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Exam Code:70-464

Exam Name:Developing Microsoft SQL Server 2012 Databases

General Questions

QUESTION 1
You have a SQL Server 2012 database named DB1. You have a backup device named Device1.
You discover that the log file for the database is full.
You need to ensure that DB1 can complete transactions.
The solution must not affect the chain of log sequence numbers (LSNs).

Which code segment should you execute?

A. BACKUP LOG DB1 TO Device1 WITH NO_LOG
B. BACKUP LOG DB1 TO Device1
C. BACKUP LOG DB1 TO Device1 WITH NORECOVERY
D. BACKUP LOG D31 TO Device1 WITH TRUNCATE_ONLY

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

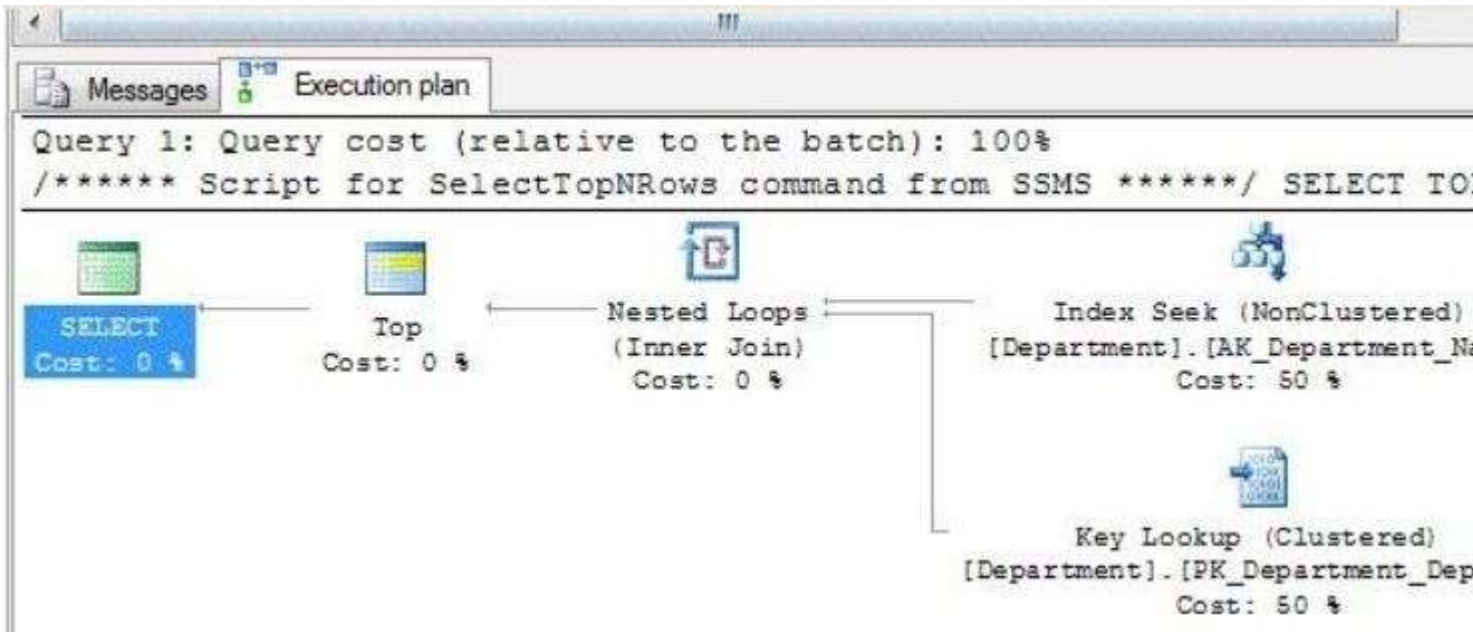
QUESTION 2
You execute the following code:

```
CREATE TABLE Department(
  DepartmentID smallint IDENTITY(1,1) NOT NULL,
  DepartmentName varchar(100) NOT NULL,
  GroupName varchar(100) NOT NULL,
  CONSTRAINT PK_Department_DepartmentID
    PRIMARY KEY CLUSTERED (DepartmentID ASC)
);
GO

CREATE UNIQUE NONCLUSTERED INDEX
  AK_Department_DepartmentName ON
  Department
(
  DepartmentName ASC
);
GO
```

You run the following query:

```
SELECT DepartmentID
      ,DepartmentName
      ,GroupName
  FROM Department
  WHERE DepartmentName = '1234';
```

The execution plan for the query is shown in the exhibit. (Click the Exhibit button.)



You need to prevent the key lookup.

A.
```
DROP INDEX AK_Department_DepartmentName
ON Department;
GO
CREATE INDEX AK_Department_DepartmentName
ON Department (DepartmentName, GroupName);
GO
```

B. the SELECT statement to use the WITH(INDEX(AK_Department_DepartmentName

C.
```
DROP INDEX AK_Department_DepartmentName
ON Department;
GO
CREATE INDEX AK_Department_DepartmentName
ON Department (DepartmentName)
INCLUDE (GroupName);
GO
```

D. the SELECT statement to use the WITH(INDEX(PK_Department_DepartmentID

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 3
You have a database for a mission-critical web application.
The database is stored on a SQL Server 2012 instance and is the only database on the instance.
The application generates all T- SQL statements dynamically and does not use stored procedures.

You need to maximize the amount of memory available for data caching.

Which advanced server option should you modify?

A. scan for Startup Procs
B. Allow Triggers to Fire Others
C. Enable Contained Databases
D. Optimize for Ad hoc Workloads

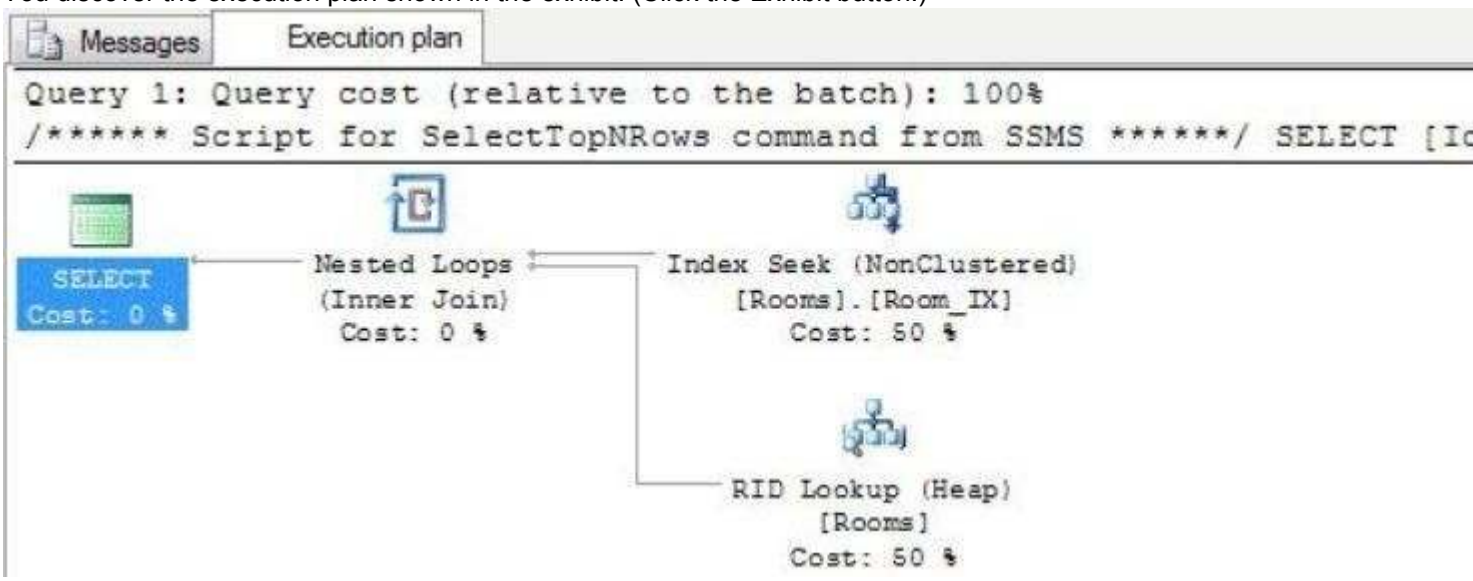
Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 4
You have a table named Rooms that contains three columns. You execute the following query:

```
SELECT [Id],
   [RoomName],
   [Position]
FROM [dbo].[Rooms]
WHERE [RoomName] = 'Room1'
```

You discover the execution plan shown in the exhibit. (Click the Exhibit button.)



You need to recommend a solution to reduce the amount of time it takes to execute the query.
What should you do? More than one answer choice may achieve the goal. Select the BEST answer.

A. use the WITH (INDEX(Room_IX),NOLOCK) query hint.
B. Create a clustered index for Id.
C. Include the RoomName column and the Position column in the Room_IX index.
D. Create a nonclustered index for RoomName, Id, and Position.

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:

QUESTION 5
You have a server that has SQL Server 2012 installed.
You need to identify which parallel execution plans are running in serial. Which tool should you use?

A. Data Profile Viewer
B. Database Engine Tuning Advisor
C. Performance Monitor
D. Extended Events

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 6
You have a database named database1. Database developers report that there are many deadlocks. You need to implement a solution to monitor the deadlocks. The solution must meet the following requirements:

• Support real-time monitoring.
• Be enabled and disabled easily.
• Support querying of the monitored data.

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

A. an Extended Events session
B. a SQL Server Profiler template
C. log errors by using trace flag 1204
D. log errors by using trace flag 1222

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 7
You execute the following code:

```
CREATE TABLE dbo.Customers
(
  id int PRIMARY KEY,
  CustomerName char(10)
)
```

You create a nonclustered index named IX_CustomerName on the CustomerName col

You execute the following query:

```
SELECT * FROM dbo.Customers
WHERE LEFT(CustomerName,1) = 'a'
```

You need to reduce the amount of time it takes to execute the query. What should you do?

A. Replace LEFT(CustomerName ,1) = 'a' with CustomerName LIKE 'a%'.
B. Partition the table and use the CustomerName column for the partition scheme.
C. Replace LEFT(CustomerName ,1) = 'a' with SUBSTRING(CustomerName ,1/1) = 'a'.
D. Replace IX_CustomerName with a clustered index.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 8
You have a SQL Server 2012 database named database1. Database1 contains a table named OrderDetails. For a given sales order, you need to retrieve the OrderID, Quantity, and LineTotal columns for all of the items in the OrderDetails table. The solution must ensure that the results can be joined to other tables. Which code segment should you execute?

A.
```
CREATE FUNCTION dbo.GetOrderDetails(@OrderID int)
RETURNS TABLE
AS
RETURN
(SELECT OrderID, Quantity, LineTotal
  FROM Sales.OrderDetails
  WHERE OrderID = @OrderID);
```

B.
```
CREATE PROC dbo.GetOrderDetails(@OrderID int)
AS
SELECT OrderID, Quantity, LineTotal
  FROM Sales.OrderDetails
  WHERE OrderID = @OrderID;
```

C.
```
CREATE FUNCTION dbo.GetOrderDetails(@OrderID int)
RETURNS @retOrderDetails TABLE
(
  OrderID int NOT NULL,
  Quantity int NOT NULL,
  LineTotal decimal NULL
)
AS
BEGIN
  INSERT @retOrderDetails
  SELECT OrderID, Quantity, LineTotal
    FROM Sales.OrderDetails
    ORDER BY @OrderID;
  RETURN;
END;
```

D.
```
CREATE VIEW dbo.GetOrderDetails
AS
SELECT OrderID, Quantity, LineTotal
  FROM Sales.OrderDetails;
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 9
You have a database that contains a user-defined function named Schema1.Udf1 and two tables named Schema1.Table1 and Schemal.Table2. Schema1.Table1 has 1 million rows. The schema for Schema1.Table1 is configured as shown in the following table.

Column	Data type
CountryID	int
CustomerName	varchar(50)

Schema1.Udf1 was defined by using the following code:

```
CREATE FUNCTION Schema1.Udf1(@CountryID int)
RETURNS TABLE
AS
RETURN
SELECT Country
FROM Shema1.Table2
WHERE CountryID = @CountryID
```

You need to write a query that will contain the following columns:

• Country

• CountryID
• CustomerName

The solution must meet the following requirements:

• Rows must be returned only if the function returns data.
• The amount of time it takes the query to execute must be minimized.

Which query should you use?

A.
```
SELECT t.CountryID,
  u.Country,
  t.CustomerName
FROM Schema1.Table1 AS t
  LEFT JOIN Schema1.Udf1(t.CountryID) AS u;
```

B.
```
SELECT t.CountryID,
  u.Country,
  t.CustomerName
FROM Schema1.Table1 AS t
  OUTER APPLY Schema1.Udf1(t.CountryID) AS u;
```

C.
```
SELECT t.CountryID,
  u.Country,
  t.CustomerName
FROM Schema1.Table1 AS t
  CROSS APPLY Schema1.Udf1(t.CountryID) AS u;
```

D.
```
SELECT t.CountryID,
  u.Country,
  t.CustomerName
FROM Schema1.Table1 AS t
  INNER JOIN Schema1.Udf1(t.CountryID) AS u;
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 10
You have a database hosted on SQL Azure. You are developing a script to create a view that will be used to update the data in a table. The following is the relevant portion of the script. (Line numbers are included for reference only.)

```
01 CREATE VIEW View1
02 AS
03 SELECT
04 ...
05 WHERE Column1 = 'City1'
06
```

You need to ensure that the view can update the data in the table, except for the data in Column1.

Which code segment should you add at line 06?

A. WITH ENCRYPTION
B. WITH VIEW_METADATA
C. WITH CHECK OPTION
D. WITH SCHEMABINDING

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 11
You have an application that uses a view to access data from multiple tables.
You need to ensure that you can insert rows into the underlying tables by using the view.

What should you do?

A. Define the view by using the SCHEMABINDING option.
B. Define the view by using the CHECK option.
C. Create an INSTEAD OF trigger on the view.
D. Materialize the view.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 12
You have a SQL Azure database. You execute the following code:

```
CREATE SCHEMA Sales;
GO

CREATE TABLE Sales.Customers
(
  CustomerID int IDENTITY(1,1) PRIMARY KEY,
  FaxNumber char(10) SPARSE NULL,
  CustomerName varchar(100) NOT NULL,
  EmailAddress varchar(100) NOT NULL
);
GO

CREATE PROCEDURE Sales.CustomersByFaxNumber
  @FaxNumber char(10)
AS
SELECT CustomerID,
  CustomerName
FROM Sales.Customers
WHERE FaxNumber = @FaxNumber
```

The Sales.Customers table will contain 100,000 rows. You expect the FaxNumber column to contain a null value for 70 percent of the rows. You need to create an index to support Sales.CustomersByFaxNumber. The solution must minimize the disk storage requirements.
Which code segment should you execute?

A. CREATE INDEX IX_Customers ON Customers (FaxNumber)
   WHERE FaxNumber IS NOT NULL
B. CREATE INDEX IX_Customers ON Customers (FaxNumber)
   WITH FILLFACTOR=0
C. CREATE INDEX IX_Customers ON Customers (CustomerName) INCLUDE (FaxNumber)
D. CREATE INDEX IX_Customers ON Customers (FaxNumber)
E. CREATE INDEX IX_Customers ON Customers (FaxNumber)
   WHERE FaxNumber IS NULL

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 13
You execute the following code:

```
CREATE TABLE dbo.Projects
( Id int,
details XML);
GO

INSERT INTO Projects (Id,details)
VALUES
(1,
N'<Project Name="Project1">
<Tasks>
  <Task Name="T1"><IsFinished>true"</IsFinished></Task>
  <Task Name="T2"><IsFinished>true"</IsFinished></Task>
</Tasks>
</Project>'),
(2,
N'<Project Name="Project2">
<Tasks>
  <Task Name="T_1"><IsFinished>false</IsFinished></Task>
</Tasks>
</Project>');
```

You need to select the task that has an IsFinished value of true from the Project that has an Id value of 1.

Which code segment should you use?

A.
```
SELECT Projects.details.query('//Task[@IsFinished="true"]')
FROM Projects
WHERE Projects.Id = 1;
```

B.
```
SELECT Projects.details.query('//Task/IsFinished="true"')
FROM Projects
WHERE Projects.Id = 1;
```

C.
```
SELECT Projects.details
FROM Projects
WHERE Projects.Id = 1 AND Details LIKE '%true%';
```

D.
```
SELECT Projects.details.query('Project/Tasks/Task/[@IsFinished="true"]
FROM Projects
WHERE Projects.Id = 1;
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
http://technet.microsoft.com/en-us/library/ms191474.aspx

QUESTION 14

You run the following code:

```
CREATE TABLE dbo.Orders
(
  Id int CONSTRAINT PK_Order_Id PRIMARY KEY,
  Amount decimal,
  Details xml
);
```

You need to ensure that the root node of the XML data stored in the Details column is <Order_Details>.
What should you implement? More than one answer choice may achieve the goal. Select the BEST answer.

A. an XML index
B. an XML schema collection
C. a user-defined data type
D. a Data Definition Language (DDL) trigger
E. a data manipulation language (DML) trigger

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 15
You are creating a table named Orders. You need to ensure that every time a new row is added to the Orders table, a user-defined function is called to validate the row before the row is added to the table. What should you use? More than one answer choice may achieve the goal. Select the BEST answer.

A. a FOREIGN KEY constraint
B. a data manipulation language (DML) trigger
C. a DEFAULT constraint
D. a CHECK constraint
E. a Data Definition Language (DDL) trigger

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 16
You execute the following code:

```
CREATE TABLE UserInfo
(
  ID int NOT NULL IDENTITY (1, 1)
  CONSTRAINT PK_UserInfo PRIMARY KEY CLUSTERED,
  UserName varchar(100) NOT NULL,
  Manager varchar(100) NULL,
  HireDate date NOT NULL,
  PerformanceReviewScore int NULL
);
```

You have a stored procedure that includes the following SELECT statement:

```
SELECT UserName, PerformanceReviewScore
FROM UserInfo
WHERE Manager = 'Ben Smith';
```

You need to create a covering index on UserInfo. Which code segment should you execute?

A.
```
CREATE NONCLUSTERED INDEX [IX_Covering_Index] ON UserInfo
(
  [UserName] ASC,
  [PerformanceReviewScore] ASC,
);
```

B.
```
CREATE NONCLUSTERED INDEX [IX_Covering_Index] ON UserInfo
(
  [Manager] ASC
);
```

C.
```
CREATE NONCLUSTERED INDEX [IX_Covering_Index] ON UserInfo
(
  [UserName] ASC,
  [Manager] ASC
);
```

D.
```
CREATE NONCLUSTERED INDEX [IX_Covering_Index] ON UserInfo
(
  [Manager] ASC,
  [PerformanceReviewScore] ASC,
  [UserName] ASC
);
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 17
You use SQL Azure to store data used by an e-commerce application.
You develop a stored procedure named sp1.
Sp1 is used to read and change the price of all the products sold on the e- commerce site.

