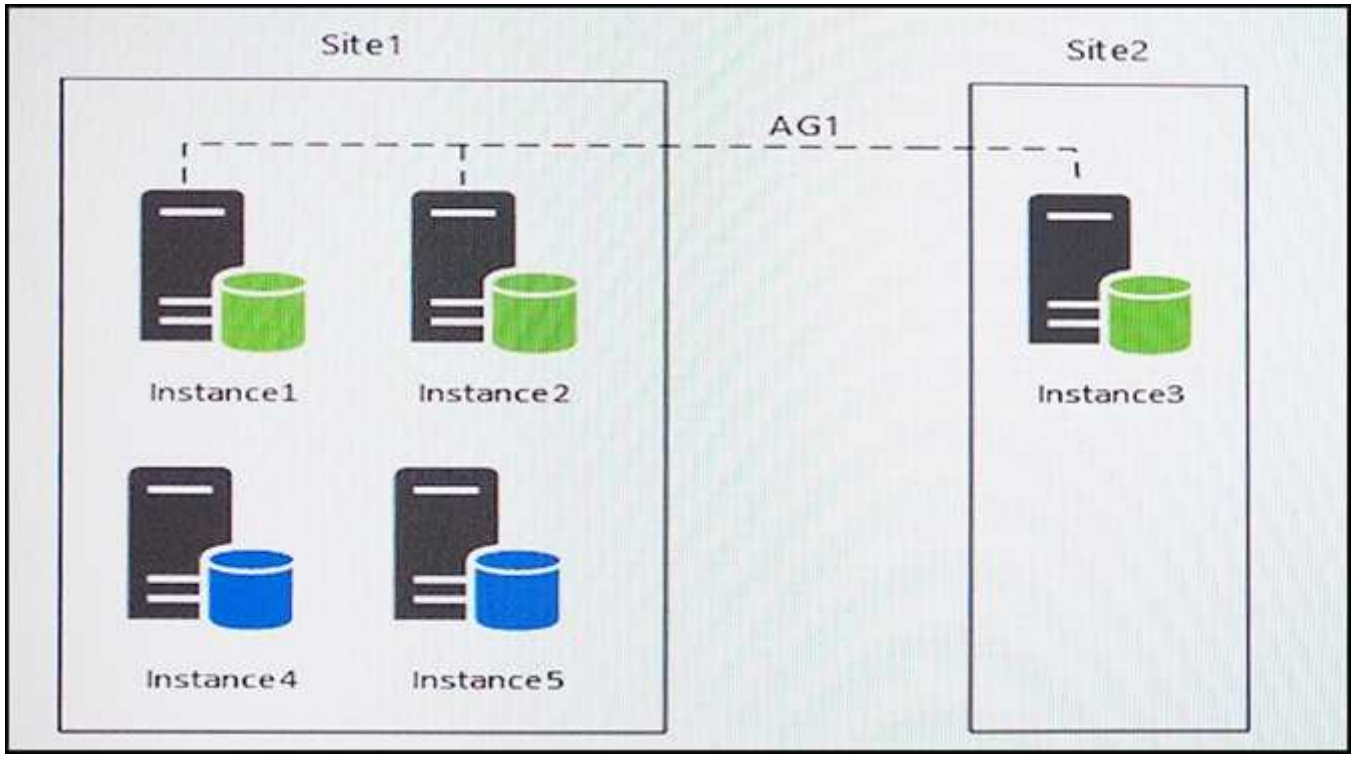
Explanation/Reference:
Explanation:
This is a certificate problem. The problem is not related to Bitlocker.

References: https://www.sqlservercentral.com/Forums/Topic1609923-3411-1.aspx

QUESTION 211
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 have five servers that run Microsoft Windows 2012 R2. Each server hosts a Microsoft SQL Server instance. The topology for the environment is shown in the following diagram.



You have an Always On Availability group named AG1. The details for AG1 are shown in the following table.

Instance	Node type
Instance1	Primary
Instance2	Synchronous readable secondary
Instance3	Asynchronous readable secondary

Instance1 experiences heavy read-write traffic. The instance hosts a database named OperationsMain that is four terabytes (TB) in size. The database has multiple data files and filegroups. One of the filegroups is read_only and is half of the total database size.

Instance4 and Instance5 are not part of AG1. Instance4 is engaged in heavy read-write I/O.

Instance5 hosts a database named StagedExternal. A nightly BULK INSERT process loads data into an empty table that has a rowstore clustered index and two nonclustered rowstore indexes.

You must minimize the growth of the StagedExternal database log file during the BULK INSERT operations and perform point-in-time recovery after the BULK INSERT transaction. Changes made must not interrupt the log backup chain.

You plan to add a new instance named Instance6 to a datacenter that is geographically distant from Site1 and Site2. You must minimize latency between the nodes in AG1.

All databases use the full recovery model. All backups are written to the network location \\SQLBackup\. A separate process copies backups to an offsite location. You should minimize both the time required to restore the databases and the space required to store backups. The recovery point objective (RPO) for each instance is shown in the following table.

Instance	Recovery point objective
Instance 1	5 minutes
Instance 2	5 minutes
Instance 3	5 minutes
Instance 4	60 minutes
Instance 5	24 hours

Full backups of OperationsMain take longer than six hours to complete. All SQL Server backups use the keyword COMPRESSION.

You plan to deploy the following solutions to the environment. The solutions will access a database named DB1 that is part of AG1.

- Reporting system: This solution accesses data inDB1with a login that is mapped to a database user that is a member of the db_datareader role. The user has EXECUTE permissions on the database. Queries make no changes to the data. The queries must be load balanced over variable read-only replicas.
- Operations system: This solution accesses data inDB1with a login that is mapped to a database user that is a member of the db_datareader and db_datawriter roles. The user has EXECUTE permissions on the database. Queries from the operations system will perform both DDL and DML operations.

The wait statistics monitoring requirements for the instances are described in the following table.

Instance	Description
Instance1	Aggregate wait statistics since the last server restart.
Instance4	Identify the most prominent wait types for all the commands originating from a session, between session connections, or between application pool resets.
Instance5	Identify all the wait types for queries currently running on the server.

End of repeated scenario.

You need to create a backup plan for Instance4.

Which backup plan should you create?

A. Weekly full backups, nightly differential backups, transaction log backups every 30 minutes.
B. Weekly full backups, nightly differential. No transaction log backups are necessary.
C. Weekly full backups, nightly differential backups, transaction log backups every 12 hours.
D. Full backups every 60 minutes, transaction log backups every 30 minutes.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: Instance4 is engaged in heavy read-write I/O. The Recovery Point Objective of Instance4 is 60 minutes.

QUESTION 212
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.)

```
CREATE TABLE dbo.Customers (
customerId int,
customerName varchar(200),
salesPerson varchar(20)
)
```

The salesPerson column stores the username of the salesperson. You must create a security policy that ensures that salespeople can view data only for the customers that are assigned to them.