You need to ensure that other transactions are blocked from updating product data while sp1 is executing.

Which transaction isolation level should you use in sp1?

A. read committed
B. repeatable read
C. snapshot
D. serializable

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 18
You plan to execute the following code:

```
CREATE TABLE dbo.Table1
(
  datavalue varchar(20)
);
GO

BEGIN TRANSACTION;

INSERT INTO Table1 VALUES('entry1');

  BEGIN TRANSACTION;
    INSERT INTO Table1 VALUES('entry2');
  COMMIT TRANSACTION;

INSERT INTO Table1 VALUES('entry3');

ROLLBACK TRANSACTION;
Go
```

You need to identify how many rows will be in dbo.Table1 after you execute the code. How many rows should you identify?

A. 3
B. 2
C. 1
D. 0

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 19
You have an index for a table in a SQL Azure database. The database is used for Online Transaction

Processing (OLTP). You discover that the index consumes more physical disk space than necessary. You need to minimize the amount of disk space that the index consumes. What should you set from the index options?

A. STATISTICS_NORECOMPUTE = ON
B. STATISTICS_NORECOMPUTE = OFF
C. FILLFACTOR = 0
D. FILLFACTOR = 80

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 20
You plan to design an application that temporarily stores data in a SQL Azure database.
You need to identify which types of database objects can be used to store data for the application.
The solution must ensure that the application can make changes to the schema of a temporary object during a session.

Which type of objects should you identify?

A. common table expressions (CTEs)
B. table variables
C. temporary tables
D. temporary stored procedures

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 21
You have a text file that contains an XML Schema Definition (XSD).
You have a table named Schemal.Table1.
You have a stored procedure named Schemal.Proc1 that accepts an XML parameter named Param1.
You need to store validated XML data in Schemal.Table1.
The solution must ensure that only valid XML data is accepted by Param1.

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

A. Define an XML column in Table1 by using an XML schema collection.
B. Create an XML schema collection in the database from the text file.
C. Declare Param1 var1 as type XML and associate the variable to the XML schema collection.
D. use the modify method to insert the XML schema into each row of the XML column in Table1.

Correct Answer: ABD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 22
You have an index for a table in a SQL Azure database.
The database is used for Online Transaction Processing (OLTP).
You discover that many page splits occur when records are inserted or updated in the table.
You need to minimize the number of page splits.

What should you set from the index options?

A. STATISTICS_NORECOMPUTE = ON
B. FILLFACTOR = 0
C. STATISTICS_NORECOMPUTE = OFF
D. FILLFACTOR = 80

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 23
You have a SQL Server 2012 database named Database1. You execute the following code:

```
CREATE TABLE Sales
(
  ID int IDENTITY(1,1) NOT NULL PRIMARY KEY,
  OrderDate char(10) NOT NULL,
  Amount decimal
);
GO

CREATE INDEX IX_Sales_OrderDate
  ON Sales(OrderDate)
  INCLUDE (ID, Amount);
GO

CREATE PROC usp_Proc1(
  @date1 datetime,
  @date2 datetime
)
AS
SELECT ID, OrderDate, Amount
  FROM Sales
  WHERE CAST(OrderDate AS datetime)
    BETWEEN @date1 AND @date2
  ORDER BY ID;
GO
```

You insert 3 million rows into Sales. You need to reduce the amount of time it takes to execute Proc1. What should you do?

A. ProductType varchar(11) '@ProductType',
B. ProductType varchar(11) 'ProductType/ID',
C. ProductType varchar(11) 'ProductType/@ID',
D. ProductType varchar(11) 'ProductType1'.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 24
You are creating a table to support an application that will cache data outside of SQL Server. The application will detect whether cached values were changed before it updates the values. You need to create the table, and then verify that you can insert a row into the table.

Which code segment should you use?

A.
```
CREATE TABLE Table1
(
  ID int IDENTITY(1,1),
  Name varchar(100),
  Version uniqueidentifier DEFAULT (NEWID())
)
INSERT INTO Table1 (Name, Version)
VALUES ('Smith, Ben', NEWID())
```

B.
```
CREATE TABLE Table1
(
  ID int IDENTITY(1,1),
  Name varchar(100),
  Version uniqueidentifier DEFAULT (NEWID())
)
INSERT INTO Table1 (Name)
VALUES ('Smith, Ben')
```

C.
```
CREATE TABLE Table1
(
  ID int IDENTITY(1,1),
  Name varchar(100),
  Version rowversion
)
INSERT INTO Table1 (Name)
VALUES ('Smith, Ben')
```

D.
```
CREATE TABLE Table1
(
  ID int IDENTITY(1,1),
  Name varchar(100),
  Version rowversion
)
INSERT INTO Table1 (Name, Version)
VALUES ('Smith, Ben', NEWID())
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 25
You have a SQL Azure database. You execute the following script:

```
CREATE TABLE dbo.Table1
(
Column1 int PRIMARY KEY,
Colunm2 varchar(50) SPARSE NULL )
```

You add 1 million rows to Table1. Approximately 85 percent of all the rows have a null value for Column2. You plan to deploy an application that will search Column2. You need to create an index on Table1 to support the planned deployment. The solution must minimize the storage requirements. Which code segment should you execute?

A. CREATE INDEX IX_Table1 ON Table1 (Column2)
   WITH FILLFACTOR-0
B. CREATE INDEX IX_Table1 OK Table1 (Column1)
   INCLUDE (Column2)
C. CREATE INDEX IX_Table1 ON Table1 (Column2)
   WHERE Column2 IS NULL
D. CREATE INDEX IX_Table1 ON Table1 (Column2)
   WHERE Column2 IS NOT NOLL

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 26
You are creating a table named Orders.
You need to ensure that every time a new row is added to the Orders table, a table that is used for auditing is updated.

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

A. a CHECK constraint
B. a FOREIGN KEY constraint
C. a DEFAULT constraint
D. a data manipulation language (DML) trigger
E. a Data Definition Language (DDL) trigger

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 27
You review a query that runs slowly. The query accesses data in a table named Schemal.Table1.
The following is the relevant portion of the execution plan for the query:

```
<MissingIndexes>
  <MissingIndexGroup Impact="95.8296">
    <MissingIndex Database="DB1" Schema="Schema1" Table="Table1">
      <ColumnGroup Usage="EQUALITY">
        <Column Name="Column1" ColumnId="14" />
      </ColumnGroup>
      <ColumnGroup Usage="INEQUALITY">
        <Column Name="Column2" ColumnId="17" />
        <Column Name="Column3" ColumnId="21" />
      </ColumnGroup>
      <ColumnGroup Usage="INCLUDE">
        <Column Name="Column4" ColumnId="11" />
      </ColumnGroup>
    </MissingIndex>
  </MissingIndexGroup>
</MissingIndexes>
```

You need to create the missing index. Which code segment should you execute?

A. CREATE NCNCLUSTERED INDEX IX1 on Schema1.Table1 (Column1) INCLUDE (Column4)
B. CREATE NCNCLUSTERED INDEX IX1 on Schema1.Table1 (Column1)
C. CREATE NONCLUSTERED INDEX IX1 on Schema1.Table1 (Column1, Column2, Column3) INCLUDE (Column4)
D. CREATE NONCLUSTERED INDEX IX1 on Schema1.Table1 (Column1) INCLUDE(Column4) WHERE Column2 <> Column3

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 28
You have a SQL Azure database. You need to identify which keyword must be used to create a view that will be indexed. Which keyword should you identify?

A. VIEW_METADATA
B. SCHEMABINDING
C. DEFAULT
D. DISTINCT

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 29
You create a view by using the following code:

```
CREATE VIEW dbo.View1
WITH VIEW_METADATA
AS
SELECT t1.col1, t1.col2, t2.*
FROM dbo.Table1 AS t1 JOIN dbo.Table2 AS t2 ON t1.col1=t2.col2;
```

Several months after you create the view, users report that the view has started to return unexpected results. You discover that the design of Table2 was modified since you created the view. You need to ensure that the view returns the correct results. Which code segment should you run?

A.
```
EXEC sp_refreshview @viewname = 'dbo.View1';
```

B.
```
ALTER dbo.View1 WITH SCHEMABINDING, VIEW_METADATA
AS
SELECT t1.col1, t1.col2, t2.*
FROM dbo.Table1 AS t1 JOIN dbo.Table2 AS t2
ON t1.col1=t2.col2;
```

C.
```
EXEC sp_refreshsqlmodule @name = 'dbo.Table2';
```

D.
```
DROP dbo.View1;
GO
CREATE dbo.View1 WITH SCHEMABINDING, VIEW_METADATA
AS
SELECT t1.col1, t1.col2, t2.*
FROM dbo.Table1 AS t1 JOIN dbo.Table2 AS t2
ON t1.col1=t2.col2;
```

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 30
You have a SQL Server 2012 instance that hosts a single-user database.
The database does not contain user-created stored procedures or user-created functions.
You need to minimize the amount of memory used for query plan caching.

Which advanced server option should you modify?

A. Enable Contained Databases
B. Allow Triggers to Fire Others
C. Optimize for Ad hoc Workloads
D. Scan for Startup Procs

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 31
You use SQL Server 2012 to maintain the data used by the applications at your company.
You plan to create a table named Table1 by using the following statement.
(Line numbers are included for reference only.)

```
01 CREATE TABLE dbo.table1(
02   ID int IDENTITY(1,1) NOT NULL,
03
04   Email varchar(100) NULL,
05   CONSTRAINT PK_table1 PRIMARY KEY CLUSTERED(ID ASC)
06 )
```

You need to ensure that Table1 contains a column named UserName. The UserName column will:

- Store string values in any language.
- Accept a maximum of 200 characters.
- Be case-insensitive and accent-insensitive

Which code segment should you add at line 03?

A. UserName varchar(200) COLLATE Latin1_General_CI_AI NOT NULL.
B. UserName nvarchar (200) COLLATE Latin1_General_CI_AI NOT NULL.
C. UserName nvarchar(200) COLLATE Lati1l_General_CS_AS NOT NULL.
D. UserName varchar(200) COLLATE Latin1 General CS AS NOT NULL.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 32
You execute the following code:

```
CREATE TABLE HumanResources.Employees
(
  EmployeeID int IDENTITY(1,1) PRIMARY KEY,
  ContactID int NOT NULL
    FOREIGN KEY REFERENCESS Person.Contact(ContactID),
  JobTitle varchar(100)
);
GO

CREATE INDEX IX_Employees
ON HumanResources.Employee(JobTitle);
GO
```

After populating the Employees table with 10,000 rows, you execute the following que

```
SELECT EmployeeID, JobTitle
FROM HumanResources.Employee
WHERE SUBSTRING(JobTitle,1,1) = 'C'
```

You need to reduce the amount of time it takes to execute the query.

What should you do?

A. change SUBSTRING (JobTitle, 1, 1) = 'c' to LEFT(JobTitle,1) = 'C'.
B. Change SUBSTRING(JobTitle, 1, 1) = 'c' to JobTitle LIKE 'C%'
C. Partition the table and use the JobTitle column for the partition scheme.
D. Replace IX_Employees with a clustered index.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 33
Your company has a SQL Azure subscription. You implement a database named Database1. Database1 has two tables named Table1 and Table2. You create a stored procedure named sp1.Sp1 reads data from Table1 and inserts data into Table2. A user named User1 informs you that he is unable to run sp1. You verify that User1 has the SELECT permission on Table1 and Table2. You need to ensure that User1 can run sp1. The solution must minimize the number of permissions assigned to User1. What should you do?

A. Grant User1 the INSERT permission on Table2.
B. Add User1 to the db_datawriter role.
C. Change sp1 to run as the sa user.
D. Grant User1 the EXECUTE permission on sp1.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 34
You have a SQL Server 2012 instance.
You plan to create an application that uses spatial data.
You need to create an object that will support the representation of the surface area of all the oceans.

Which code segment should you use?

A.
```
DECLARE @g GEOGRAPHY =
  GEOGRAPHY::STGeomFromText(
  'POLYGON(0 0, 0 10, 10 10, 10 0, 0 0)',4326
);
```

B.
```
DECLARE @g GEOGRAPHY =
  GEOGRAPHY::STGeomFromText(
  'FULLGLOBE',4326
);
```

C.
```
DECLARE @g GEOGRAPHY =
  GEOGRAPHY::STGeomFromText(
  'CIRCULARSTRING(0 50, 90 50, 180 50)',4326
);
```

D.
```
DECLARE @g GEOGRAPHY =
GEOGRAPHY::STGeomFromText('
COMPOUNDCURVE(
    CIRCULARSTRING(0 -50, 90 0, 0 50),
    CIRCULARSTRING(0 50, 45 50, -90 50),
    CIRCULARSTRING(-90 50, 0 0, -90 -50),
    CIRCULARSTRING(-90 -50, 45 -50, 0 -50),4326
  )'
);
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

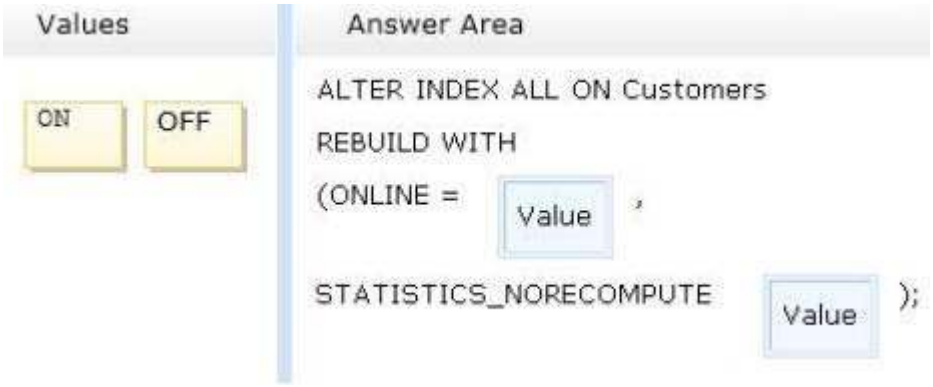
QUESTION 35
You run the following code segment:

```
CREATE TABLE dbo.Customers
(
  Id int CONSTRAINT Check_ID PRIMARY KEY,
  CustomerName varchar(50),
  Details xml
);
GO
CREATE PRIMARY XML INDEX PXML_Customers
  ON dbo.Customers (Details);
GO
```

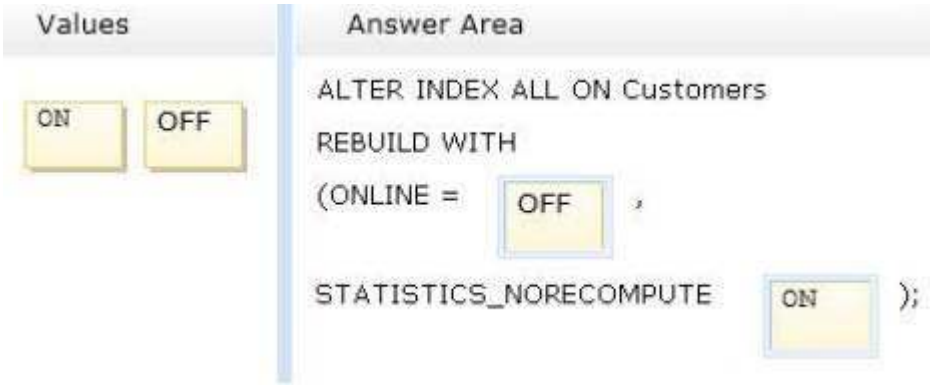
After you add 10,000 rows to Customers, you discover that the index is fragmented.
You need to defragment the index in the least amount of time.
Which code segment should you execute?

To answer, drag the appropriate value to the correct location in the code segment in the answer area.
(Answer choices may be used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

QUESTION 36

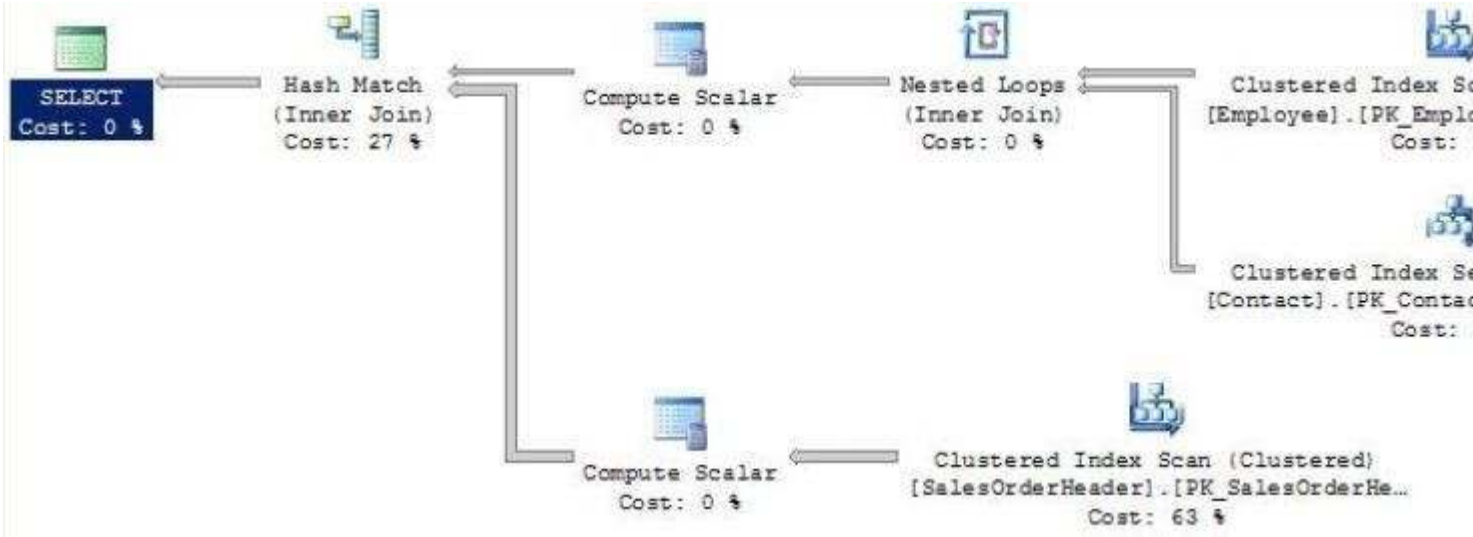
You have a database that contains three tables. The tables are configured as shown in the following table.