You need to create the function that will be used as the filter predicate for the security policy. You write the following Transact-SQL:

```
01 CREATE FUNCTION fn_securitypredicateSalesPerson (@salesPerson
sysname)
02
03 AS
04 RETURN SELECT 1 AS [fn_securityPredicateOrder_result]
05 FROM dbo.Customers
06 WHERE @salesPerson = user_name()
```

Which Transact-SQL segment should you insert at line 02?

A.
```
RETURNS dbo.Customers
ORDER BY @salesPerson
```

B.
```
RETURNS table
WITH Schemabinding
```

C.
```
RETURNS varchar(20)
WITH Schemabinding
```

D.
```
RETURNS table
ORDER BY @salesPerson
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The inline table-valued function required for a Stretch Database filter predicate looks like the following example.

The parameters for the function have to be identifiers for columns from the table.

Schema binding is required to prevent columns that are used by the filter function from being dropped or altered.

Example:
```
CREATE FUNCTION dbo.fn_stretchpredicate(@column1 datatype1, @column2 datatype2 [, ...n])
RETURNS TABLE
WITH SCHEMABINDING
AS
RETURN  SELECT 1 AS is_eligible
      WHERE <predicate>
```

References: https://docs.microsoft.com/en-us/sql/sql-server/stretch-database/select-rows-to-migrate-by-using-a-filter-function-stretch-database?view=sql-server-2017

QUESTION 213
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.

A company has an on-premises Microsoft SQL Server environment.

SQL Server backups should be stored as Microsoft Azure blob pages. The connection process from the SQL Server instances to Azure should be encrypted.

You need to store backups as Azure blob pages. Which option should you use?

A. backup compression
B. backup encryption

C. file snapshot backup
D. mirrored backup media sets
E. SQL Server backup to URL
F. SQL Server Managed Backup to Azure
G. tail-log backup
H. back up and truncate the transaction log

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server Managed Backup to Microsoft Azure manages and automates SQL Server backups to Microsoft Azure Blob storage. You can choose to allow SQL Server to determine the backup schedule based on the transaction workload of your database. Or you can use advanced options to define a schedule. The retention settings determine how long the backups are stored in Azure Blob storage.

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/sql-server-managed-backup-to-microsoft-azure?view=sql-server-2017

QUESTION 214
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.

A company has a Microsoft SQL Server environment that has multiple databases. A database named DB1 has multiple online file groups. It is configured to use the full recovery model. A full backup is preformed nightly and transaction logs are performed on the hour. A large number of records are accidentally deleted at 17:20.

You need to perform a point-in-time recovery. Which option should you use first?

A. backup compression
B. backup encryption
C. file snapshot backup
D. mirrored backup media sets
E. SQL Server backup to URL
F. SQL Server Managed Backup to Azure
G. tail-log backup
H. back up and truncate the transaction log

Correct Answer: G
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To back up the tail of the log (that is, the active log), check Back up the tail of the log, and leave database in the restoring state.

A tail-log backup is taken after a failure to back up the tail of the log in order to prevent work loss. Back up the active log (a tail-log backup) both after a failure, before beginning to restore the database, or when failing over to a secondary database. Selecting this option is equivalent to specifying the NORECOVERY option in the BACKUP LOG statement of Transact-SQL.

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/back-up-a-transaction-log-sql-server?view=sql-server-2017

QUESTION 215
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.

A company has a Microsoft SQL Server environment in Microsoft Azure. The databases are stored directly in Azure blob storage.

You need to ensure that you can restore a database to a specific point in time between backups while minimizing the number of Azure storage containers required.

Which option should you use?

A. backup compression
B. backup encryption
C. file snapshot backup
D. mirrored backup media sets
E. SQL Server backup to URL
F. SQL Server Managed Backup to Azure
G. tail-log backup
H. back up and truncate the transaction log

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:

SQL Server Managed Backup to Microsoft Azure supports point in time restore for the retention time period specified.

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/sql-server-managed-backup-to-microsoft-azure?view=sql-server-2017

QUESTION 216
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.

A company has a Microsoft SQL Server environment in Microsoft Azure. The databases are stored directly in Azure blob storage. The company uses a complex backup process.

You need to simplify the backup process. Future restores should not require differential or multiple incremental logs to perform a restore.

You need to design a backup solution for the SQL Server instances.

Which option should you use?

A. backup compression
B. backup encryption
C. file snapshot backup
D. mirrored backup media sets
E. SQL Server backup to URL
F. SQL Server Managed Backup to Azure
G. tail-log backup
H. back up and truncate the transaction log

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server File-snapshot backup uses Azure snapshots to provide nearly instantaneous backups and quicker restores for database files stored using the Azure Blob storage service. This capability enables you to simplify your backup and restore policies.

References: https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/file-snapshot-backups-for-database-files-in-azure?view=sql-server-2017

QUESTION 217
You have an application that queries a database. Users report that the application is slower than expected.

You discover that several server process identifiers (SPIDs) have PAGELATCH_UP and PAGELATCH_EX waits. The resource descriptions of the SPIDs contains 2:1:1.

You need to resolve the issue.

What should you do?

A. Allocate additional processor cores to the server.
B. Add files to the file group of the application database.
C. Reduce the fill factor of all clustered indexes.
D. Add data files to tempdb.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
PAGELATCH contention in tempdb is typically on allocation bitmaps and occurs with workloads with many concurrent connections creating and dropping small temporary tables (which are stored in tempdb).

Assuming that the temporary tables are needed for performance, the trick is to have multiple data files for tempdb so that the allocations are done round-robin among the files, the contention is split over multiple PFS pages, and so the overall contention goes down.

References: https://sqlperformance.com/2015/10/sql-performance/knee-jerk-wait-statistics-pagelatch

QUESTION 218
A company has an on-premises Microsoft SQL Server environment and Microsoft Azure SQL Database instances. The environment hosts several customer databases.

A customer that uses an on-premises instance reports that queries take a long time to complete.

You need to reconfigure table statistics so that the query optimizer can use the optimal query execution plans available.

Which Transact-SQL segment should you use?

A. sys.index_columns
B. UPDATE STATISTICS
C. CREATE STATISTICS

D. SET AUTO_CREATE_STATISTICS ON

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
AUTO_UPDATE_STATISTICS { ON | OFF }
ON specifies that the query optimizer updates statistics when they are used by a query and when they might be out-of-date. Statistics become out-of-date after insert, update, delete, or merge operations change the data distribution in the table or indexed view. The query optimizer determines when statistics might be out-of-date by counting the number of data modifications since the last statistics update and comparing the number of modifications to a threshold. The threshold is based on the number of rows in the table or indexed view.

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/alter-database-transact-sql-set-options?view=sql-server-2017#auto_update_statistics

QUESTION 219
You plan to implement a fault tolerance solution for a Microsoft SQL Server database.

The solution must provide failover storage on the local network.

You need to ensure the solution can route traffic to failover storage by using SMB 3.0.

Which storage option should you use?

A. Cluster Shared Volumes
B. Microsoft Azure Blob storage
C. Always On availability group
D. Stretch Database

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Clustered Shared Volumes (CSV) is a new clustered file system in Windows Server that is a layer of abstraction above the NTFS file system in a WSFC environment. It allows all Nodes in the failover cluster to read and write to the CSV volume. CSV leverages the investments Microsoft have made in SMB 3.0, such as SMB Direct and SMB Multichannel.

SQL Server 2014 was the first version of SQL Server to support CSVs.

References: https://www.microsoftpressstore.com/articles/article.aspx?p=2832586&seqNum=5

QUESTION 220
You maintain a database named DB1 that has a nonpartitioned table. You create an index in the table. Automatic statistic updates are disabled.

Uses report that some Microsoft SQL Server Reporting Service (SSRS) queries take long time to run. You determine that the issue is caused by stale statistics for Index1.

You need to update the statistics for the index.

What should you do?

A. Set the value of the Database Read-Only property to **True**.
B. Run the system stored procedure sp_updatestats.
C. Set the value of the Auto Create Incremental Statistics property to **True**.
D. Run the UPDATE STATISTICS command with the COLUMNS option.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
UPDATE STATISTICS updates query optimization statistics on a table or indexed view.
The ALL | COLUMNS | INDEX options update all existing statistics, statistics created on one or more columns, or statistics created for indexes. If none of the options are specified, the UPDATE STATISTICS statement updates all statistics on the table or indexed view.

Note: You can update query optimization statistics on a table or indexed view in SQL Server by using SQL Server Management Studio or Transact-SQL. By default, the query optimizer already updates statistics as necessary to improve the query plan; in some cases you can improve query performance by using UPDATE STATISTICS or the stored procedure sp_updatestats to update statistics more frequently than the default updates.

References:
https://docs.microsoft.com/en-us/sql/t-sql/statements/update-statistics-transact-sql?view=sql-server-2017

QUESTION 221
You have a table that has grown in the past six months.

A user reports that queries against the table take a long time to complete.

You need to update the statistics for the table in the least amount of time without disabling automatic statistics updates.

Which transact-SQL statement should you run?

A. UPDATE STATISTICS WITH RESAMPLE
B. UPDATE STATISTICS WITH FULLSCAN
C. UPDATE STATISTICS WITH SAMPLE 10 PERCENT
D. UPDATE STATISTICS WITH NORECOMPUTE

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SAMPLE number { PERCENT | ROWS } specifies the approximate percentage or number of rows in the table or indexed view for the query optimizer to use when it updates statistics.

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/update-statistics-transact-sql?view=sql-server-2017

QUESTION 222
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 attempt to restore a database on a new SQL Server instance and receive the following error message:

```
"Msg 33111, Level 16, State 3, Line 2
Cannot find server certificate with thumbprint
'0x7315277C70764B1F252DC7A5101F6F66EFB1069D'."
```

You need to ensure that you can restore the database successfully.

Solution: You generate a new certificate on the new instance.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
In order to successfully make the restore in a different server you will need to create a master certificate in the detonation and transfer the certificates and backups in that order.

References: https://deibymarcos.wordpress.com/2017/11/15/how-to-restore-encrypted-databases-cannot-find-server-certificate-with-thumbprint/

QUESTION 223
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 plan guide for the query by using the desired query plan and the `sp_create_plan_guide` stored procedure.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The KEEPFIXED 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 224
You maintain a database named **DB1** that has a nonpartitioned table. You create an index in the table. Automatic statistics updates are disabled.

Users report that some Microsoft SQL Server Reporting Service (SSRS) queries take a long time to run. You determine that the issue is caused by stale statistics for Index1.

You need to update the statistics for the index.

What should you do?

A. Run the system stored procedure sp_updatestats.
B. Run the UPDATE STATISTICS command with the COLUMNS option.
C. Run DBCC INDEXDEFRAG
D. Set the value of the Database Read-Only property to **True**.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
UPDATE STATISTICS updates query optimization statistics on a table or indexed view.
The ALL | COLUMNS | INDEX options update all existing statistics, statistics created on one or more columns, or statistics created for indexes. If none of the options are specified, the UPDATE STATISTICS statement updates all statistics on the table or indexed view.

Note: You can update query optimization statistics on a table or indexed view in SQL Server by using SQL Server Management Studio or Transact-SQL. By default, the query optimizer already updates statistics as necessary to improve the query plan; in some cases you can improve query performance by using UPDATE STATISTICS or the stored procedure sp_updatestats to update statistics more frequently than the default updates.

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/update-statistics-transact-sql?view=sql-server-2017

QUESTION 225
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.

A company is deploying a Microsoft SQL Server environment in Microsoft Azure.

Backups need to be performed and managed automatically.

You need to configure the SQL Server backup.

Which option should you use?

A. backup compression
B. backup encryption
C. file snapshot backup
D. mirrored backup media sets
E. SQL Server backup to URL
F. SQL Server Managed Backup to Azure
G. tail-log backup
H. back up and truncate the transaction log

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server Managed Backup to Microsoft Azure manages and automates SQL Server backups to Microsoft Azure Blob storage. You can choose to allow SQL Server to determine the backup schedule based on the transaction workload of your database. Or you can use advanced options to define a schedule.

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

QUESTION 226
You configure log shipping on two servers named SQL1 and SQL2 is in Standby mode.

You configure backup and restore to occur every hour.

A user generates a report from SQL2 and discovers that the report data is out-of-date.

You verify that the report data is a day old and discover that the primary backup files are available only on SQL1.

You need to identify what prevents the primary backup files from being available on SQL2.

Which two actions should you perform? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. From SQL2, execute the `SP_log_shipping_monitor_secondary` system stored procedure.
B. From Microsoft SQL Server Management Studio on SQL1, run the Transaction Log Shipping Status report.
C. From Microsoft SQL Server Management Studio on SQL2, run the Transaction Log Shipping Status report.
D. From SQL1, review the SQL Server Agent job history log.
E. From SQL1, execute the `SP_log_shipping_monitor_secondary` system stored procedure.

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A: The history and status of the backup operation are stored at the primary server, and the history and status of the copy and restore operations are stored at the secondary server.

log_shipping_monitor_secondary stores one monitor record for each secondary database, including information about the last backup file and last restored file that is useful for monitoring.

B: The Log Shipping Report displays the status of any log shipping activity whose status is available from the server instance to which you are connected.

References:
https://docs.microsoft.com/en-us/sql/database-engine/log-shipping/view-the-log-shipping-report-sql-server-management-studio?view=sql-server-2017
https://docs.microsoft.com/en-us/sql/database-engine/log-shipping/monitor-log-shipping-transact-sql

QUESTION 227
You have a database named **Saleshistory** that records sales transactions for your organization. You create indexes in the database.

The database has grown over time and now contains hundreds of indexes.

You need to identify the indexes that are not being used.

Which dynamic management object should you use?

A. sys.dm_os_sys_info
B. sys.dm_db_index_usage_stats
C. sys.dm_db_index_operational_stats

D. sys.dm_db_stats_properties

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The sys.dm_db_index_usage_stats returns counts of different types of index operations and the time each type of operation was last performed.

The user_updates counter indicates the level of maintenance on the index caused by insert, update, or delete operations on the underlying table or view. You can use this view to determine which indexes are used only lightly by your applications. You can also use the view to determine which indexes are incurring maintenance overhead. You may want to consider dropping indexes that incur maintenance overhead, but are not used for queries, or are only infrequently used for queries.

Reference: https://docs.microsoft.com/en-us/sql/relational-databases/system-dynamic-management-views/sys-dm-db-index-usage-stats-transact-sql

QUESTION 228
You have the following Microsoft SQL Server instances:

Name	Role	Location
SQL1	primary	Main office
SQL2	monitoring	Main office
SQL3	secondary	Branch office

You have a database named **DB1** that is hosted on SQL1.

Users in the branch office must be able to access **DB1** from SQL3.

You need to configure an AlwaysOn Availability Group and limit latency on the secondary server.

Which settings should you configure?

A. `FAILOVER_MODE = AUTOMATIC`
B. `AVAILABILITY MODE = SYNCHRONOUS_COMMIT`
C. `FAILOVER_MODE = MANUAL`
D. `AVAILABILITY MODE = ASYNCHRONOUS_COMMIT`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Asynchronous-commit mode is a disaster-recovery solution that works well when the availability replicas are distributed over considerable distances. If every secondary replica is running under asynchronous-commit mode, the primary replica does not wait for any of the secondary replicas to harden the log. Rather, immediately after writing the log record to the local log file, the primary replica sends the transaction confirmation to the client. The primary replica runs with minimum transaction latency in relation to a secondary replica that is configured for asynchronous-commit mode. If the current primary is configured for asynchronous commit availability mode, it will commit transactions asynchronously for all secondary replicas regardless of their individual availability mode settings.

Incorrect Answers:
B: Synchronous-commit mode emphasizes high availability over performance, at the cost of increased transaction latency.

References: https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/availability-modes-always-on-availability-groups

QUESTION 229
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 database that includes a table named Candidate.

You need to update the statistics for a column named Skills in the table and turn off automatic statistics updates for the column.

Solution: You run the following query:

```
USE CustomerDatabase
GO
UPDATE STATISTICS Person.Candidate(Skills)
WITH FULLSCAN
GO
```

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The line WITH FULLSCAN should be replaced with WITH FULLSCAN, NORECOMPUTE.

References: https://docs.microsoft.com/en-us/sql/t-sql/statements/update-statistics-transact-sql

QUESTION 230
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 Microsoft Azure SQL database that has Blob Auditing configured.

You need to review the audit logs.

Solution: From Microsoft SQL Server Management Studio, you connect to the database, and then you execute the following statement.

```
SELECT *
FROM sys.fn_get_audit_file('https://Server1.blob.core.windows.net/sqldbauditlogs/
Server1Audtis/2016-12-17/07_38_23_00_0.xe1', default, default);
```

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
fn_get_audit_file returns information from an audit file created by a server audit in SQL Server.

This example reads from a file that is named ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel:

SELECT * FROM sys.fn_get_audit_file ('https://mystorage.blob.core.windows.net/sqldbauditlogs/ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel',default,default);

Note: Blob auditing logs are saved as a collection of blob files within a container named sqldbauditlogs.

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-functions/sys-fn-get-audit-file-transact-sql

QUESTION 231
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 Microsoft Azure SQL database that has Blob Auditing configured.

You need to review the audit logs.

Solution: From Microsoft SQL Server Management Studio, you connect to the database, and then you execute the following statement.

```
SELECT*
FROM sys.fn_get_audit_file ('c:\program files\mssql\Server1\2016-
12-17/07_38_23_00_0.xe1', default, default);
```

Does this meet the goal?

A. Yes

B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The audit files are references with the help of an HTTP URL, not referencing a file on your local hard drive.

Note: fn_get_audit_file returns information from an audit file created by a server audit in SQL Server.

This example reads from a file that is named ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel:

SELECT * FROM sys.fn_get_audit_file ('https://mystorage.blob.core.windows.net/sqldbauditlogs/ShiraServer/MayaDB/SqlDbAuditing_Audit/2017-07-14/10_45_22_173_1.xel',default,default);

References: https://docs.microsoft.com/en-us/sql/relational-databases/system-functions/sys-fn-get-audit-file-transact-sql

QUESTION 232
You are a database administrator for Contoso, Ltd. You configure a Microsoft SQL Server failover cluster with four nodes by using Windows Server 2012 R2 Datacenter Edition and SQL Server 2016 Enterprise edition.

A server in the datacenter needs to be replaced. The server is part of the SQL Server Failover Instance (FCI).

You need to remove the FCI node for the server that will be replaced.

What should you do?

A. Evict the node from Failover Cluster Manager.
B. Run the `Remove-ClusterResource` Windows PowerShell cmdlet.
C. Run the `Remove-Cluster` Windows PowerShell cmdlet.
D. Remove the shared storage from Failover Cluster Manager.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

Explanation:
Recover from an irreparable failure
Use the following steps to recover from an irreparable failure. The failure could be caused, for example, by the failure of a disk controller or the operating system. In this case, failure is caused by hardware failure in Node 1 of a two-node cluster.

1. After Node 1 fails, the SQL Server FCI fails over to Node 2.
2. Evict Node 1 from the FCI. To do this, from Node 2, open the Failover Cluster Manager snap-in, right-click Node1, click Move Actions, and then click Evict Node.
3. Verify that Node 1 has been evicted from the cluster definition.
4. Install new hardware to replace the failed hardware in Node 1.
5. Using the Failover Cluster Manager snap-in, add Node 1 to the existing cluster. For more information, see Before Installing Failover Clustering.
6. Ensure that the administrator accounts are the same on all cluster nodes.
7. Run SQL Server Setup to add Node 1 to the FCI. For more information, see Add or Remove Nodes in a SQL Server Failover Cluster (Setup).

References: https://docs.microsoft.com/en-us/sql/sql-server/failover-clusters/windows/recover-from-failover-cluster-instance-failure

QUESTION 233
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 database named DB1 that is 640 GB and is updated frequently.

You enable log shipping for DB1 and configure backup and restore to occur every 30 minutes.

You discover that the hard disks on the database server are almost full.

You need to reduce the amount of disk space used by the log shipping process.

Solution: You enable compression for the transaction log backups.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SQL Server 2017 supports backup compression. When creating a log shipping configuration, you can control the backup compression behavior of log backups by choosing one of the following options: Use the default server setting, Compress backup, or Do not compress backup

Note: SQL Server 2008 Enterprise and later versions support backup compression.

References: https://docs.microsoft.com/en-us/sql/database-engine/log-shipping/configure-log-shipping-sql-server?view=sql-server-2017

QUESTION 234
You have five servers that run Microsoft SQL Server. Each server hosts multiple databases. You plat to implement fault tolerance.

You need to implement a fault tolerance solution that meets the following requirements:

- Each database must use a separate fault tolerance configuration.
- The solution must support three or more copies of each database.
- Failover of databases must be automatic.

What should you use?

A. Always On availability groups
B. database mirroring
C. transactional replication
D. log shipping

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
An availability group supports a replicated environment for a discrete set of user databases, known as availability databases. You can create an availability group for high availability (HA) or for read-scale. An HA availability group is a group of databases that fail over together.

Each set of availability database is hosted by an availability replica. Two types of availability replicas exist: a single primary replica. which hosts the primary databases, and one to eight secondary replicas, each of which hosts a set of secondary databases and serves as a potential failover targets for the availability group.

References: https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/overview-of-always-on-availability-groups-sql-server?view=sql-server-2017

QUESTION 235
DRAG DROP

You are maintaining a Microsoft SQL Server database named DB1. The database uses the dbo schema. Tables in the database were created by running the following Transact-SQL statements:

```
CREATE TABLE Employees {
 EmployeeId INT IDENTITY(1,1) NOT NULL PRIMARY KEY,
 IsManager BIT NOT NULL,
 DatabasePrincipalId INT NOT NULL
}
CREATE TABLE Sales {
 SalesId BIGINT IDENTITY(1,) NOT NULL PRIMARY KEY,
 Amount DECIMAL (20,2) NULL,
 ManagerId INT NOT NULL FOREIGN KEY (ManagerId) REFERENCES Employees(EmployeeId),
 EmployeeId INT NOT NULL FOREIGN KEY (EmployeeId) REFERENCES Employees (EmployeeId)
}
```

The Sales table has a column named Managerid. This column is used to assign the manager for a sales transaction. You have read access to the Employees table. Other employees have read and write access to the Sales table but no access to the Employees table.

You need to implement row-level security (RLS) for the Sales table. The solution must meet the following requirements:

- Managers must only read and modify sales records that are assigned to them.
- Managers cannot assign sales data to another manager.

Which three 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:

Transact-SQL Segments

```
CREATE FUNCTION RLS.SalesDataAccessPredicate(@ManagerId INT)
RETURNS TABLE
AS RETURN
   SELECT 1 AS HasAccess FROM Sales AS s
   INNER JOIN Employees AS e ON s.ManagerId = e.EmployeeId
WHERE e.ManagerId = @ManagerId AND e.IsManager = 1
```

```
CREATE SECURITY POLICY RLS.SalesDataSecurityPolicy
ADD FILTER PREDICATE RLS.SaleDataAccessPredicate
(ManagerId) ON Sales,
ADD BLOCK PREDICATE RLS.SaleDataAccessPredicate
(ManagerId) ON Sales,
AFTER UPDATE
```

```
USE DB1
GO
EXECUTE ('CREATE
SCHEMA RLS)
```

```
CREATE FUNCTION RLS.SaleDataAccessPredicate(@EmployeeId INT)
RETURNS TABLE
AS RETURN
     SELECT 1 AS HasAccess FROM Sales AS s
     INNER JOIN Employees AS e ON s.ManagerId = e.EmployeeId
     WHERE sEmployeeId = @EmployeeId AND e.IsManager = 1
```

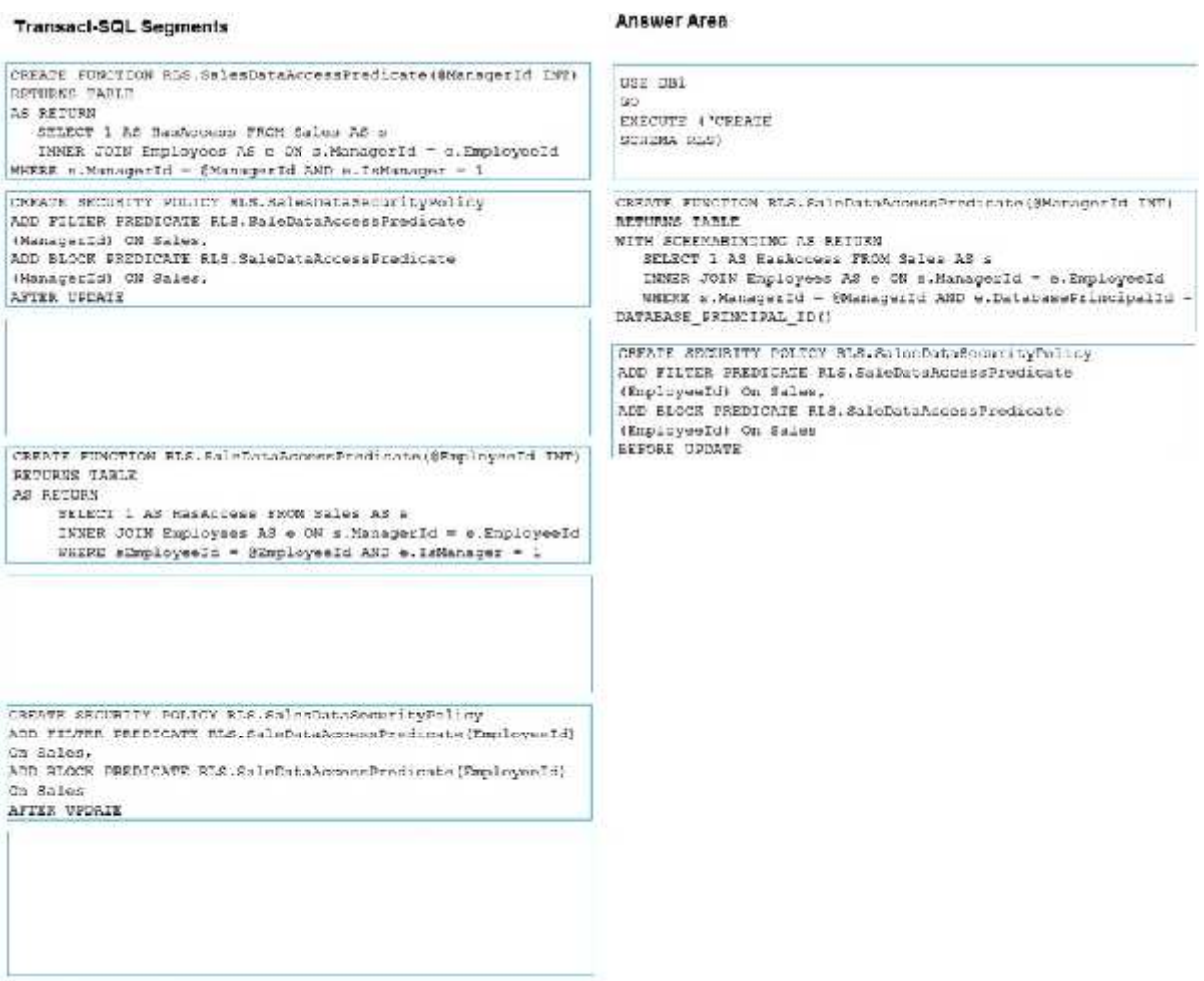
```
CREATE SECURITY POLICY RLS.SaleDataSecurityPolicy
ADD FILTER PREDICATE RLS.SaleDataAccessPredicate
(EmployeeId) On Sales,
ADD BLOCK PREDICATE RLS.SaleDataAccessPredicate
(EmployeeId) On Sales
BEFORE UPDATE
```