Table	Primary key index
SalesOrderHeader	PK_SalesOrderHeader_SalesOrderID
Employee	PK_Employee_EmployeeID
Contact	PK_Contact_ContactID

You have the following query:

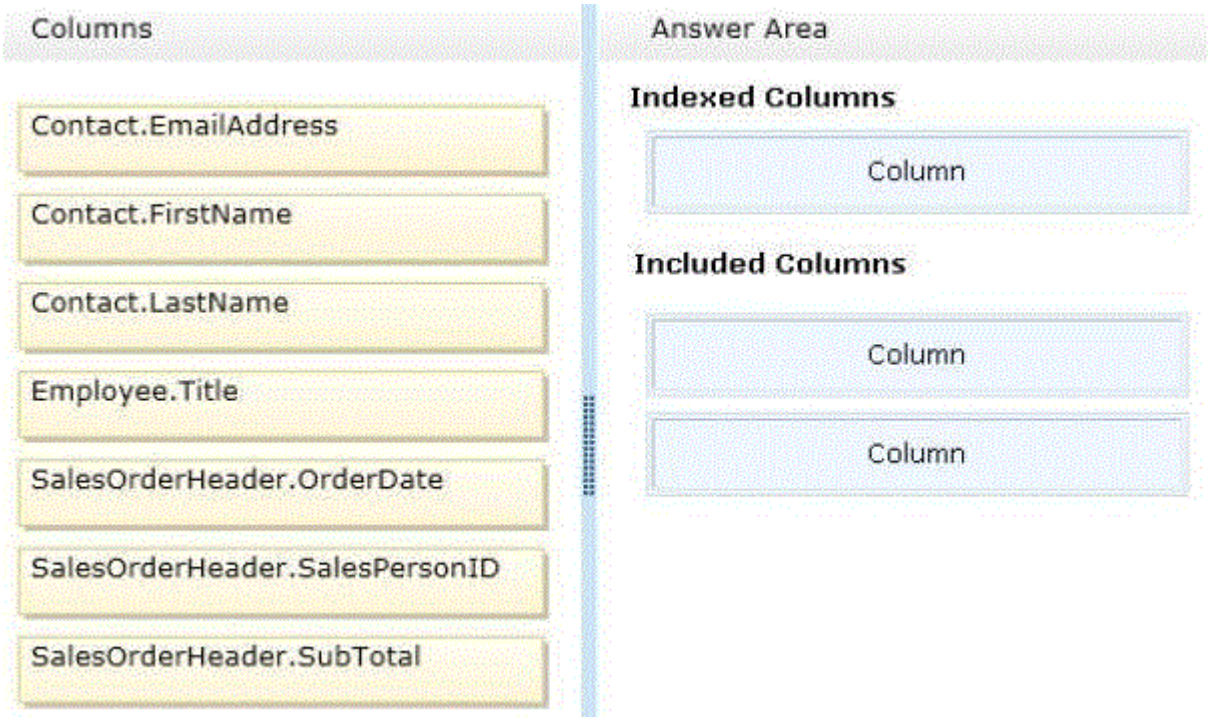
```
SELECT soh.SalesPersonID,
  c.FirstName + ' ' + c.LastName AS FullName,
  c.EmailAddress,
  e.Title,
  soh.SubTotal,
  YEAR(soh.OrderDate) AS Year
FROM SalesOrderHeader soh
  INNER JOIN Employee e
    ON soh.SalesPersonID = e.EmployeeID
  INNER JOIN Contact c
    ON e.ContactID = c.ContactID
WHERE soh.OrderDate >= '1/1/2012'
```

The execution plan for the query is shown in the exhibit. (Click the Exhibit button.)

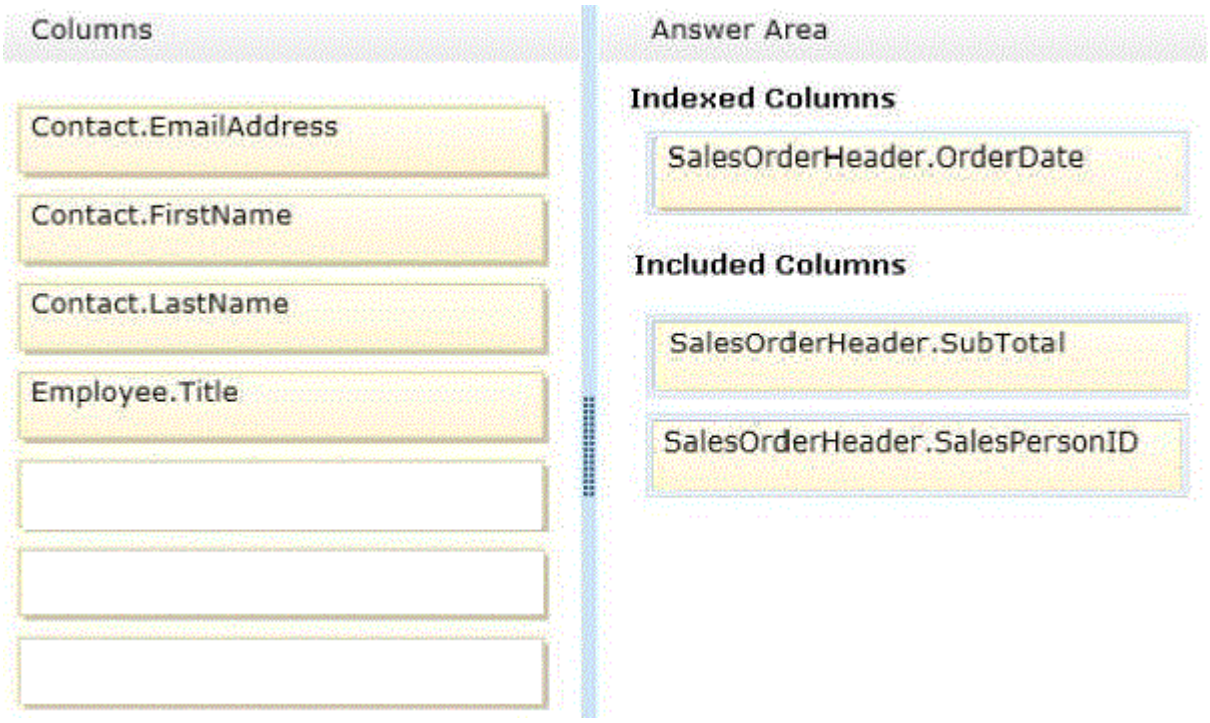


You need to create one index to minimize the amount of time it takes to execute the query. What should you do? To answer, drag the appropriate columns to the correct locations in the answer area. (Answer choices may be used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

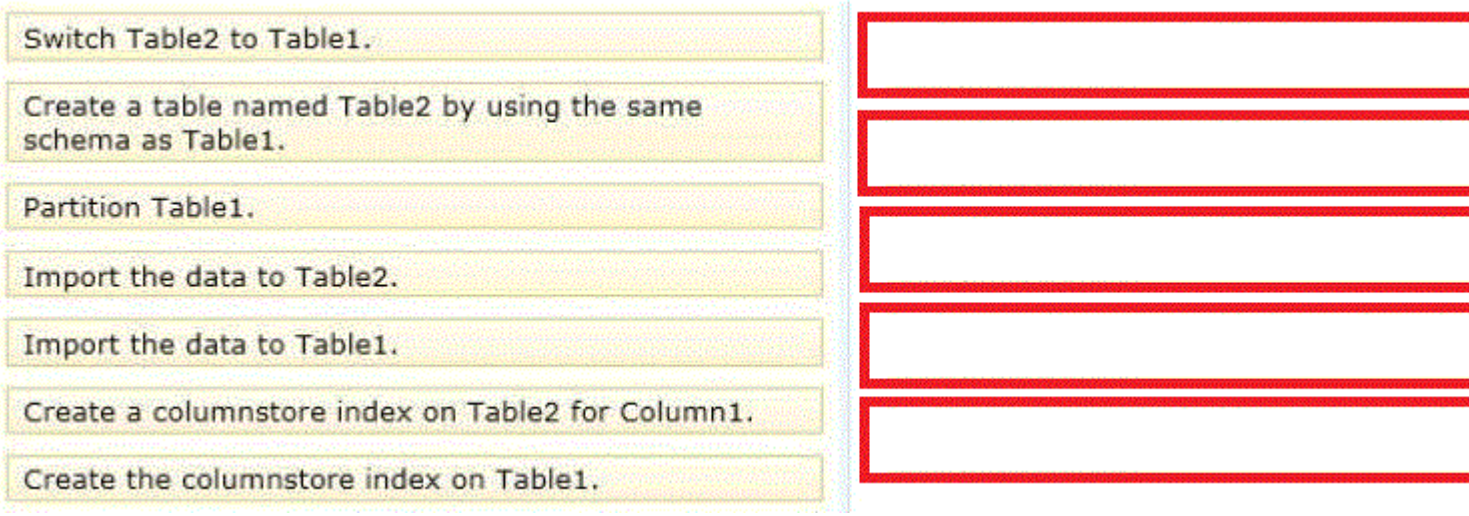
Explanation/Reference:

QUESTION 37
You have a table named Table1. Table1 has 1 million rows.

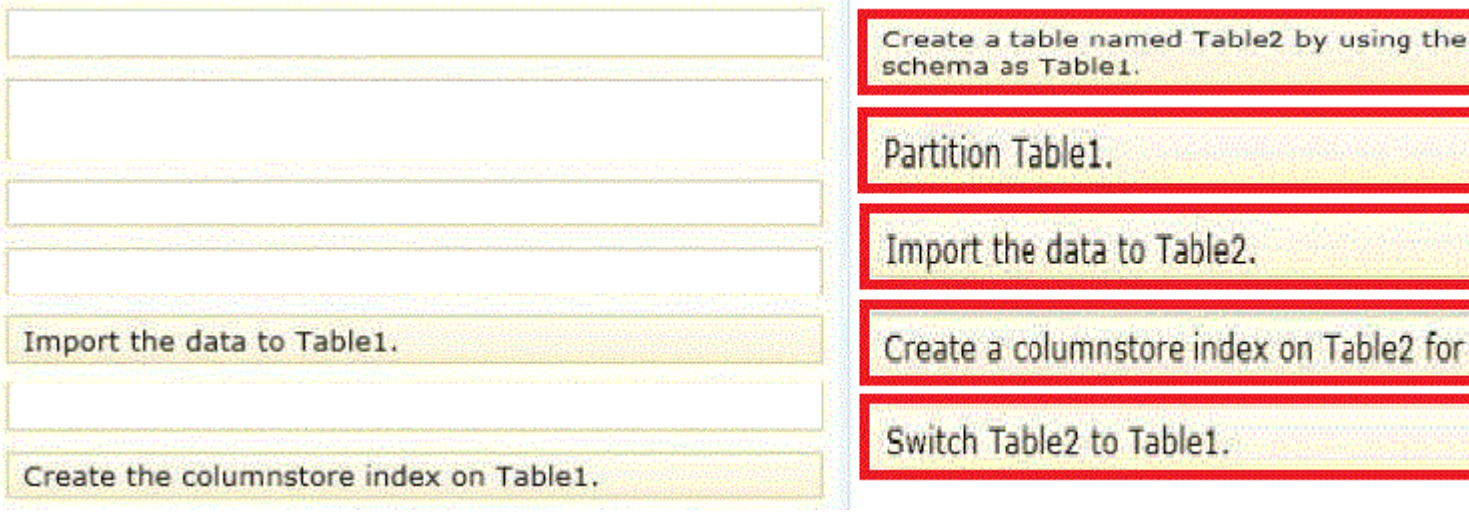
Table1 has a columnstore index for a column named Column1.
You need to import data to Table1. The solution must minimize the amount of time it takes to import the data.

What should you do? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

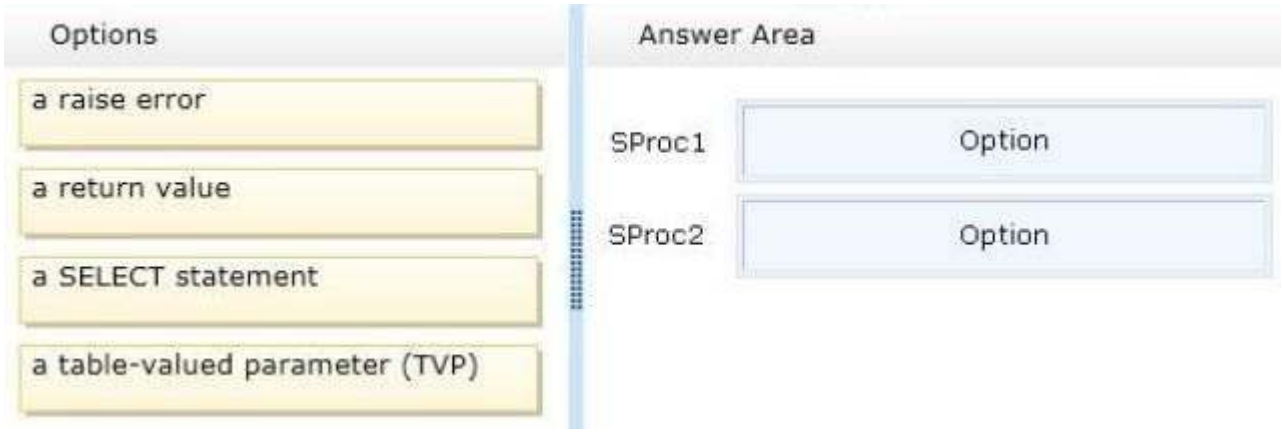
QUESTION 38
You are planning two stored procedures named SProc1 and SProc2. You identify the following requirements:

- SProc1 must return a table.
- SProc2 must return a status code.

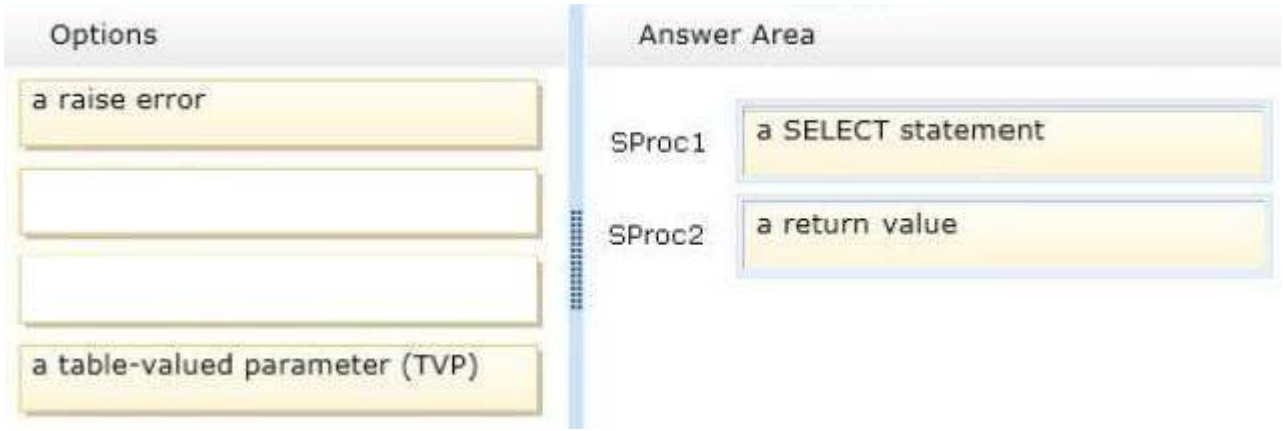
You need to identify which options must be implemented to meet each stored procedure requirement. Which options should you identify?
To answer, drag the appropriate option to the correct requirement in the answer area. (Answer choices may be

used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

QUESTION 39
You have a table named Customers that has a clustered index defined on the ID column. You write a script to create a stored procedure. You need to complete the script for the stored procedure. The solution must minimize the number of locks and deadlocks. What should you do? To answer, drag the appropriate option to the correct location in the answer area. (Answer choices may be used once, more than once, or not at all.)

Select and Place:

READ COMMITED

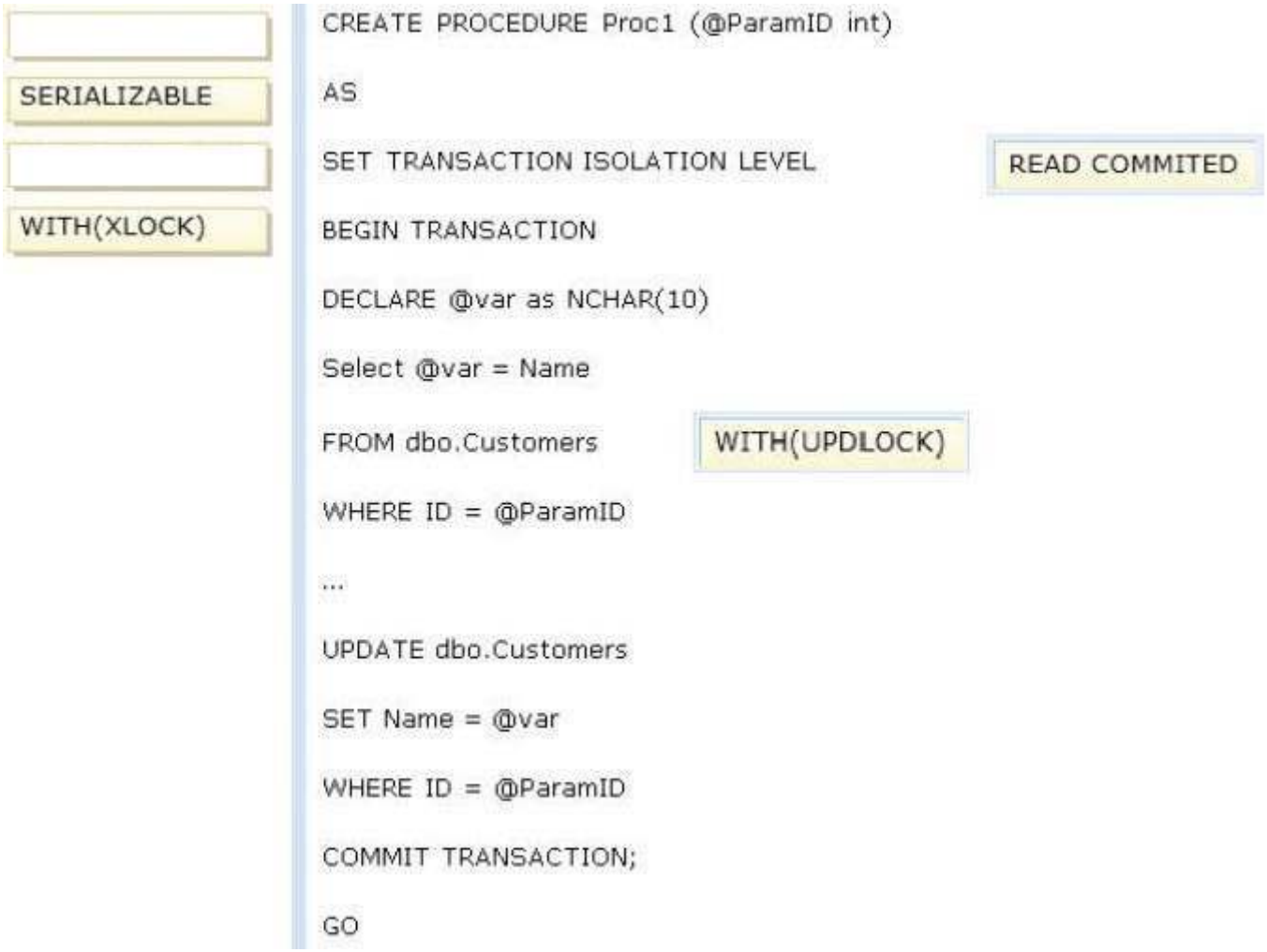
SERIALIZABLE

WITH(UPDLOCK)

WITH(XLOCK)

```
CREATE PROCEDURE Proc1 (@ParamID int)

AS

SET TRANSACTION ISOLATION LEVEL

BEGIN TRANSACTION

DECLARE @var as NCHAR(10)

Select @var = Name

FROM dbo.Customers

WHERE ID = @ParamID

...

UPDATE dbo.Customers

SET Name = @var

WHERE ID = @ParamID

COMMIT TRANSACTION;

GO
```

Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

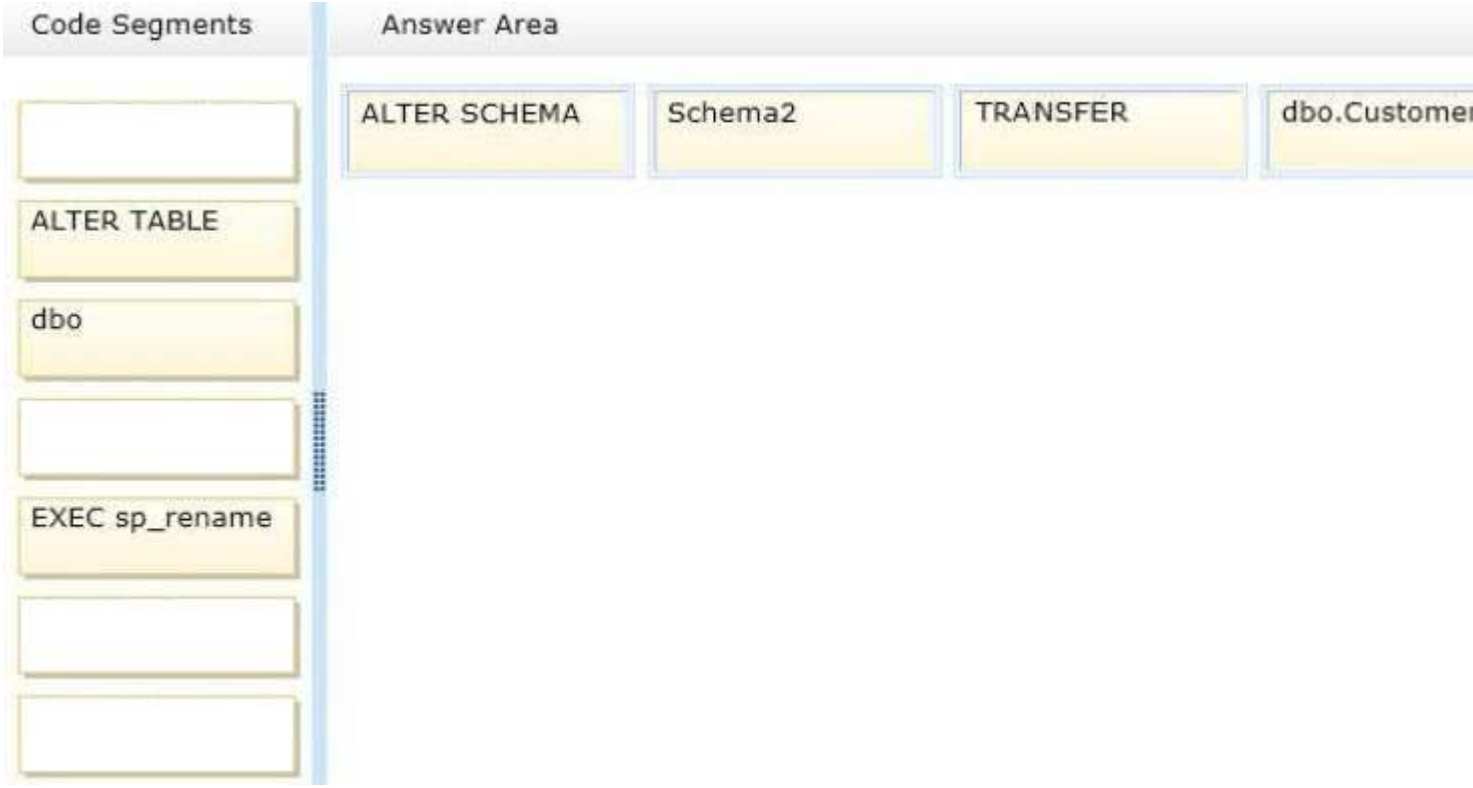
QUESTION 40
You execute the following code:

```
CREATE TABLE Customers
(
  id int primary key,
  name nchar(10)
)
GO
```

You discover that the Customers table was created in the dbo schema. You need to create a code segment to move the table to another schema named Schema2. What should you create? To answer, drag the appropriate code segments to the correct location in the answer area. (Answer choices may be used once, more than once, or not at all.)

Select and Place:

Correct Answer:



Section: (none)
Explanation

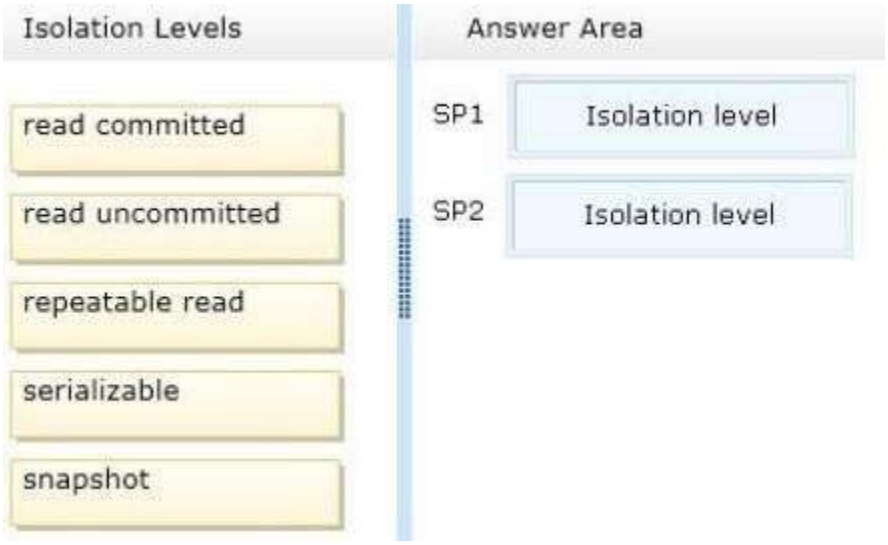
Explanation/Reference:

QUESTION 41
You plan to deploy two stored procedures named SP1 and SP2 that read data from the database. Your company identifies the following requirements for each stored procedure:

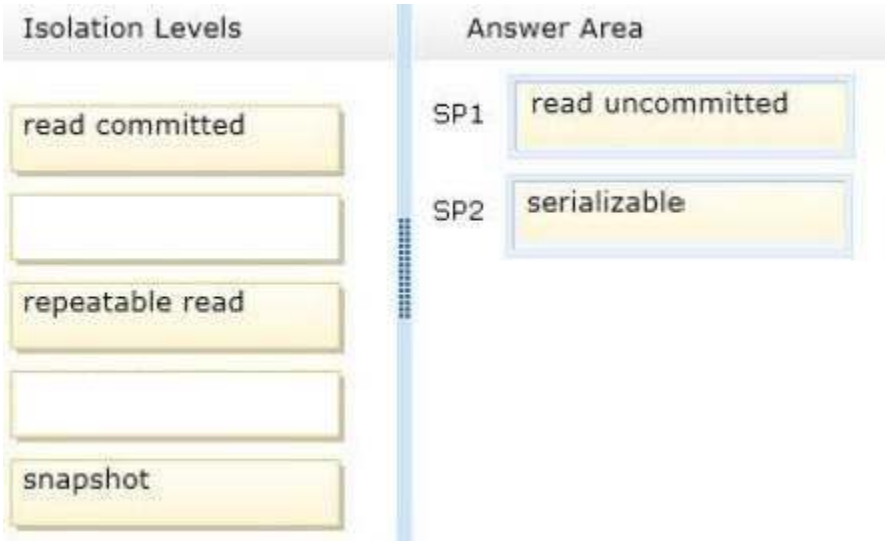
• SP1 must allow dirty reads.
• SP2 must place range locks on the data to ensure read consistency.

You need to identify which isolation level you must set for each stored procedure. The solution must minimize the number of locks. Which isolation level should you identify? To answer, drag the appropriate isolation level to the correct stored procedure in the answer area. (Answer choices may be used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

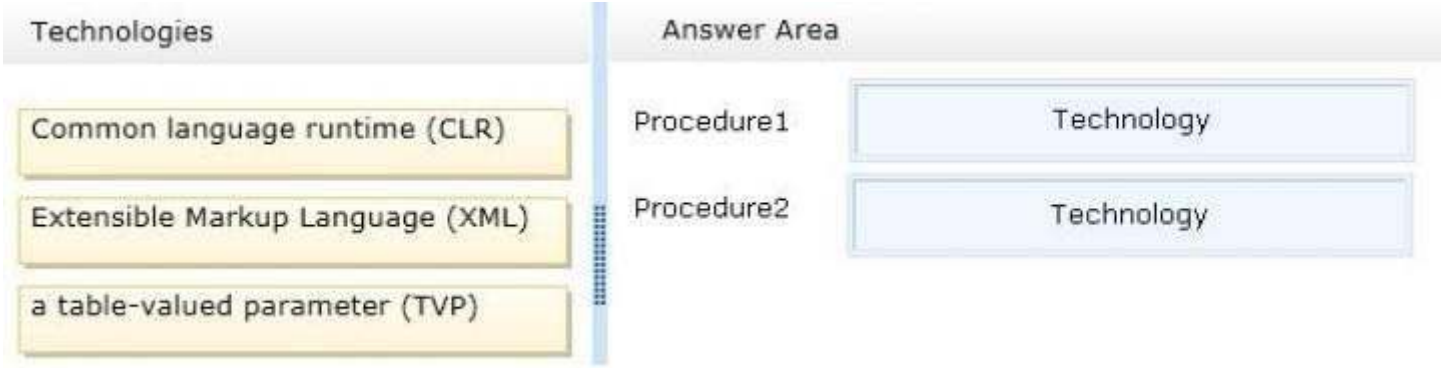
Explanation/Reference:

QUESTION 42
You are designing two stored procedures named Procedure1 and Procedure2.
You identify the following requirements:

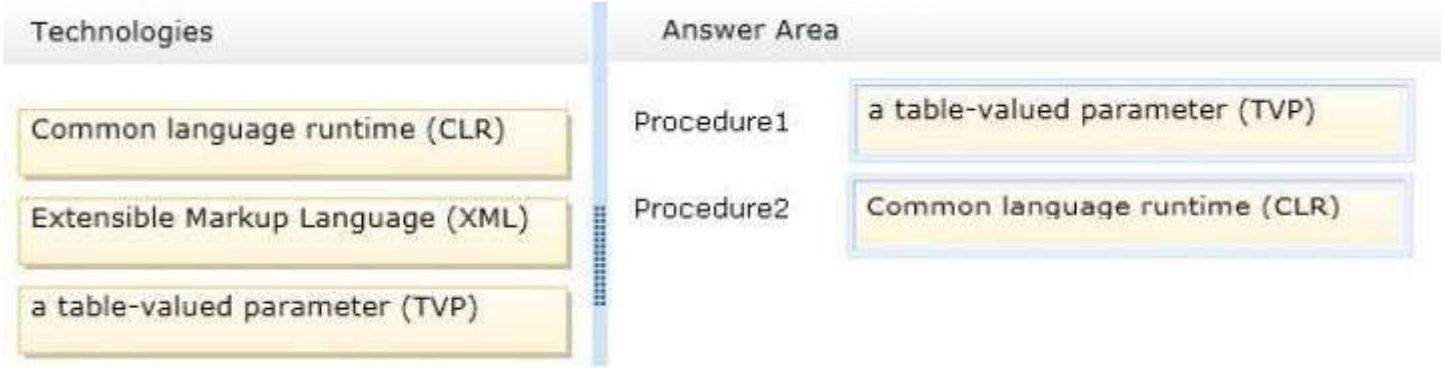
• Procedure1 must take a parameter that ensures that multiple rows of data can pass into the stored procedure.
• Procedure2 must use business logic that resides in a Microsoft .NET Framework assembly.

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

Select and Place:



Correct Answer:



Section: (none)
Explanation

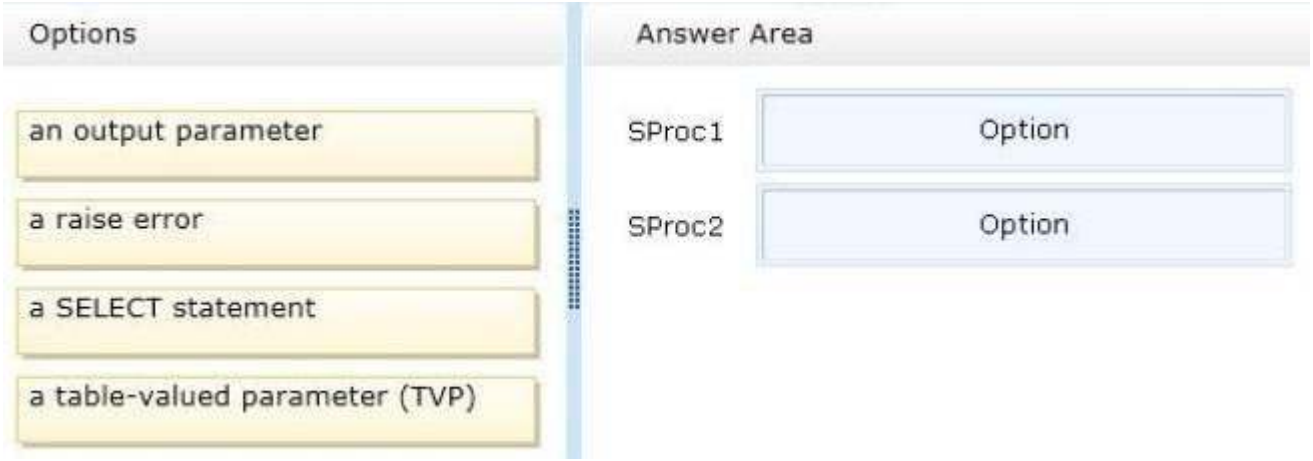
Explanation/Reference:

QUESTION 43
You are planning two stored procedures named SProc1 and SProc2.
You identify the following requirements:

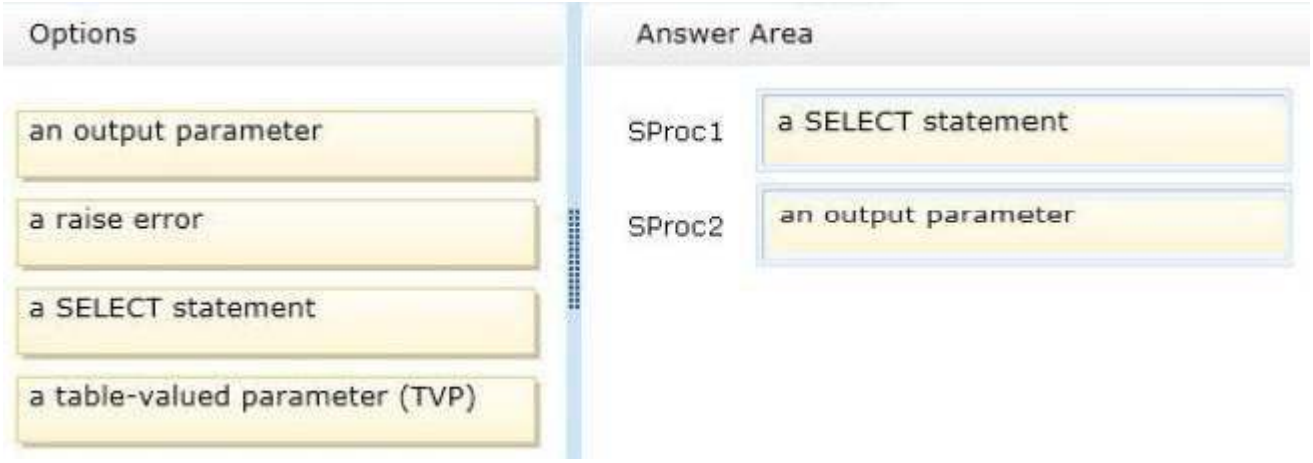
- SProc1 must return a table.
- SProc2 must return a scalar value.

You need to identify which option must be implemented for each stored procedure to return the desired data.
Which options should you identify?
To answer, drag the appropriate option to the correct requirement in the answer area. (Answer choices may be used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

QUESTION 44
You have a table named Table1 that contains 1 million rows. Table1 contains a column named Column1 that stores sensitive information. Column1 uses the nvarchar(16) data type. You have a certificate named Cert1. You need to replace Column1 with a new encrypted column named Column2 that uses one-way hashing. Which code segment should you execute before you remove Column1? To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.