```
CREATE SECURITY POLICY RLS.SalesDataSecurityPolicy
ADD FILTER PREDICATE RLS.SaleDataAccessPredicate(EmployeeId)
On Sales,
ADD BLOCK PREDICATE RLS.SaleDataAccessPredicate(EmployeeId)
On Sales
AFTER UPDATE
```

```
CREATE FUNCTION RLS.SalesDataAccessPredicate(@ManagerId INT)
RETURNS TABLE
WITH SCHEMABINDING AS RETURN
   SELECT 1 AS HasAccess FROM Sales AS s
   INNER JOIN Employees AS e ON e.ManagerId = e.EmployeeId
   WHERE s.ManagerId = @ManagerId AND e.DatabasePrincipalId =
DATABASE_PRINCIPAL_ID()
```

Answer Area

Correct Answer:



Section: (none)
Explanation

Explanation/Reference:
References:
https://docs.microsoft.com/en-us/sql/t-sql/statements/create-security-policy-transact-sql?view=sql-server-2017
https://docs.microsoft.com/en-us/sql/t-sql/functions/database-principal-id-transact-sql?view=sql-server-2017

QUESTION 236
You have a Microsoft SQL Server instance that has a database named **DB1**. The database is used for reporting purposes. You plan to capture all queries for a specific table and save the data as a text file.

You need to ensure that queries are captured and that a failure to capture a query will shut down the SQL Server instance.

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

NOTE: Each correct selection is worth one point.

A. Enable SQL Server Audit.
B. Use Extended Events.
C. Use a logon trigger.
D. Create a SQL Server Profiler trace and disable c2 audit tracing.
E. Enable SQL Server Query Store.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The general process for creating and using an audit is as follows.

Create an audit and define the target.
Create either a server audit specification or database audit specification that maps to the audit. Enable the audit specification.
Enable the audit.
Read the audit events by using the Windows Event Viewer, Log File Viewer, or the fn_get_audit_file function.

References: https://docs.microsoft.com/en-us/sql/relational-databases/security/auditing/sql-server-audit-database-engine

QUESTION 237
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 has several Microsoft SQL Server instances. Each instance hosts many databases.

You observe I/O corruption on some of the instances.

You need to perform the following actions:

- Identify databases where the PAGE VERIFY option is not set.
- Configure full page protection for the identified databases.

Solution: You run the following Transact-SQL statement:

```
SELECT NAME, page_verify_option_desc
FROM master.sys.databases
WHERE page_verify_option_desc != 'CHECKSUM'
GO
```

For each database that you identify, you run the following Transact-SQL statement:

```
ALTER DATABASE <database_name>
SET PAGE_VERIFY CHECKSUM
```

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
We should set the PAGE_VERIFY Database Option to CHECKSUM.

Note:

CHECKSUM is the Way to Go For Page Verify
This isn't about security– this is about you knowing if changes to SQL Server's files are happening outside of its control, whether by corruption or any other means.

It's very easy to check if you're using CHECKSUM. Take a look at your settings today, and make a plan to move to checksum for any databases which need it!
SELECT NAME
FROM sys.databases
WHERE page_verify_option_desc <> 'CHECKSUM'

References:
https://docs.microsoft.com/en-us/sql/relational-databases/policy-based-management/set-the-page-verify-database-option-to-checksum?view=sql-server-2017

QUESTION 238
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 has several Microsoft SQL Server instances. Each instance hosts many databases.

You observe I/O corruption on some of the instances.

You need to perform the following actions:

- Identify databases where the PAGE VERIFY option is not set.
- Configure full page protection for the identified databases.

Solution: You run the following Transact-SQL statement:

```
SELECT NAME, page_verify_option_desc
FROM master.sys.databases
WHERE page_verify_option_desc = 'NONE'
GO
```

For each database that you identify, you run the following Transact-SQL statement:

```
ALTER DATABASE <database_name>
SET PAGE_VERIFY TORN_PAGE_DETECTION
```

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
We should check for CHECKSUM not NONE or TORN_PAGE_DETECTION

References:
https://docs.microsoft.com/en-us/sql/relational-databases/policy-based-management/set-the-page-verify-database-option-to-checksum?view=sql-server-2017

QUESTION 239
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 administer a SQL Server Instance at Contoso Ltd.

A new employee named Kim Ralls must be able to read data only from the dbo.Order table in the SalesDB database.

You create a SQL login named KimRalls. You then create a SQL user account named KimRalls in SalesDB. The user account is associated with the SQL login.

You need to grant KimRalls the necessary permission or permissions. Your solution must follow the principle of least privilege.

Solution: You perform the following actions:

1. Create a custom database role named OrderReader in SalesDB.
2. Grant the View Definition permission on dbo.Order to the OrderReader role.

3. Add KimRalls to the OrderReader role.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The VIEW DEFINITION permission lets a user see the metadata of the securable on which the permission is granted. However, VIEW DEFINITION permission does not confer access to the securable itself.

References:
http://learn.extreme-advice.com/index.php?topic=31.0

QUESTION 240
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.

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A new employee named Kim Ralls must be able to read data only from the dbo.Order table in the SalesDB database.

You create a SQL login named KimRalls. You then create a SQL user account named KimRalls in SalesDB. The user account is associated with the SQL login.

You need to grant KimRalls the necessary permission or permissions. Your solution must follow the principle of least privilege.

Solution: You perform the following actions:

1. Create a custom database role named OrderReader in SalesDB.
2. Grant the Select permission on dbo.Order to the OrderReader role.
3. Add KimRalls to the OrderReader role.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
We set up select permission on dbo.Order table.

References:
https://docs.microsoft.com/en-us/sql/t-sql/statements/grant-object-permissions-transact-sql

QUESTION 241
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 implement a columnstore index on the fact table.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
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 242
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 next of the scenario is exactly the same in each question in this series.

Start of repeated scenario

Contoso, Ltd. has Microsoft SQL Server databases that support a custom application. The current SQL Server environment consists of two servers: ContosoSQL1 and ContosoSQL2. These two servers participate in an Always On Availability Group named ContosoAG1 that is configured to use synchronous-commit with automatic failover. The secondary replica is not configured for read-only access.

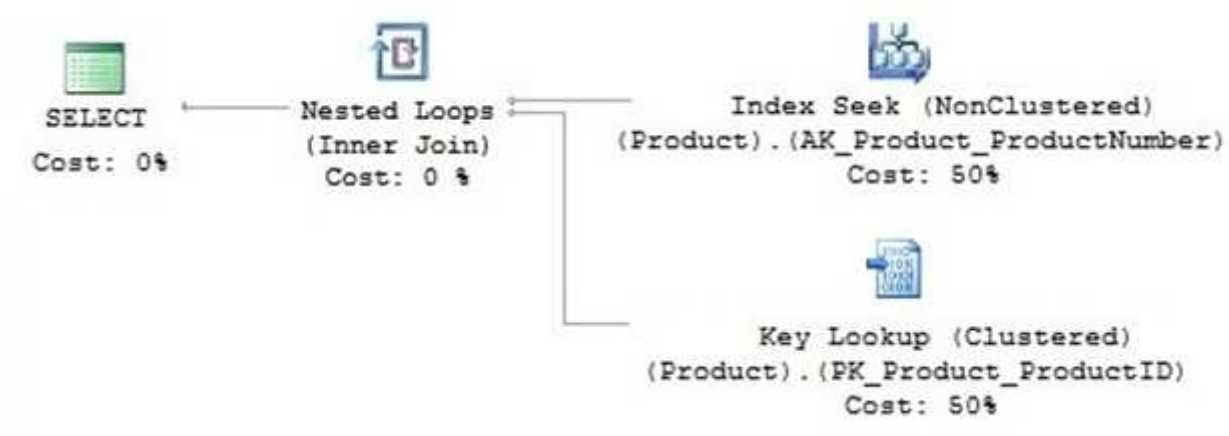
The application performs both transactional processing and historical data retrieval in a database named ContosoDB. The application includes an inventory management module. The inventory management module and database have experienced performance issues.

Users report that a query named InventoryQuery1 takes a long time to complete. The query is shown as follows:

```
SELECT ProductNumber, Name, ProductLine
FROM Production.Product
WHERE ProductNumber = N'<specific product>'
```

The query plan used by SQL Server for this query is shown in the exhibit. (Click the **Exhibit** tab.) Various performance issues, including frequent long-term blocking episodes, prevent business users from completing their daily tasks. You suspect the **tempdb** database resources could be responsible. You must create Blocking reports for the ContosoDB database to identify issues.

Exhibit.



You plan to use Extended Events to review all Transact-SQL statements that are run against the ContosoSQL1 instance. The output from the Extended Events session must contain both start and stop events and must be written to a file. You must configure the Extended Events session to minimize possible data loss and reduce the effect on server performance.

You plan to deploy an additional secondary replica named ContosoSQL3 to ContosoAG1. Read-only traffic must be load-balanced between the two secondary replicas, regardless of which instance is the primary replica. Contoso plans to add an additional dedicated reporting system that will rely on real-time data from the transactional databases.

The company plans to improve their high availability/disaster recovery (HA/DR) solution. As part of the planned improvements, you will back up all databases from ContosoSQL1 directly to an off-site location.

End of repeated scenario

You need to configure the backup process for ContosoSQL1.

What should you do?

A. Set the recovery model to **Simple**.
B. Perform mirrored backups to a DR datacenter.
C. Create a new backup set.
D. Perform a backup to a tape device.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario:
The company plans to improve their high availability/disaster recovery (HA/DR) solution. As part of the planned improvements, you will back up all databases from ContosoSQL1 directly to an off-site location.

One of the features found in the Enterprise Edition of SQL Server is the ability to take mirrored backups. Basically, taking a mirrored backup means creating additional copies of the backup media (up to three) using a single BACKUP command, eliminating the need to perform the copies with copy or robocopy.

The idea behind is that you can backup to multiple locations and increase the protection level by having additional copies of the backup set. In case one of the copies gets lost or corrupted, you can use the mirrored copy to perform a restore.

Another possible scenario for a mirrored backup is deferred tape migration: you can backup to a local disk and mirror to a shared folder on a file server. That way you could have a local copy of the backup set and restore it in case of need and let the mirrored copy migrate to tape when the disk backup software processes the file server's disks.

References:
https://www.mssqltips.com/sqlservertip/1779/mirrored-database-backup-feature-in-sql-server-2005-and-sql-server-2008/

QUESTION 243
You maintain three datacenters in different geographical regions. You have a four-node failover cluster that hosts a Microsoft SQL Server Failover Cluster Instance (FCI) in Datacenter1.

You must extend FCI to add four nodes in Datacenter2.

You need to configure a node majority quorum mode for the cluster.

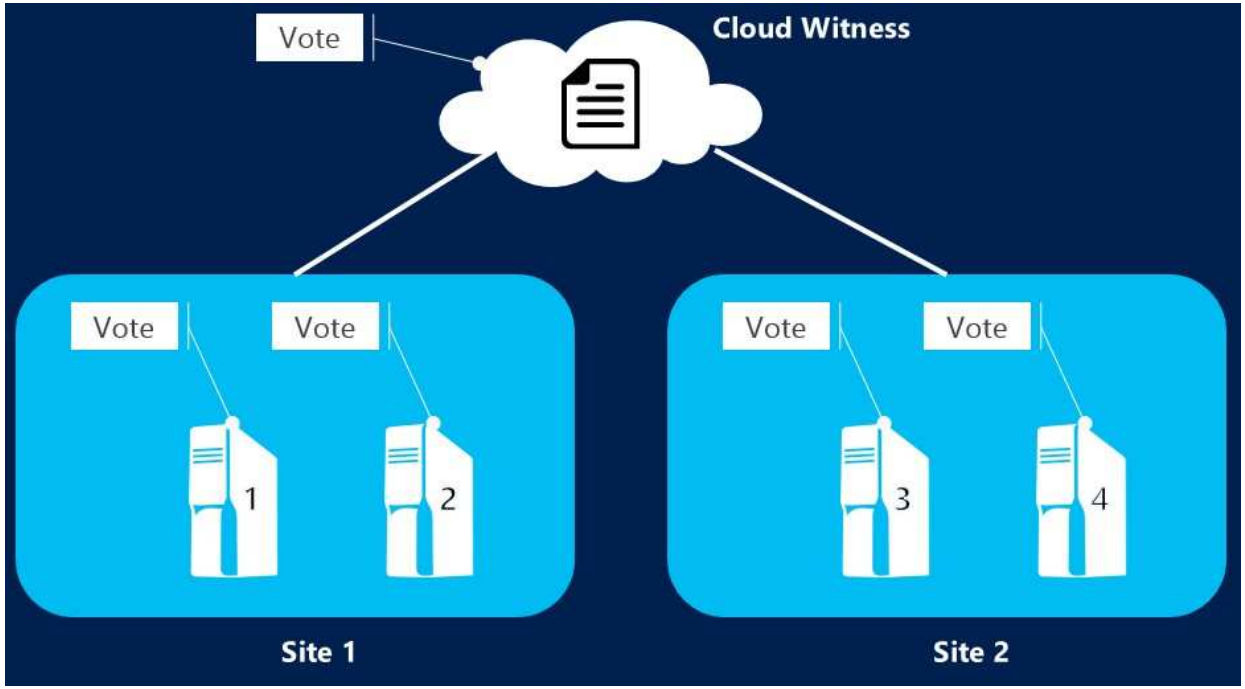
What are the two possible ways to achieve the goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Use a cloud quorum witness that is hosted in Microsoft Azure
B. Use no witness
C. Use a disk witness that is hosted in Datacenter2
D. Use a disk witness that is hosted in Datacenter1
E. Use a file share witness that is hosted in Datacenter3

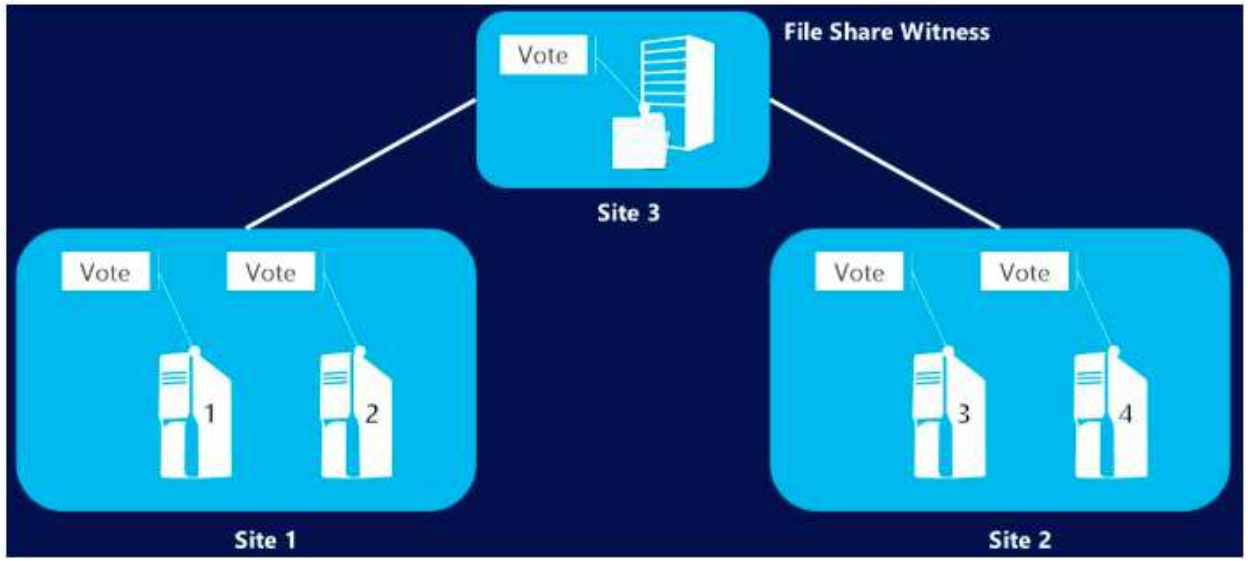
Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A: Cloud Witness is a type of Failover Cluster quorum witness that uses Microsoft Azure to provide a vote on cluster quorum.
Cloud Witness is a new type of Failover Cluster quorum witness that leverages Microsoft Azure as the arbitration point (figure below).
Figure: Multi-site stretched clusters with Cloud Witness as a quorum witness



As shown in the figure , there is no third separate site that is required. Cloud Witness, like any other quorum witness, gets a vote and can participate in quorum calculations.

E: The figure below illustrates a multi-site stretched Failover Cluster quorum configuration with Windows Server 2016.
Figure: Using a File Share Witness as a quorum witness