Select and Place:

```
OPEN SYMETRIC KEY Key1
DECRYPTION BY CERTIFICATE Cert1;
```

```
CREATE SYMETRIC KEY Key1 WITH ALGORITHM = SHA1
ENCRYPTION BY CERTIFICATE Cert1;
```

```
ALTER TABLE Table1
ADD Column2 nvarchar(256);
```

```
ALTER TABLE Table1
ADD Column2 varbinary(256);
```

```
CLOSE SYMETRIC KEY;
GO
```

```
CREATE CREDENTIAL Cred1 WITH IDENTITY =
'User1', SECRET = 'P@ssw0rd';
```

```
UPDATE table1 SET Column2 = EncryptByKey
(Key_GUID('Key1'), Column1);
```

```
CREATE SYMETRIC KEY Key1 WITH ALGORITHM =
AES_256 ENCRYPTION BY CERTIFICATE Cert1;
```

Correct Answer:

```
CREATE SYMETRIC KEY Key1 WITH ALG
ENCRYPTION BY CERTIFICATE Cert1;
```

```
ALTER TABLE Table1
ADD Column2 varbinary(256);
```

```
OPEN SYMETRIC KEY Key1
DECRYPTION BY CERTIFICATE Cert1;
```

```
UPDATE table1 SET Column2 = Encry
(Key_GUID('Key1'), Column1);
```

```
ALTER TABLE Table1
ADD Column2 nvarchar(256);
```

```
CLOSE SYMETRIC KEY;
GO
```

```
CREATE CREDENTIAL Cred1 WITH IDENTITY =
'User1', SECRET = 'P@ssw0rd';
```

```
CREATE SYMETRIC KEY Key1 WITH ALGORITHM =
AES_256 ENCRYPTION BY CERTIFICATE Cert1;
```

Section: (none)
Explanation

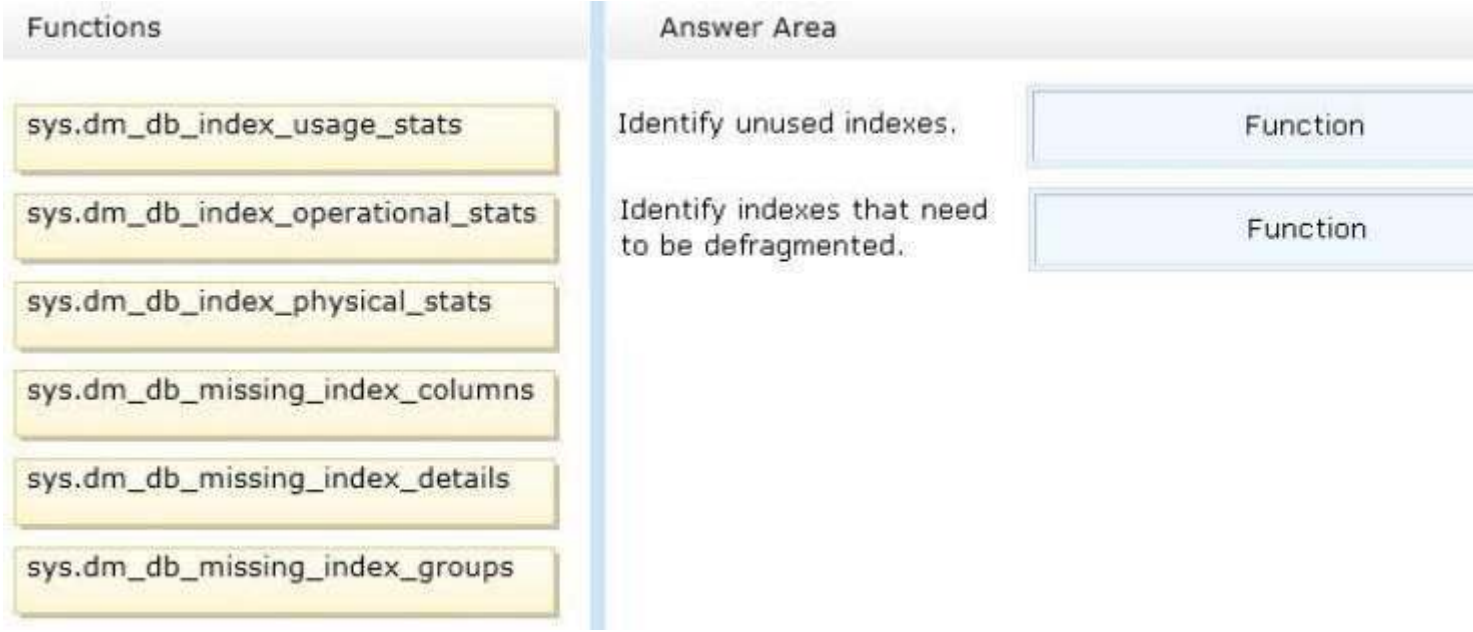
Explanation/Reference:
Encryption: http://technet.microsoft.com/en-us/library/bb510663.aspx

QUESTION 45
You have a database named database1. Each table in database1 has one index per column.
Users often report that creating items takes a long time. You need to perform the following maintenance tasks:

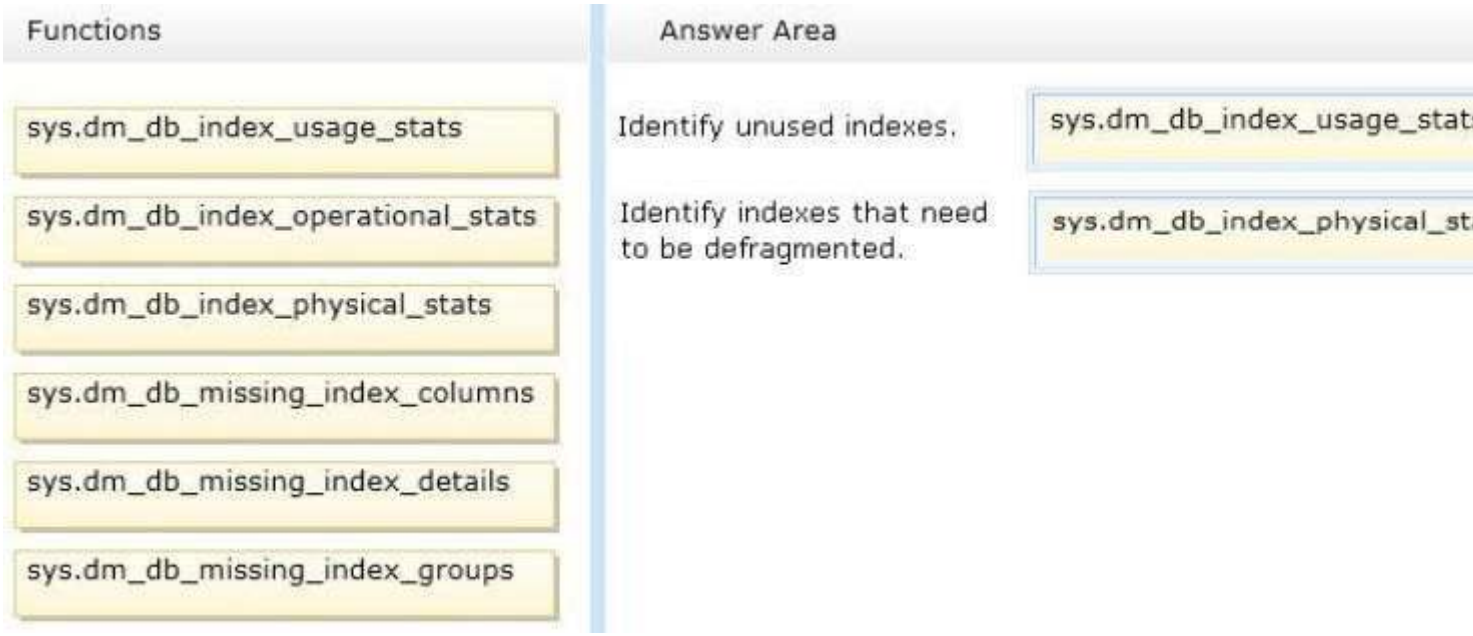
• Identify unused indexes.
• Identify indexes that need to be defragmented.

What should you use?
To answer, drag the appropriate function to the correct management task in the answer area.
(Answer choices may be used once, more than once, or not at all.)

Select and Place:



Correct Answer:



Section: (none)
Explanation

Explanation/Reference:

QUESTION 46
You have a SQL Server 2012 database named database1.Databaset has a data file named database1_data.mdf and a transaction log file named database1_log.ldf. Database1_data.mdf is 1.5 GB. Database1_log.ldf is 1.5 terabytes.
A full backup of Database1 is performed every day.
You need to reduce the size of the log file. The solution must ensure that you can perform transaction log backups in the future.
Which code segment should you execute?
To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.

Select and Place:

`CREATE ASSEMBLY TaxCalc FROM 'c:\temp\TreyTax.DLL'`	
`EXEC SP_CONFIGURE 'clr enabled', '1';`	

`CREATE FUNCTION Accounting.Amortize(`
`  @total decimal(8,2),@period int`
`  )RETURNS decimal(8,2)`
`AS EXTERNAL NAME TaxCalc.TreyResearch.Amortize;`	

`EXEC sp_recompile @objname = 'TaxCalc'`	
`CREATE ASSEMBLY TaxCalc FROM 'C:\temp\Amortize.cs';`	
`RECONFIGURE;`	

Correct Answer:

	CREATE ASSEMBLY Tax
EXEC SP_CONFIGURE 'clr enabled', '1';	CREATE FUNCTION Acc @total decimal(8,)RETURNS decimal(AS EXTERNAL NAME Ta
	EXEC sp_recompile @
	CREATE ASSEMBLY Tax
RECONFIGURE;	

Section: (none)
Explanation

Explanation/Reference:

QUESTION 47
You have a table named Table1 that contains 1 million rows. Table1 contains a column named Column1 that stores sensitive information. Column1 uses the nvarchar(16) data type. You have a certificate named Cert1. You need to replace Column1 with a new encrypted column that uses two-way encryption. Which code segment should you execute before you remove Column1? To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.

Select and Place:

```
CREATE SYMMETRIC KEY Key1 WITH ALGORITHM =
SHA1
ENCRYPTION BY CERTIFICATE Cert1;
```

```
ALTER TABLE Table1
ADD Column2 nvarchar(256);
```

```
OPEN SYMMETRIC KEY Key1
DECRYPTION BY CERTIFICATE Cert1;
```

```
ALTER TABLE Table1
ADD Column2 varbinary(256);
```

```
UPDATE table1 SET Column2 = EncryptByKey
(Key_GUID('Key1'),Column1);
```

```
CREATE CREDENTIAL Cred1 WITH IDENTITY =
'User1', SECRET = 'P@ssw0rd';
```

```
CREATE SYMMETRIC KEY Key1 WITH ALGORITHM =
AES_256
ENCRYPTION BY CERTIFICATE Cert1;
```

```
CLOSE SYMMETRIC KEY;
```

Correct Answer:

`CREATE SYMMETRIC KEY Key1 WITH ALGORITHM = SHA1 ENCRYPTION BY CERTIFICATE Cert1;`	`CREATE SYMMETRIC KEY Key1 WITH ALGORITHM = AES_256 ENCRYPTION BY CERTIFICATE Cert1;`
`ALTER TABLE Table1 ADD Column2 nvarchar(256);`	`ALTER TABLE Table1 ADD Column2 varbinary(256);`
	`OPEN SYMMETRIC KEY Key1 DECRYPTION BY CERTIFICATE Cert1;`
	`UPDATE table1 SET Column2 = EncryptByKey (Key_GUID('Key1'),Column1);`
`CREATE CREDENTIAL Cred1 WITH IDENTITY = 'User1', SECRET = 'P@ssw0rd';`	
`CLOSE SYMMETRIC KEY;`	

Section: (none)
Explanation

Explanation/Reference:

Case Studies

QUESTION 1

Case Study: 1
Scenario 1
Application Information

You have two servers named SQL1 and SQL2 that have SQL Server 2012 installed. You have an application that is used to schedule and manage conferences. Users report that the application has many errors and is very slow. You are updating the application to resolve the issues. You plan to create a new database on SQL1 to support the application. A junior database administrator has created all the scripts that will be used to create the database. The script that you plan to use to create the tables for the new database is shown in Tables.sql. The script that you plan to use to create the stored procedures for the new database is shown in StoredProcedures.sql. The script that you plan to use to create the indexes for the new database is shown in Indexes.sql. (Line numbers are included for reference only.) A database named DB2 resides on SQL2. DB2 has a table named SpeakerAudit that will audit changes to a table named Speakers.
A stored procedure named usp_UpdateSpeakersName will be executed only by other stored procedures. The stored procedures executing usp_UpdateSpeakersName will always handle transactions.
A stored procedure named usp_SelectSpeakersByName will be used to retrieve the names of speakers. Usp_SelectSpeakersByName can read uncommitted data. A stored procedure named usp_GetFutureSessions will be used to retrieve sessions that will occur in the future.

Procedures.sql

```
01 CREATE PROCEDURE usp_UpdateSpeakerName
02   @SpeakerID int,
03   @LastName nvarchar(100)
04 AS
05
06 BEGIN TRY
07
08 UPDATE Speakers
09 SET LastName = @LastName
10 WHERE SpeakerID = @SpeakerID;
11
12 INSERT INTO SQL2.DB2.dbo.SpeakerAudit(SpeakerID, LastName)
13 VALUES (@SpeakerID, @LastName);
14
15 END TRY
16 BEGIN CATCH
17
18 END CATCH;
19
20 GO
21
22 CREATE PROCEDURE usp_SelectSpeakersByName
23   @LastName nvarchar(100)
24 AS
25 SELECT SpeakerID,
26   FirstName,
27   LastName
28 FROM Speakers
29 WHERE LastName LIKE @LastName + '%'
30
31 GO
32
33 CREATE PROCEDURE usp_InsertSessions
34   @SessionData SessionDataTable READONLY
35 AS
36 INSERT INTO Sessions
37   (SpeakerID, Title, Absract, DeliveryTime, TitleAndSpeaker)
38 SELECT SpeakerID, Title, Absract, DeliveryTime, TitleAndSpeaker
39 FROM @SessionData;
40 GO
41
42 CREATE PROCEDURE usp_UpdateSessionRoom
43   @RoomID int,
44   @SpeakerID int
45 AS
46 SET TRANSACTION ISOLATION LEVEL SNAPSHOT
47 BEGIN TRANSACTION;
48
49 SELECT SessionID,
50   Title
```

```
51 FROM Sessions
52 WHERE SpeakerID = @SpeakerID;
53
54 UPDATE Sessions
55 SET RoomID = @RoomID
56 WHERE SpeakerID = @SpeakerID;
57
58 COMMIT TRANSACTION;
59
60 CREATE PROCEDURE usp_AttendeesReport
61   @LastName varchar(100)
62 AS
63 SELECT FirstName + ' ' + LastName AS FullName
64 FROM Attendees
65 WHERE LastName = @LastName;
66 GO
67
68 CREATE PROCEDURE usp_GetFutureSessions
69 AS
70 SELECT SpeakerID,
71   RoomID,
72   DeliveryTime
73 FROM Sessions
74
75 GO
76
77 CREATE PROCEDURE usp_TestSpeakers
78 AS
79 EXECUTE usp_SelectSpeakersByName 'a';
80 EXECUTE usp_SelectSpeakersByName 'an';
81 EXECUTE usp_SelectSpeakersByName 'and';
82 EXECUTE usp_SelectSpeakersByName 'ander';
83 EXECUTE usp_SelectSpeakersByName 'anderson';
84 EXECUTE usp_SelectSpeakersByName 'b';
85 EXECUTE usp_SelectSpeakersByName 'bi';
86 ...
87 EXECUTE usp_SelectSpeakersByName 'zzz';
88 GO
```

Indexes.sql

```
01 CREATE INDEX IX_Sessions ON Sessions
02 (SessionID, DeliveryTime)
03 INCLUDE (RoomID)
04
05 GO
06
07 CREATE INDEX IX_Speakers ON Speakers
08 (LastName);
09 GO
10
11 CREATE INDEX IX_Attendees_Name ON Attendees
12 (FirstName, LastName);
13
14 GO
15
16 CREATE INDEX IX_Attendees_Confirmed ON Attendees
17 (Confirmed);
18 GO
```

Tables.sql

```
01 CREATE DATABASE Conference;
02 GO
03
04 ALTER DATABASE Conference
05 SET READ_COMMITTED_SNAPSHOT ON;
06 GO
07
08 CREATE TABLE Attendees
09 (
10   AttendeeID int IDENTITY (1,1) NOT NULL,
11    FirstName nvarchar(100) NOT NULL,
12    LastName nvarchar(100) NOT NULL,
13    EmailAddress nvarchar(100) NOT NULL,
14
15    CONSTRAINT PK_Attendees_AttendeeID PRIMARY KEY (AttendeeID)
16 );
17 GO
18
19 CREATE TABLE Speakers
20 (
21   SpeakerID int IDENTITY(1,1) NOT NULL,
22    FirstName nvarchar(100) NOT NULL,
23    LastName nvarchar(100) NOT NULL,
24    Photo varbinary(max),
25    CONSTRAINT PK_Speakers_SpeakerID PRIMARY KEY (SpeakerID)
26 );
27 GO
28
29 CREATE TABLE Sessions
30 (
31   SessionID uniqueidentifier NOT NULL
32     CONSTRAINT DF_SessionID DEFAULT (NEWID()),
33    SpeakerID int NOT NULL,
34    Title nvarchar(100) NOT NULL,
35    Abstract nvarchar(max) NOT NULL,
36    DeliveryTime datetime NOT NULL,
37    TitleAndSpeaker nvarchar(200)
38
39 );
40 GO
41
42 CREATE TABLE Rooms
43 (
44    RoomID uniqueidentifier NOT NULL CONSTRAINT DF_RoomID DEFAULT (NEW
45     Location varchar(100) NOT NULL
46 );
```

You need to recommend a solution to ensure that SQL1 supports the auditing requirements of usp_UpdateSpeakerName. What should you include in the recommendation?

A. the Distributed Transaction Coordinator (DTC)
B. transactional replication
C. change data capture
D. change tracking

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 2
You need to modify usp_SelectSpeakersByName to support server-side paging. The solution must minimize the amount of development effort required. What should you add to usp_SelectSpeakersByName?

Procedures.sql

```
22 CREATE PROCEDURE usp_SelectSpeakersByName
23   @LastName nvarchar(100)
24 AS
25 SELECT SpeakerID,
26   FirstName,
27   LastName
28 FROM Speakers
29 WHERE LastName LIKE @LastName + '%'
30
31 GO
```

A. an OFFSET-FETCH clause
B. a table variable
C. the ROWNUMBER keyword
D. a recursive common table expression

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 3
You are evaluating the table design.
You need to recommend a change to Tables.sql that reduces the amount of time it takes for usp_AttendeesReport to execute.

What should you add at line 14 of Tables.sql?