In case of power outage in one datacenter, to give equal opportunity for the cluster in other datacenter to keep it running, it is recommended to host the quorum witness in a location other than the two datacenters. This typically means requiring a third separate datacenter (site) to host a File Server that is backing the File Share which is used as the quorum witness (File Share Witness).

References:
https://docs.microsoft.com/en-us/windows-server/failover-clustering/deploy-cloud-witness

QUESTION 244
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 manage a Microsoft SQL Server environment. You implement Transparent Data Encryption (TDE).

A user will assist in managing TDE.

You need to ensure that the user can view the TDE metadata while following the principle of least privilege.

Which permission should you grant?

A. db_ddladmin
B. db_datawriter

C. dbcreator
D. db_owner
E. View Database State
F. View Server State
G. View Definition
H. sysadmin

Correct Answer: G
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Viewing the metadata involved with TDE requires the VIEW DEFINITION permission on the certificate.

References:
https://docs.microsoft.com/en-us/sql/relational-databases/security/encryption/transparent-data-encryption

QUESTION 245
You have an application that queries a database.

Users report that the application is slower than expected.

You discover that several server process identifiers (SPIDs) have PAGELATCH_UP and PAGELATCH_EX waits. The resource descriptions of the SPIDs contains 2:1:1.

You need to resolve the issue.

What should you do?

A. Reduce the number of table variables used in the application.
B. Use identity integers as primary key fields in the tables.
C. Reduce the fill factor of all the clustered indexes.
D. Move the database files to SSD storage.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Faster disks would reduce this problem.

QUESTION 246
You manage a Microsoft SQL Server environment. You plan to configure Database Mail.

You need to ensure that all users can access a private Database Mail profile.

What should you do?

A. On the profile, grant access to the public user.
B. On the msdb database, add the DatabaseMailUserRole to the public user.
C. On the master database, add the DatabaseMailUserRole to userid **0**.
D. On the master database add the DatabaseMailUserRole to the public user.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To make a profile public, specify a **@principal_id** of 0 or a **@principal_name** of public. A public profile is available to all users in the msdb database, though users must also be a member of DatabaseMailUserRole to execute sp_send_dbmail.

References:
https://docs.microsoft.com/en-us/sql/relational-databases/system-stored-procedures/sysmail-add-principalprofile-sp-transact-sql

QUESTION 247
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 administer a SQL Server Instance at Contoso Ltd.

A new employee named Kim Ralls must be able to read data only from the dbo.Order table in the SalesDB database.

You create a SQL login named KimRalls. You then create a SQL user account named KimRalls in SalesDB. The user account is associated with the SQL login.

You need to grant KimRalls the necessary permission or permissions. Your solution must follow the principle of least privilege.

Solution: You add KimRalls to the db_datareader database role in SalesDB.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation: Need to set up select permission on dbo.Order table.

QUESTION 248
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. $SecureString = ConvertTo-SecureString “Pa$$w0rd” –AsPlainText -Force
New-SqlCredential –Name “AzureCred” –Identity “AzureStorage” –Secret $SecureString
B. Invoke-Sqlcmd “CREATE EXTERNAL DATA SOURCE MyAzureStorage WITH (LOCATION = ‘wasbs://Azure@myaccount.blob.core.windows.net/’, CREDENTIAL = Pa$$w0rd)”
C. Invoke-Sqlcmd “CREATE USER Azure_Active_Directory_principal FROM EXTERNAL PROVIDER WITHOUT LOGIN”
D. New-SqlAzureVaultColumnMasterKeySettings –KeyUrl “https://myvault.vault.contoso.net:443/keys/CMK/4c05f1a41b12488f9cba2ea964b6a700”

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The New-SqlCredential cmdlet creates a new SQL Server credential object. A SQL Server credential object is used to store authentication information. The SQL Server credential is required when backing up to or restoring from the Windows Azure storage service, and is used to store the Windows Azure storage account name and access key information.

References:

https://docs.microsoft.com/en-us/powershell/module/sqlserver/new-sqlcredential

https://www.gratisexam.com/