Tables.sql

```
08 CREATE TABLE Attendees
09 (
10   AttendeeID int IDENTITY (1,1) NOT NULL,
11    FirstName nvarchar(100) NOT NULL,
12    LastName nvarchar(100) NOT NULL,
13    EmailAddress nvarchar(100) NOT NULL,
14
15    CONSTRAINT PK_Attendees_AttendeeID PRIMARY KEY (AttendeeID)
16 );
17 GO
```

Procedures.sql

```
60 CREATE PROCEDURE usp_AttendeesReport
61   @LastName varchar(100)
62 AS
63 SELECT FirstName + ' ' + LastName AS FullName
64 FROM Attendees
65 WHERE LastName = @LastName;
66 GO
67
68 CREATE PROCEDURE usp_GetFutureSessions
69 AS
70 SELECT SpeakerID,
71   RoomID,
72   DeliveryTime
73 FROM Sessions
74
75 GO
```

A. `FullName nvarchar(100) NOT NULL DEFAULT (dbo.CreateFullName(FirstName, LastName)),`

B. `FullName AS (FirstName + ' ' + LastName),`

C. `FullName nvarchar(100) NOT NULL CONSTRAINT DF_FullName DEFAULT (dbo.CreateFullName (FirstName, LastName)),`

D. `FullName AS (FirstName + ' ' + LastName) PERSISTED,`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 4
You need to provide referential integrity between the Sessions table and Speakers table. Which code segment should you add at line 47 of Tables.sql?

Tables.sql

```
19 CREATE TABLE Speakers
20 (
21   SpeakerID int IDENTITY(1,1) NOT NULL,
22    FirstName nvarchar(100) NOT NULL,
23    LastName nvarchar(100) NOT NULL,
24    Photo varbinary(max),
25    CONSTRAINT PK_Speakers_SpeakerID PRIMARY KEY (SpeakerID)
26 );
27 GO
28
29 CREATE TABLE Sessions
30 (
31   SessionID uniqueidentifier NOT NULL
32     CONSTRAINT DF_SessionID DEFAULT (NEWID()),
33    SpeakerID int NOT NULL,
34    Title nvarchar(100) NOT NULL,
35    Abstract nvarchar(max) NOT NULL,
36    DeliveryTime datetime NOT NULL,
37    TitleAndSpeaker nvarchar(200)
38
39 );
40 GO
```

A.
```
ALTER TABLE dbo.Speakers ADD CONSTRAINT
FK_Speakers_Sessions FOREIGN KEY (SpeakerID)
REFERENCES dbo.Sessions (SessionID);
```

B.
```
ALTER TABLE dbo.Sessions ADD CONSTRAINT
FK_Sessions_Speakers FOREIGN KEY (SessionID)
REFERENCES dbo.Speakers (SpeakerID);
```

C.
```
ALTER TABLE dbo.Sessions ADD CONSTRAINT
FK_Sessions_Speakers FOREIGN KEY (SpeakerID)
REFERENCES dbo.Speakers (SpeakerID);
```

D.
```
ALTER TABLE dbo.Speakers ADD CONSTRAINT
FK_Speakers_Sessions FOREIGN KEY (SessionID)
REFERENCES dbo.Sessions (SessionID);
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 5
You need to add a new column named Confirmed to the Attendees table. The solution must meet the following requirements:

• Have a default value of false.
• Minimize the amount of disk space used.

Which code block should you use?

Tables.sql

```
08 CREATE TABLE Attendees
09 (
10   AttendeeID int IDENTITY (1,1) NOT NULL,
11    FirstName nvarchar(100) NOT NULL,
12    LastName nvarchar(100) NOT NULL,
13    EmailAddress nvarchar(100) NOT NULL,
14
15    CONSTRAINT PK_Attendees_AttendeeID PRIMARY KEY (AttendeeID)
16 );
17 GO
```

A.
```
ALTER TABLE Attendees
ADD Confirmed bit DEFAULT 1;
```

B.
```
ALTER TABLE Attendees
ADD Confirmed bit DEFAULT 0;
```

C.
```
ALTER TABLE Attendees
ADD Confirmed char(1) DEFAULT '1';
```

D.
```
ALTER TABLE Attendees
ADD Confirmed char(1) DEFAULT '0';
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 6
You execute usp_TestSpeakers. You discover that usp_SelectSpeakersByName uses inefficient execution plans.
You need to update usp_SelectSpeakersByName to ensure that the most efficient execution plan is used.

What should you add at line 30 of Procedures.sql?

Procedures.sql

```
77 CREATE PROCEDURE usp_TestSpeakers
78 AS
79 EXECUTE usp_SelectSpeakersByName 'a';
80 EXECUTE usp_SelectSpeakersByName 'an';
81 EXECUTE usp_SelectSpeakersByName 'and';
82 EXECUTE usp_SelectSpeakersByName 'ander';
83 EXECUTE usp_SelectSpeakersByName 'anderson';
84 EXECUTE usp_SelectSpeakersByName 'b';
85 EXECUTE usp_SelectSpeakersByName 'bi';
86 ...
87 EXECUTE usp_SelectSpeakersByName 'zzz';
88 GO
```

```
22 CREATE PROCEDURE usp_SelectSpeakersByName
23   @LastName nvarchar(100)
24 AS
25 SELECT SpeakerID,
26   FirstName,
27   LastName
28 FROM Speakers
29 WHERE LastName LIKE @LastName + '%'
30
31 GO
```

A. OPTION (FORCESCAN)
B. OPTION (FORCESEEK)
C. OPTION (OPTIMIZE FOR UNKNOWN)
D. OPTION (OPTIMIZE FOR (@lastName = 'Anderson'))

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 7

Case Study: 2
Scenario 2
All Information

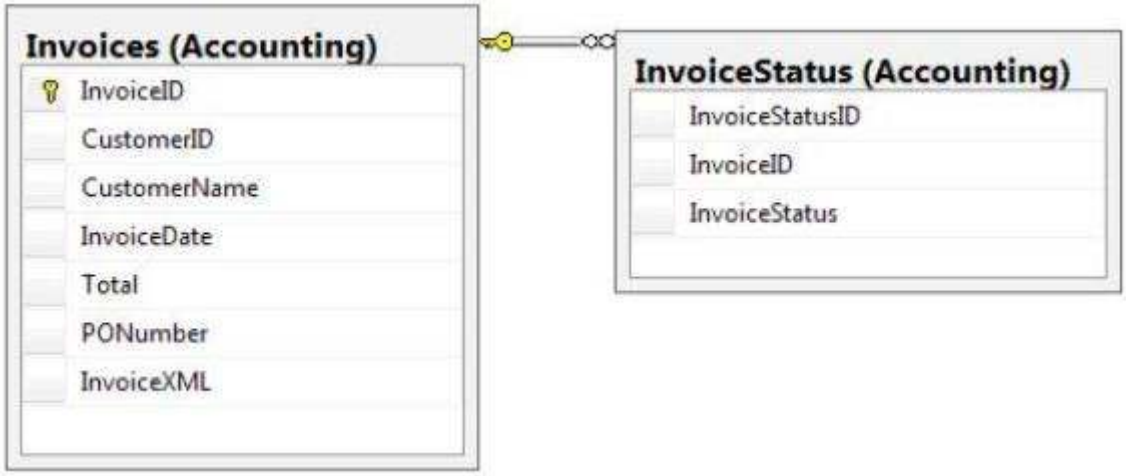
Your company receives invoices in XML format from customers. Currently, the invoices are stored as files and processed by a desktop application. The application has several performance and security issues. The application is being migrated to a SQL Server-based solution. A schema named InvoiceSchema has been created for the invoices xml.

The data in the invoices is sometimes incomplete. The incomplete data must be stored and processed as-is. Users cannot filter the data provided through views.

You are designing a SQL Server database named DB1 that will be used to receive, process, and securely store the invoice data. A third-party Microsoft .NET Framework component will be purchased to perform tax calculations. The third-party tax component will be provided as a DLL file named Treytax.dll and a source code

file named Amortize.cs. The component will expose a class named TreyResearch and a method named Amortize(). The files are located in c:\temp\.

The following graphic shows the planned tables:



You have a sequence named Accounting.InvoiceID_Seq.

You plan to create two certificates named CERT1 and CERT2. You will create CERT1 in master. You will create CERT2 in DB1. You have a legacy application that requires the ability to generate dynamic T-SQL statements against DB1. A sample of the queries generated by the legacy application appears in Legacy.sql.

Application Requirements

The planned database has the following requirements:
• All stored procedures must be signed.
• The original XML invoices must be stored in the database.
• An XML schema must be used to validate the invoice data.
• Dynamic T-SQL statements must be converted to stored procedures.
• Access to the .NET Framework tax components must be available to T-SQL objects.
• Columns must be defined by using data types that minimize the amount of space used by each table.
• Invoices stored in the InvoiceStatus table must refer to an invoice by the same identifier used by the Invoice table.
• To protect against the theft of backup disks, invoice data must be protected by using the highest level of encryption.
• The solution must provide a table-valued function that provides users with the ability to filter invoices by customer.
• Indexes must be optimized periodically based on their fragmentation by using the minimum amount of administrative effort.

usp_InsertInvoices.sql

```
01 CREATE PROCEDURE InsertInvoice @XML nvarchar(1000)
02 AS
03 DECLARE @XmlDocumentHandle INT;
04 DECLARE @XmlDocument nvarchar(1000);
05 SET @XmlDocument = @XML;
06
07 EXEC sp_xml_preparedocument @XmlDocumentHandle OUTPUT, @XmlDocument;
08
09 INSERT INTO DB1.Accounting.Invoices (
10   InvoiceID,
11   InvoiceXML,
12   CustomerID,
13   CustomerName,
14   InvoiceDate,
15   Total,
16   PONumber
17 )
18 SELECT (NEXT VALUE FOR Accounting.InvoiceID_Seq),
19   @XML, * FROM OPENXML (@XmlDocumentHandle, '/Invoice',2)
20   WITH (
21     CustomerID nvarchar(11) 'Customer/@ID',
22     CustomerName nvarchar(50) 'Customer/@Name',
23     InvoiceDate date 'InvoiceDate',
24     Total decimal(8, 2) 'Total',
25     PONumber bigint 'PONumber'
26   );
27
28 EXEC sp_xml_removedocument @XmlDocumentHandle;
```

Invoices.xml

All customer IDs are 11 digits. The first three digits of a customer ID represent the customer's country. The remaining eight digits are the customer's account number. The following is a sample of a customer invoice in XML format:

```
01 <?xml version="1.0"?>
29 <Invoice InvoiceDate="2012-02-20">
30   <Customer ID="00156590099" Name="Litware" />
31   <Total>125</Total>
32   <PONumber>1666</PONumber>
33 </Invoice>
```

InvoiceByCustomer.sql

```
01 (SELECT CustomerID,
34   CustomerName,
35   InvoiceID,
36   InvoiceDate,
37   Total,
38   PONumber
39   FROM Accounting.Invoices
40   WHERE CustomerID=@CustID);
```

Legacy.sql

Legacy.sql

```
01 DECLARE @sqlstring AS nvarchar(1000);
41 DECLARE @CustomerID AS varchar(11), @Total AS decimal(8,2);
42
43 SET @sqlstring=N'SELECT CustomerID, InvoiceID, Total
44   FROM Accounting.Invoices
45   WHERE CustomerID=@CustomerID AND Total > @Total;';
46
47 EXEC sys.sp_executesql
48   @statement=@sqlstring,
49   @params=N'@CustomerID AS varchar(11), @Total AS decimal(8,2)',
50   @CustomerID=999, @Total=500;
```

CountryFromID.sql

```
01 CREATE FUNCTION CountryFromID (@CustomerID varchar(11)) RETURNS varcha
51 AS
52 BEGIN
53   DECLARE @Country varchar(20);
54   SET @CustomerID = LEFT(@CustomerID,3);
55   SELECT @Country = CASE @CustomerID
56     WHEN '001'
57       THEN 'United States'
58     WHEN '002'
59       THEN 'Spain'
60     WHEN '003'
61       THEN 'Japan'
62     WHEN '004'
63       THEN 'China'
64     WHEN '005'
65       THEN 'Brazil'
66     ELSE 'Other'
67   END;
68   RETURN @CustomerID;
69 END;
```

IndexManagement.sql

```
01 DECLARE @IndexTable TABLE (
70   TableName varchar(100), IndexName varchar(100), Fragmentation int, R
71   );
72 DECLARE @TableName sysname, @IndexName sysname, @Fragmentation int,
73   @RowNumber int, @sqlcommand varchar(1000);
74
75 INSERT INTO @IndexTable (TableName, IndexName, Fragmentation, Rownumbe
76   SELECT OBJECT_NAME(i.Object_id),
77     i.name AS IndexName,
78     indexstats.avg_fragmentation_in_percent,
79     ROW_NUMBER() OVER(ORDER BY i.name DESC) AS 'RowNumber'
80   FROM sys.dm_db_index_physical_stats(DB_ID(), NULL, NULL, NULL, 'DETA
81     AS indexstats INNER JOIN sys.indexes AS i
82     ON i.OBJECT_ID = indexstats.OBJECT_ID AND i.index_id = indexstats.
83
84 DECLARE @counter int = 0;
85
86 WHILE @counter < (SELECT RowNumber FROM @indextable)
87   BEGIN
88     SET @counter = @counter + 1;
89     WITH t AS (
90       SELECT TableName, IndexName, Fragmentation
91       FROM @IndexTable WHERE RowNumber = @counter
92       )
93     SELECT
94       @TableName= TableName,
95       @IndexName = IndexName,
96       @Fragmentation = Fragmentation
97     FROM t;
98
99     IF @Fragmentation <= 30
100       BEGIN
101         SET @sqlCommand =
102           N'ALTER INDEX '+@indexName+N' ON '+@TableName+N' REORGANIZE
103         EXEC sp_executesql @sqlCommand;
104       END;
105     ELSE
106       BEGIN
107         SET @sqlCommand=N'ALTER INDEX '+@indexName+N' ON '+@TableName
108         EXEC sp_executesql @sqlCommand;
109       END;
110     END;
```

You need to modify InsertInvoice to comply with the application requirements. Which code segment should you execute?

A. OPEN CERT1;
ALTER PROCEDURE Accounting.usp_AuthPayment
WITH ENCRYPTION;
CLOSE CERT1;

B. OPEN CERT2;
ALTER PROCEDURE Accounting,usp_AuthPayment
WITH ENCRYPTION;
CLOSE CERT2;

C. ADD SIGNATURE TO Accounting.usp_AuthPayment
BY CERTIFICATE CERT1;

D. ADD SIGNATURE TO Accounting.usp_AuthPayment
BY CERTIFICATE CERT2;

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 8
Which data type should you use for CustomerID?

usp_InsertInvoices.sql

```
01 CREATE PROCEDURE InsertInvoice @XML nvarchar(1000)
02 AS
03 DECLARE @XmlDocumentHandle INT;
04 DECLARE @XmlDocument nvarchar(1000);
05 SET @XmlDocument = @XML;
06
07 EXEC sp_xml_preparedocument @XmlDocumentHandle OUTPUT, @XmlDocument;
08
09 INSERT INTO DB1.Accounting.Invoices (
10   InvoiceID,
11   InvoiceXML,
12   CustomerID,
13   CustomerName,
14   InvoiceDate,
15   Total,
16   PONumber
17 )
18 SELECT (NEXT VALUE FOR Accounting.InvoiceID_Seq),
19   @XML, * FROM OPENXML (@XmlDocumentHandle, '/Invoice',2)
20   WITH (
21     CustomerID nvarchar(11) 'Customer/@ID',
22     CustomerName nvarchar(50) 'Customer/@Name',
23     InvoiceDate date 'InvoiceDate',
24     Total decimal(8, 2) 'Total',
25     PONumber bigint 'PONumber'
26   );
27
28 EXEC sp_xml_removedocument @XmlDocumentHandle;
```

A. varchar(11)
B. bigint
C. nvarchar(11)
D. char(11)

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 9
You need to modify the function in CountryFromID.sql to ensure that the country name is returned instead of the country ID. Which line of code should you modify in CountryFromID.sql?

CountryFromID.sql

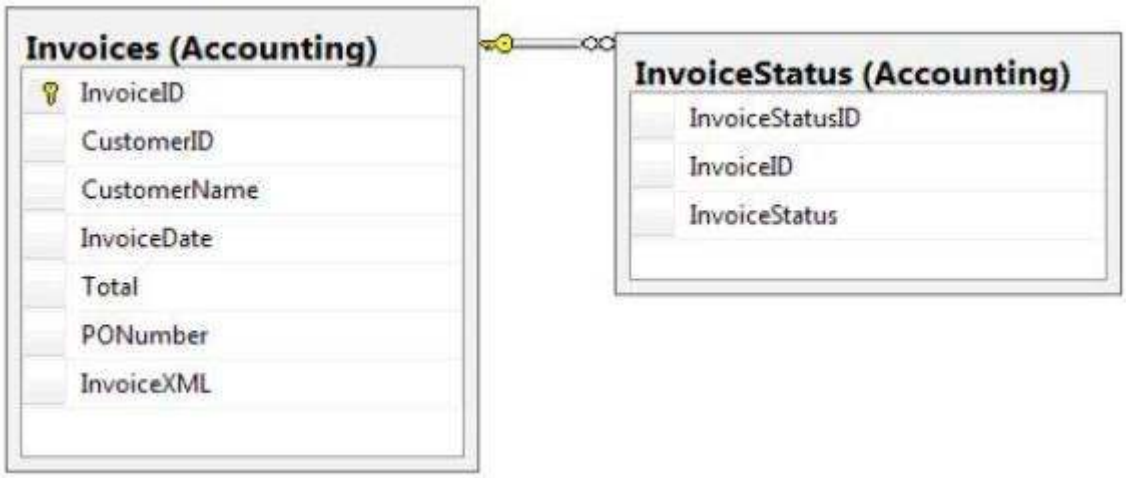
```
01 CREATE FUNCTION CountryFromID (@CustomerID varchar(11)) RETURNS varcha
51 AS
52 BEGIN
53   DECLARE @Country varchar(20);
54   SET @CustomerID = LEFT(@CustomerID,3);
55   SELECT @Country = CASE @CustomerID
56     WHEN '001'
57       THEN 'United States'
58     WHEN '002'
59       THEN 'Spain'
60     WHEN '003'
61       THEN 'Japan'
62     WHEN '004'
63       THEN 'China'
64     WHEN '005'
65       THEN 'Brazil'
66     ELSE 'Other'
67   END;
68   RETURN @CustomerID;
69 END;
```

A. 55
B. 53
C. 68
D. 54

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 10
You need to create the InvoiceStatus table in DB1.
How should you define the InvoiceID column in the CREATE TABLE statement?



Application Requirements

The planned database has the following requirements:
• All stored procedures must be signed.
• The original XML invoices must be stored in the database.
• An XML schema must be used to validate the invoice data.
• Dynamic T-SQL statements must be converted to stored procedures.
• Access to the .NET Framework tax components must be available to T-SQL objects.
• Columns must be defined by using data types that minimize the amount of space used by each table.
• Invoices stored in the InvoiceStatus table must refer to an invoice by the same identifier used by the Invoice table.
• To protect against the theft of backup disks, invoice data must be protected by using the highest level of encryption.
• The solution must provide a table-valued function that provides users with the ability to filter invoices by customer.
• Indexes must be optimized periodically based on their fragmentation by using the minimum amount of administrative effort.

A.
```
InvoiceID bigint
DEFAULT (NEXT VALUE FOR Accounting.InvoiceID_Seq) NOT NULL,
```

B.
```
InvoiceID bigint DEFAULT ((NEXT VALUE
FOR Accounting.InvoiceID_Seq
OVER (ORDER BY InvoiceStatusID))) NOT NULL,
```

C.
```
InvoiceID bigint DEFAULT ((NEXT VALUE
FOR Accounting.InvoiceID_Seq OVER
(ORDER BY InvoiceStatusID))) NOT NULL FOREIGN
KEY REFERENCES Accounting.Invoices(InvoiceID),
```

D.
```
InvoiceID bigint FOREIGN KEY REFERENCES
Accounting.Invoices(InvoiceID) NOT NULL,
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 11
You execute IndexManagement.sql and you receive the following error message: "Msg 512, Level 16, State 1, Line 80
Subquery returned more than 1 value. This is not permitted when the subquery follows =, ! = , <, <= , >, > = or when the subquery is used as an expression."
You need to ensure that IndexManagement.sql executes properly.

Which WHILE statement should you use at line 86?

IndexManagement.sql

```
01 DECLARE @IndexTable TABLE (
70   TableName varchar(100), IndexName varchar(100), Fragmentation int, R
71   );
72 DECLARE @TableName sysname, @IndexName sysname, @Fragmentation int,
73   @RowNumber int, @sqlcommand varchar(1000);
74
75 INSERT INTO @IndexTable (TableName, IndexName, Fragmentation, Rownumbe
76   SELECT OBJECT_NAME(i.Object_id),
77     i.name AS IndexName,
78     indexstats.avg_fragmentation_in_percent,
79     ROW_NUMBER() OVER(ORDER BY i.name DESC) AS 'RowNumber'
80   FROM sys.dm_db_index_physical_stats(DB_ID(), NULL, NULL, NULL, 'DETA
81     AS indexstats INNER JOIN sys.indexes AS i
82     ON i.OBJECT_ID = indexstats.OBJECT_ID AND i.index_id = indexstats.
83
84 DECLARE @counter int = 0;
85
86 WHILE @counter < (SELECT RowNumber FROM @indextable)
87   BEGIN
88     SET @counter = @counter + 1;
89     WITH t AS (
90       SELECT TableName, IndexName, Fragmentation
91       FROM @IndexTable WHERE RowNumber = @counter
92       )
93     SELECT
94       @TableName= TableName,
95       @IndexName = IndexName,
96       @Fragmentation = Fragmentation
97     FROM t;
98
99     IF @Fragmentation <= 30
100       BEGIN
101         SET @sqlCommand =
102           N'ALTER INDEX '+@indexName+N' ON '+@TableName+N' REORGANIZE
103         EXEC sp_executesql @sqlCommand;
104       END;
105     ELSE
106       BEGIN
107         SET @sqlCommand=N'ALTER INDEX '+@indexName+N' ON '+@TableName
108         EXEC sp_executesql @sqlCommand;
109       END;
110     END;
```

A. WHILE @counter < (SELECT COUNT(RowNumber) FROM @indextable)
B. WHILE @counter < (SELECT SUM(RowNumber) FROM @indextable)
C. WHILE SUM(@RowNumber) < (SELECT @counter FROM @indextable)
D. WHILE COUNT(@RowNumber) < (SELECT @counter FROM @indextable)

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 12
You are testing disaster recovery procedures.
You attempt to restore DB1 to a different server and you receive the following error message:

"Msg 33111, Level 16, State 3, Line 1
Cannot find server certificate with thumbprint `OxA694FBEA88C9354E5E2567C30A2A69E8FB4C44A9'.
Msg 3013, Level 16, State 1, Line 1
RESTORE DATABASE is terminating abnormally."

You need to ensure that you can restore DB1 to a different server.
Which code segment should you execute?

A.
```
CREATE CERTIFICATE CERT1
  ENCRYPTION BY PASSWORD='p@ssw0rd1'
  WITH SUBJECT = 'EncryptionCertificate';
```

B.
```
CREATE CERTIFICATE CERT1
  FROM FILE='CERT1.CER'
  WITH PRIVATE KEY (FILE = 'CERT1.KEY',
  DECRYPTION BY PASSWORD='p@ssw0rd1');
```

C.
```
RESTORE CERTIFICATE CERT2
  FROM FILE='CERT2.CER'
  WITH PRIVATE KEY (FILE = 'CERT2.KEY',
  DECRYPTION BY PASSWORD='p@ssw0rd1');
```

D.
```
CREATE CERTIFICATE CERT2
  ENCRYPTION BY PASSWORD='p@ssw0rd1'
  WITH SUBJECT = 'EncryptionCertificate';
```

A.
```
CREATE CERTIFICATE CERT1
  ENCRYPTION BY PASSWORD='p@ssw0rd1'
  WITH SUBJECT = 'EncryptionCertificate';
```

B.
```
CREATE CERTIFICATE CERT1
  FROM FILE='CERT1.CER'
  WITH PRIVATE KEY (FILE = 'CERT1.KEY',
  DECRYPTION BY PASSWORD='p@ssw0rd1');
```

C.
```
RESTORE CERTIFICATE CERT2
  FROM FILE='CERT2.CER'
  WITH PRIVATE KEY (FILE = 'CERT2.KEY',
  DECRYPTION BY PASSWORD='p@ssw0rd1');
```

D.
```
CREATE CERTIFICATE CERT2
  ENCRYPTION BY PASSWORD='p@ssw0rd1'
  WITH SUBJECT = 'EncryptionCertificate';
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 13
You attempt to process an invoice by using usp_InsertInvoice.sql and you receive the following error message:

"Msg 515, Level 16, State 2, Procedure usp_InsertInvoice, Line 10
Cannot insert the value NULL into column 'InvoiceDate', table 'DB1.Accounting.Invoices'; column does not allow nulls. INSERT fails."

You need to modify usp_InsertInvoice.sql to resolve the error.

How should you modify the INSERT statement?

usp_InsertInvoices.sql

```
01 CREATE PROCEDURE InsertInvoice @XML nvarchar(1000)
02 AS
03 DECLARE @XmlDocumentHandle INT;
04 DECLARE @XmlDocument nvarchar(1000);
05 SET @XmlDocument = @XML;
06
07 EXEC sp_xml_preparedocument @XmlDocumentHandle OUTPUT, @XmlDocument;
08
09 INSERT INTO DB1.Accounting.Invoices (
10   InvoiceID,
11   InvoiceXML,
12   CustomerID,
13   CustomerName,
14   InvoiceDate,
15   Total,
16   PONumber
17 )
18 SELECT (NEXT VALUE FOR Accounting.InvoiceID_Seq),
19   @XML, * FROM OPENXML (@XmlDocumentHandle, '/Invoice',2)
20   WITH (
21     CustomerID nvarchar(11) 'Customer/@ID',
22     CustomerName nvarchar(50) 'Customer/@Name',
23     InvoiceDate date 'InvoiceDate',
24     Total decimal(8, 2) 'Total',
25     PONumber bigint 'PONumber'
26   );
27
28 EXEC sp_xml_removedocument @XmlDocumentHandle;
```

A. InvoiceDate date ‘Customer/@InvoiceDate1’.
B. InvoiceDate varchar(100) 'InvoiceDate',
C. InvoiceDate varchar(100) 'Customer/InvoiceDate',
D. InvoiceDate date ‘@InvoiceDate',

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 14

Case Study: 3
Scenario 3
Application Information

You are a database administrator for a manufacturing company.

You have an application that stores product data. The data will be converted to technical diagrams for the manufacturing process.

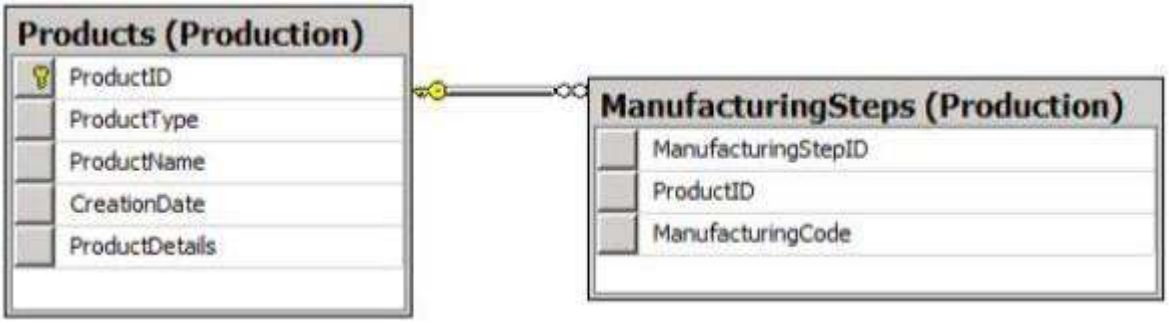
The product details are stored in XML format. Each XML must contain only one product that has a root element named Product. A schema named Production.ProductSchema has been created for the products xml.

You develop a Microsoft .NET Framework assembly named ProcessProducts.dll that will be used to convert the XML files to diagrams. The diagrams will be stored in the database as images. ProcessProducts.dll contains one class named ProcessProduct that has a method name of Convert(). ProcessProducts.dll was created by using a source code file named ProcessProduct.es. All of the files are located in C:\Products\.

The application has several performance and security issues.

You will create a new database named ProductsDB on a new server that has SQL Server 2012 installed. ProductsDB will support the application.

The following graphic shows the planned tables for ProductsDB:



You will also add a sequence named Production.ProductID_Seq.
You plan to create two certificates named DBCert and ProductsCert. You will create ProductsCert in master. You will create DBCert in ProductsDB.
You have an application that executes dynamic T-SQL statements against ProductsDB. A sample of the queries generated by the application appears in Dynamic.sql.

Application Requirements

The planned database has the following requirements:
• All stored procedures must be signed.
• The amount of disk space must be minimized.
• Administrative effort must be minimized at all times.
• The original product details must be stored in the database.
• An XML schema must be used to validate the product details.
• The assembly must be accessible by using T-SQL commands.
• A table-valued function will be created to search products by type.
• Backups must be protected by using the highest level of encryption.
• Dynamic T-SQL statements must be converted to stored procedures.
• Indexes must be optimized periodically based on their fragmentation.
• Manufacturing steps stored in the ManufacturingSteps table must refer to a product by the same identifier used by the Products table.

ProductDetails_Insert.sql

```
01 CREATE PROCEDURE Production.ProductDetails_Insert @XML nvarchar(1000)
02 AS
03 DECLARE @handle INT;
04 DECLARE @document nvarchar(1000);
05 SET @document = @XML;
06
07 EXEC sp_xml_preparedocument @handle OUTPUT, @document;
08
09 INSERT INTO PRODUCTSDB.Production.Invoices (
10   ProductID,
11   ProductDetails,
12   ProductType,
13   ProductName,
14   CreationDate
15 )
16 SELECT (NEXT VALUE FOR Production.ProductID_Seq),
17   @XML, * FROM OPENXML (@handle, '/Invoice',2)
18   WITH (
19     ProductType nvarchar(11) 'ProductType/ID',
20     ProductName nvarchar(50) '@ProductName',
21     CreationDate date 'CreationDate'
22   );
23
24 EXEC sp_xml_removedocument @handle;
```

Product.xml

All product types are 11 digits. The first five digits of the product id reference the category of the product and the remaining six digits are the subcategory of the product. The following is a sample customer invoice in XML format:

```
01 <?xml version="1.0"?>
25 <Product ProductName="Widget">
26   <ProductType ID="00156590099" />
27   <CreationDate>2011-08-05</CreationDate>
28   </Invoice>
```

ProductsByProductType.sql

```
01 (SELECT ProductID,
29   ProductType,
30   CreationDate
31   FROM Production.Products
32     WHERE ProductType=@ProductType);
```

Dynamic.sql

```
01 DECLARE @tsql AS nvarchar(500);
33 DECLARE @ProductType AS varchar(11), @CreationDate AS date;
34
35 SET @sqlstring=N'SELECT ProductID, ProductType, CreationDate
36   FROM Production.Product
37   WHERE ProductID=@ProductID AND CreationDate > @CreationDate;';
38
39 EXEC sys.sp_executesql
40   @statement=@sqlstring,
41   @params=N'@ ProductType AS varchar(11), @CreationDate AS date',
42 @ProductType=00125061246, @Total='2012-05-10';
```

CategoryFromType.sql

```
01 CREATE FUNCTION CategoryFromType (@Type varchar(11)) RETURNS nvarchar(20)
43 AS
44 BEGIN
45   DECLARE @Category AS varchar(20);
46   SET @Category = LEFT(@Category,5);
47   SELECT @Category = CASE @Type
48     WHEN '00001'
49       THEN 'Bikes'
50     WHEN '00002'
51       THEN 'Wheels'
52     ...
53     ELSE 'Other'
54   END;
55 RETURN @Category;
56 END;
```

IndexManagement.sql

```
01 DECLARE @IndexTable TABLE (
57   TableName varchar(100), IndexName varchar(100), Fragmentation int, RowNumber int
58   );
59 DECLARE @TableName sysname, @IndexName sysname, @Fragmentation int,
60   @RowNumber int, @sqlcommand varchar(1000);
61
62 INSERT INTO @IndexTable (TableName, IndexName, Fragmentation, Rownumber)
63   SELECT OBJECT_NAME(i.Object_id),
64     i.name AS IndexName,
65     indexstats.avg_fragmentation_in_percent,
66     ROW_NUMBER() OVER(ORDER BY i.name DESC) AS 'RowNumber'
67   FROM sys.dm_db_index_physical_stats(DB_ID(), NULL, NULL, NULL, 'DETAILED')
68     AS indexstats INNER JOIN sys.indexes AS i
69     ON i.OBJECT_ID = indexstats.OBJECT_ID AND i.index_id = indexstats.index_id;
70
71 DECLARE @counter int = 0;
72
73 WHILE @counter < (SELECT RowNumber FROM @indextable)
74   BEGIN
75     SET @counter = @counter + 1;
76     WITH t AS (
77       SELECT TableName, IndexName, Fragmentation
78       FROM @IndexTable WHERE RowNumber = @counter
79       )
80     SELECT
81       @TableName= TableName,
82       @IndexName = IndexName,
83       @Fragmentation = Fragmentation
84     FROM t;
85
86     IF @Fragmentation <= 30
87       BEGIN
88         SET @sqlCommand =
89           N'ALTER INDEX '+@indexName+N' ON '+@TableName+N' REORGANIZE';
90         EXEC sp_executesql @sqlCommand;
91       END;
92     ELSE
93       BEGIN
94         SET @sqlCommand=N'ALTER INDEX '+@indexName+N' ON '+@TableName+N' REBUILD';
95         EXEC sp_executesql @sqlCommand;
96       END;
97     END;
```

Which code segment should you use to define the ProductDetails column?

A. ProductDetails varchar(MAX) NULL
B. ProductDetails xml NULL.
C. ProductDetails xml (CONTENT Production.ProductDetailsSchema) NULL
D. ProductDetails xml (DOCUMENT Production.ProductDetailsSchema) NULL

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 15
You need to prepare the database to use the .NET Framework ProcessProducts component. Which code segments should you execute? (Each correct answer presents part of the solution. Choose all that apply.)

A.
```
CREATE ASSEMBLY ProductionAssembly FROM 'C:\Products\ProcessProducts.D
```

B.
```
RECONFIGURE;
```

C.
```
EXEC sp_recompile @objname = 'Production.ProcessProduct';
```

D.
```
CREATE TYPE Production.ProcessProduct
EXTERNAL NAME ProductionAssembly.ProcessProductss.Process;
```

E.
```
Exec SP_CONFIGURE 'clr enabled', '1';
```

F.
```
CREATE PROCEDURE Production.ProcessProduct(
  @ProductID int, @ProductType varchar(11)
  )
AS EXTERNAL NAME ProductionAssembly.ProcessProducts.Process;
```

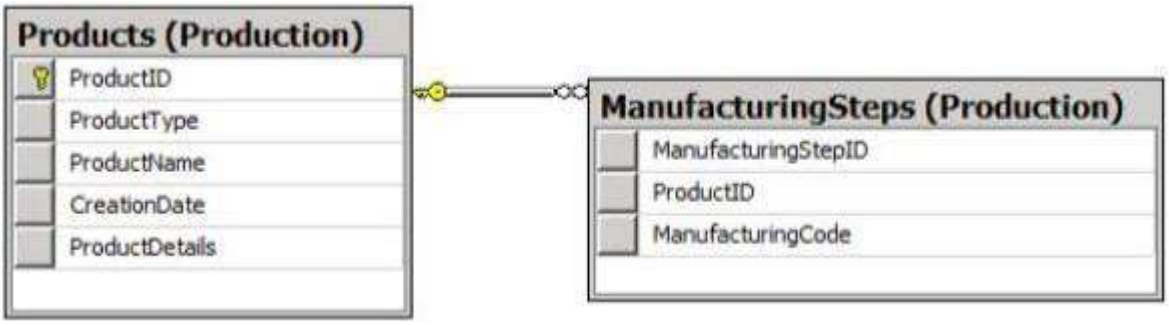
G.
```
CREATE ASSEMBLY ProductionAssembly FROM 'C:\Products\ProcessProducts.cs
```

Correct Answer: ACDE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 16
You are planning the ManufacturingSteps table.
You need to define the ProductID column in the CREATE TABLE statement.

Which code segment should you use?



Application Requirements
The planned database has the following requirements:
• All stored procedures must be signed.
• The amount of disk space must be minimized.
• Administrative effort must be minimized at all times.
• The original product details must be stored in the database.
• An XML schema must be used to validate the product details.
• The assembly must be accessible by using T-SQL commands.
• A table-valued function will be created to search products by type.

• Backups must be protected by using the highest level of encryption.
• Dynamic T-SQL statements must be converted to stored procedures.
• Indexes must be optimized periodically based on their fragmentation.
• Manufacturing steps stored in the ManufacturingSteps table must refer to a product by the same identifier used by the Products table.

A.
```
ProductID bigint DEFAULT
((NEXT VALUE FOR Production.ProductID_Seq OVER
(ORDER BY ManufacturingStepID))) NOT NULL,
```

B.
```
ProductID bigint FOREIGN KEY REFERENCES
Production.Product(ProductID) NOT NULL,
```

C.
```
ProductID bigint
DEFAULT (NEXT VALUE FOR Production.ProductID_Seq) NOT NULL,
```

D.
```
ProductID bigint DEFAULT
((NEXT VALUE FOR Production.ProductID_Seq OVER
(ORDER BY ManufacturingStepID)))
NOT NULL FOREIGN KEY REFERENCES
Production.Product(ProductID),
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 17
An administrator provides a digital certificate named ServerCert.
You need to implement Transparent Data Encryption (TDE) on ProductsDB.

Which code segment should you use?

A.
```
USE PRODUCTSDB;
GO
CREATE DATABASE ENCRYPTION KEY WITH ALGORITHM = TRIPLE_DES_3KEY
ENCRYPTION BY SERVER CERTIFICATE PRODUCTSCERT;
GO
ALTER DATABASE PRODUCTSDB SET ENCRYPTION ON;
GO
```

B.
```
USE PRODUCTSDB;
GO
CREATE DATABASE ENCRYPTION KEY WITH ALGORITHM = TRIPLE_DES_3KEY
ENCRYPTION BY SERVER CERTIFICATE DBCERT;
GO
ALTER DATABASE PRODUCTSDB SET ENCRYPTION ON;
GO
```

C.
```
USE PRODUCTSDB;
GO
CREATE DATABASE ENCRYPTION KEY WITH ALGORITHM = AES_256
ENCRYPTION BY SERVER CERTIFICATE PRODUCTSCERT;
GO
ALTER DATABASE PRODUCTSDB SET ENCRYPTION ON;
GO
```

D.
```
USE PRODUCTSDB;
GO
CREATE DATABASE ENCRYPTION KEY WITH ALGORITHM = AES_256
ENCRYPTION BY SERVER CERTIFICATE DBCERT;
GO
ALTER DATABASE PRODUCTSDB SET ENCRYPTION ON;
GO
```

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 18
You are testing disaster recovery procedures.
When you attempt to restore ProductsDB to another server, you receive the following error message:

"Msg 33111, Level 16, State 3, Line 5
Cannot find server certificate with thumbprint ' 0x9D876A3468B911ElBA4CFCBF4724019B'.
Msg 3013, Level 16, State 1, Line 5
RESTORE DATABASE is terminating abnormally."

You need to ensure that you can restore ProductsDB to another server.
Which code segment should you execute on the other server?

A.
```
RESTORE CERTIFICATE DBCERT
  FROM FILE='DBCERT.CER'
  WITH PRIVATE KEY (FILE = 'c:\DBCERT.KEY',
  DECRYPTION BY PASSWORD = 'SecretP@ss');
```

B.
```
CREATE CERTIFICATE PRODUCTSCERT
  FROM FILE='PRODUCTSCERT.CER'
  WITH PRIVATE KEY (FILE = 'c:\PRODUCTSCERT.KEY',
  DECRYPTION BY PASSWORD = 'SecretP@ss');
```

C.
```
CREATE CERTIFICATE PRODUCTSCERT
  ENCRYPTION BY PASSWORD = 'SecretP@ss'
  WITH SUBJECT = 'SecurityCertificate';
```

D.
```
CREATE CERTIFICATE DBCERT
   ENCRYPTION BY PASSWORD = 'SecretP@ss'
   WITH SUBJECT = 'SecurityCertificate';
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 19

Application Requirements

The planned database has the following requirements:
• All stored procedures must be signed.
• The amount of disk space must be minimized.
• Administrative effort must be minimized at all times.
• The original product details must be stored in the database.
• An XML schema must be used to validate the product details.
• The assembly must be accessible by using T-SQL commands.
• A table-valued function will be created to search products by type.
• Backups must be protected by using the highest level of encryption.
• Dynamic T-SQL statements must be converted to stored procedures.
• Indexes must be optimized periodically based on their fragmentation.
• Manufacturing steps stored in the ManufacturingSteps table must refer to a product by the same identifier used by the Products table.

You need to modify Production.ProductDetails_Insert to comply with the application requirements.
Which code segment should you execute?

ProductDetails_Insert.sql

```
01 CREATE PROCEDURE Production.ProductDetails_Insert @XML nvarchar(1000)
02 AS
03 DECLARE @handle INT;
04 DECLARE @document nvarchar(1000);
05 SET @document = @XML;
06
07 EXEC sp_xml_preparedocument @handle OUTPUT, @document;
08
09 INSERT INTO PRODUCTSDB.Production.Invoices (
10   ProductID,
11   ProductDetails,
12   ProductType,
13   ProductName,
14   CreationDate
15 )
16 SELECT (NEXT VALUE FOR Production.ProductID_Seq),
17   @XML, * FROM OPENXML (@handle, '/Invoice',2)
18   WITH (
19     ProductType nvarchar(11) 'ProductType/ID',
20     ProductName nvarchar(50) '@ProductName',
21     CreationDate date 'CreationDate'
22   );
23
24 EXEC sp_xml_removedocument @handle;
```

A. ADD SIGNATURE TO Production.ProductDetails_Insert
BY CERTIFICATE DBCERT;

B. OPEN PRODUCTSCERT;
ALTER PROCEDURE Production.ProductDetails_Insert WITH ENCRYPTION;
CLOSE PRODUCTSCERT;

C. OPEN DBCERT;
ALTER PROCEDURE Production.ProductDetails_Insert WITH ENCRYPTION;
CLOSE DBCERT;

D. ADD SIGNATURE TO Production.ProductDetails_Insert
BY CERTIFICATE PRODUCTSCERT;

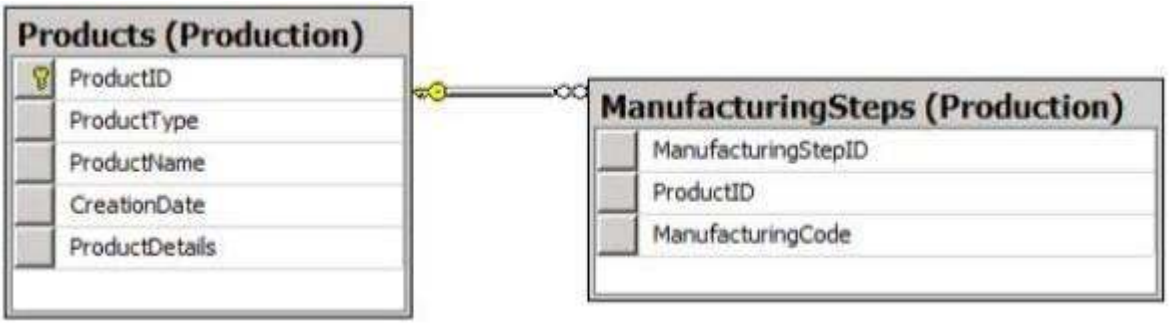
Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 20
You need to create a function that will use a SELECT statement in ProductsByProductType.sql.
Which code segment should you use to complete the function?

ProductsByProductType.sql

```
01 (SELECT ProductID,
29   ProductType,
30   CreationDate
31   FROM Production.Products
32     WHERE ProductType=@ProductType);
```



A.
```
CREATE FUNCTION Production.fnProductsByProductType (@ProductType varcha
RETURNS @TblInvoices TABLE (ProductID bigint, ProductType varchar(11),
date)
AS
```

B.
```
CREATE FUNCTION Production.fnProductsByProductType (@ProductType varch
RETURNS xml
AS
RETURN
```

C.
```
CREATE FUNCTION Production.fnProductsByProductType (@ProductType varch
RETURNS @tblInvoices TABLE (ProductID bigint, ProductType varchar(11),
date)
AS
INSERT INTO @tblInvoices
```

D.
```
CREATE FUNCTION Production.fnProductsByProductType (@ProductType varcha
RETURNS TABLE
AS
RETURN
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 21
You execute IndexManagement.sql and you receive the following error message:
"Msg 512, Level 16, State 1, Line 73 Subquery returned more than 1 value.
This is not permitted when the subquery follows =, ! = , <, <= , >, >= or when the subquery is used as an expression."
You need to ensure that IndexManagement.sql executes properly.

Which WHILE statement should you use at line 73?

IndexManagement.sql

```
01 DECLARE @IndexTable TABLE (
57   TableName varchar(100), IndexName varchar(100), Fragmentation int, RowNumber int
58   );
59 DECLARE @TableName sysname, @IndexName sysname, @Fragmentation int,
60   @RowNumber int, @sqlcommand varchar(1000);
61
62 INSERT INTO @IndexTable (TableName, IndexName, Fragmentation, Rownumber)
63   SELECT OBJECT_NAME(i.Object_id),
64     i.name AS IndexName,
65     indexstats.avg_fragmentation_in_percent,
66     ROW_NUMBER() OVER(ORDER BY i.name DESC) AS 'RowNumber'
67   FROM sys.dm_db_index_physical_stats(DB_ID(), NULL, NULL, NULL, 'DETAILED')
68     AS indexstats INNER JOIN sys.indexes AS i
69     ON i.OBJECT_ID = indexstats.OBJECT_ID AND i.index_id = indexstats.index_id;
70
71 DECLARE @counter int = 0;
72
73 WHILE @counter < (SELECT RowNumber FROM @indextable)
74   BEGIN
75     SET @counter = @counter + 1;
76     WITH t AS (
77       SELECT TableName, IndexName, Fragmentation
78       FROM @IndexTable WHERE RowNumber = @counter
79       )
80     SELECT
81       @TableName= TableName,
82       @IndexName = IndexName,
83       @Fragmentation = Fragmentation
84     FROM t;
85
86     IF @Fragmentation <= 30
87       BEGIN
88         SET @sqlCommand =
89           N'ALTER INDEX '+@indexName+N' ON '+@TableName+N' REORGANIZE';
90         EXEC sp_executesql @sqlCommand;
91       END;
92     ELSE
93       BEGIN
94         SET @sqlCommand=N'ALTER INDEX '+@indexName+N' ON '+@TableName+N' REBUILD';
95         EXEC sp_executesql @sqlCommand;
96       END;
97     END;
```

A. WHILE @counter < (SELECT SUM(RowNumber) FROM @indextable)
B. WHILE COUNT(@RowNumber) < (SELECT @counter FROM @indextable)
C. WHILE SUM(@RowNumber) < (SELECT @counter FROM @indextable)
D. WHILE @counter < (SELECT COUNT(RowNumber) FROM @indextable)

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 22

Case Study: 4
Scenario 4
Application Information

You have two servers named SQL1 and SQL2. SQL1 has SQL Server 2012 Enterprise installed. SQL2 has SQL Server 2008 Standard installed.

You have an application that is used to manage employees and office space.

Users report that the application has many errors and is very slow.

You are updating the application to resolve the issues.

You plan to create a new database on SQL1 to support the application. The script that you plan to use to create the tables for the new database is shown in Tables.sql. The script that you plan to use to create the stored procedures for the new database is shown in StoredProcedures.sql. The script that you plan to use to create the indexes for the new database is shown in Indexes.sql.

A database named DB2 resides on SQL2. DB2 has a table named EmployeeAudit that will audit changes to a table named Employees.

A stored procedure named usp_UpdateEmployeeName will be executed only by other stored procedures. The stored procedures executing usp_UpdateEmployeeName will always handle transactions.

A stored procedure named usp_SelectEmployeesByName will be used to retrieve the names of employees. Usp_SelectEmployeesByName can read uncommitted data.

A stored procedure named usp_GetFutureOfficeAssignments will be used to retrieve office assignments that will occur in the future.

StoredProcedures.sql

```
01 CREATE PROCEDURE usp_UpdateEmployeeName
02   @EmployeesInfo EmployeesInfo READONLY
03 AS
04
05 BEGIN TRY
06
07 UPDATE Employees
08 SET LastName = ei.LastName
09 FROM Employees e
10   INNER JOIN @ EmployeesInfo ei ON e.EmployeeID = ei.EmployeeID;
11
12 INSERT INTO SQL2.DB2.dbo.EmployeeAudit(EmployeeID, LastName)
13 SELECT EmployeeID, LastName
14 FROM @EmployeesInfo;
15
16 END TRY
17 BEGIN CATCH
18
19 END CATCH;
20
21 GO
22
23 CREATE PROCEDURE usp_SelectEmployeesByName
24   @LastName nvarchar(100)
25 AS
26 SELECT EmployeeID,
27   FirstName,
28   LastName
29 FROM Employees
30 WHERE LastName LIKE @LastName + '%'
```

```
31
32 GO
33
34 CREATE PROCEDURE usp_UpdateOffice
35   @OfficeID int,
36   @EmployeeID int
37 AS
38 SET TRANSACTION ISOLATION LEVEL SNAPSHOT
39 BEGIN TRANSACTION;
40
41 SELECT OfficeID,
42   OfficeName
43 FROM Offices
44 WHERE EmployeeID = @EmployeeID;
45
46 UPDATE Offices
47 SET EmployeeID = @EmployeeID,
48   StartDate = GETDATE()
49 WHERE OfficeID = @OfficeID;
50
51 COMMIT TRANSACTION;
52
53 CREATE PROCEDURE usp_GetFutureOfficeAssignments
54 AS
55 SELECT EmployeeID,
56   OfficeID,
57   StartDate
58 FROM Offices
59 WHERE StartDate > GETDATE();
60 GO
61
```

Indexes.sql

```
01 CREATE INDEX IX_Offices ON Offices
02 (EmployeeID, StartDate)
03 INCLUDE (OfficeID)
04
05 GO
06
07 CREATE INDEX IX_Employees ON Employees
08 (LastName);
09 GO
10
```

Tables.sql

```
01 CREATE DATABASE HumanResources;
02 GO
03
04 ALTER DATABASE HumanResources
05 SET ALLOW_SNAPSHOT_ISOLATION ON;
06 GO
07
08 USE HumanResources
09 GO
10
11 CREATE TABLE Employees
12 (
13   EmployeeID int IDENTITY(1,1) NOT NULL,
14    FirstName nvarchar(100) NOT NULL,
15    LastName nvarchar(100) NOT NULL,
16
17 );
18 GO
19
20 CREATE TABLE Offices
21 (
22   OfficeID int IDENTITY(1,1) NOT NULL,
23    EmployeeID int NOT NULL,
24    OfficeName nvarchar(100) NOT NULL,
25    StartDate datetime NOT NULL
26 );
27 GO
```

You need to modify usp_SelectEmployeesByName to support server-side paging.
The solution must minimize the amount of development effort required.

What should you add to usp_SelectEmployeesByName?

A. an OFFSET-FETCH clause
B. a table variable
C. the ROWNUMBER keyword
D. a recursive common table expression

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 23
You need to provide referential integrity between the Offices table and Employees table.
Which code segment or segments should you add at line 27 of Tables.sql?
(Each correct answer presents part of the solution. Choose all that apply.)

Tables.sql

```
11 CREATE TABLE Employees
12 (
13   EmployeeID int IDENTITY(1,1) NOT NULL,
14    FirstName nvarchar(100) NOT NULL,
15    LastName nvarchar(100) NOT NULL,
16
17 );
18 GO
19
20 CREATE TABLE Offices
21 (
22   OfficeID int IDENTITY(1,1) NOT NULL,
23    EmployeeID int NOT NULL,
24    OfficeName nvarchar(100) NOT NULL,
25    StartDate datetime NOT NULL
26 );
27 GO
```

A.
```
ALTER TABLE dbo.Offices ADD CONSTRAINT
PK_Offices_EmployeeID PRIMARY KEY (EmployeeID);
```

B.
```
ALTER TABLE dbo.Employees ADD CONSTRAINT
FK_Employees_Offices FOREIGN KEY (OfficeID)
REFERENCES dbo.Offices (OfficeID);
```

C.
```
ALTER TABLE dbo.Employees ADD CONSTRAINT
PK_Employees_EmployeeID PRIMARY KEY (EmployeeID);
```

D.
```
ALTER TABLE dbo.Offices ADD CONSTRAINT
FK_Offices_Employees FOREIGN KEY (EmployeeID)
REFERENCES dbo.Employees (EmployeeID);
```

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 24
You need to add a new column named Confirmed to the Employees table.
The solution must meet the following requirements:

• Have a default value of TRUE.
• Minimize the amount of disk space used.

Which code segment should you use?

Tables.sql

```
11 CREATE TABLE Employees
12 (
13   EmployeeID int IDENTITY(1,1) NOT NULL,
14    FirstName nvarchar(100) NOT NULL,
15    LastName nvarchar(100) NOT NULL,
16
17 );
18 GO
```

A. ALTER TABLE Employees ADD Confirmed bit DEFAULT 0;
B. ALTER TABLE Employees ADD Confirmed char(1) DEFAULT '1';
C. ALTER TABLE Employees ADD Confirmed bit DEFAULT 1;
D. ALTER TABLE Employees ADD Confirmed char(1) DEFAULT '0';

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 25
You execute usp_SelectEmployeesByName multiple times, passing strings of varying lengths to @LastName.
You discover that usp_SelectEmployeesByName uses inefficient execution plans.
You need to update usp_SelectEmployeesByName to ensure that the most efficient executionplan is used.

What should you add at line 31 of StoredProcedures.sql?

StoredProcedures.sql

```
23 CREATE PROCEDURE usp_SelectEmployeesByName
24   @LastName nvarchar(100)
25 AS
26 SELECT EmployeeID,
27   FirstName,
28   LastName
29 FROM Employees
30 WHERE LastName LIKE @LastName + '%'
```

A. OPTION (KEEPFIXED PLAN)
B. OPTION (KEEP PLAN)
C. OPTION (ROBUST PLAN)
D. OPTION (OPTIMIZE FOR UNKNOWN)

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 26
You need to recommend a solution to ensure that SQL1 supports the auditing requirements of usp_UpdateEmployeeName.

What should you include in the recommendation?

StoredProcedures.sql

```
01 CREATE PROCEDURE usp_UpdateEmployeeName
02   @EmployeesInfo EmployeesInfo READONLY
03 AS
04
05 BEGIN TRY
06
07 UPDATE Employees
08 SET LastName = ei.LastName
09 FROM Employees e
10   INNER JOIN @ EmployeesInfo ei ON e.EmployeeID = ei.EmployeeID;
11
12 INSERT INTO SQL2.DB2.dbo.EmployeeAudit(EmployeeID, LastName)
13 SELECT EmployeeID, LastName
14 FROM @EmployeesInfo;
15
16 END TRY
17 BEGIN CATCH
18
19 END CATCH;
20
21 GO
```

A. change data capture
B. transactional replication
C. change tracking
D. the Distributed Transaction Coordinator (DTC)

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference: