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MICROSOFT 70-464 EXAM QUESTIONS & ANSWERS

Exam Name: Developing Microsoft SQL Server 2012 Databases

QUESTION 1
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

QUESTION 2
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 3
Drag and Drop Question

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.

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

```
CREATE SYMMETRIC KEY Key1 WITH ALGORITHM = S
HA1
ENCRYPTION BY CERTIFICATE Cert1;
```

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

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

```
CLOSE SYMMETRIC KEY;
```

```
CREATE CREDENTIAL Cred1 WITH IDENTITY = 'Use
r1', SECRET = 'P@ssw0rd';
```

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

```
CREATE SYMMETRIC KEY Key1 WITH ALGORITHM = A
ES_256
ENCRYPTION BY CERTIFICATE Cert1;
```

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

Explanation/Reference:

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

```
CREATE SYMMETRIC KEY Key1 WITH ALGORITHM = S
HA1
ENCRYPTION BY CERTIFICATE Cert1;
```

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

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

```
CLOSE SYMMETRIC KEY;
```

```
CREATE CREDENTIAL Cred1 WITH IDENTITY = 'Use
r1', SECRET = 'P@ssw0rd';
```

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

```
CREATE SYMMETRIC KEY Key1 WITH ALGORITHM = A
ES_256
ENCRYPTION BY CERTIFICATE Cert1;
```

```
CREATE SYMMETRIC KEY Key1 WITH A
HA1
ENCRYPTION BY CERTIFICATE Cert1;
```

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

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

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

QUESTION 4

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 1X1 on Schema1.Table1 (Column1) INCLUDE (Column4)
B. CREATE NCNCLUSTERED INDEX 1X1 on Schema1.Table1 (Column1)

C. CREATE NONCLUSTERED INDEX 1X1 on Schema1.Table1 (Column1, Column2, Column3) INCLUDE (Column4)
D. CREATE NONCLUSTERED INDEX 1X1 on Schema1.Table1 (Column1) INCLUDE(Column4) WHERE Column2 <> Column3

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
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QUESTION 5
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?

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


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


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


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

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

Correct Answer: B
Section: (none)
Explanation

QUESTION 6
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

QUESTION 7
Drag and Drop Question
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.

Switch Table2 to Table1.
Create a table named Table2 by using the same schema as Table1.
Partition Table1.
Import the data to Table2.
Import the data to Table1.
Create a columnstore index on Table2 for Column1.
Create the columnstore index on Table1.

A.

Switch Table2 to Table1.	Create a table named Table2 by usin schema as Table1.
Create a table named Table2 by using the same schema as Table1.	Partition Table1.
Partition Table1.	Import the data to Table2.
Import the data to Table2.	Create a columnstore index on Table
Import the data to Table1.	Switch Table2 to Table1.
Create a columnstore index on Table2 for Column1.	
Create the columnstore index on Table1.	

B.
C.

D.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 8
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
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D. log errors by using trace flag 1222

Correct Answer: A
Section: (none)
Explanation

QUESTION 9
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
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B. WITH VIEW_METADATA
C. WITH CHECK OPTION
D. WITH SCHEMABINDING

Correct Answer: C
Section: (none)

Explanation

QUESTION 10
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

QUESTION 11
Drag and Drop Question
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.)

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
```

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

Explanation/Reference:
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```
                        CREATE PROCEDURE Proc1 (@ParamID int)

 SERIALIZABLE            AS

                         SET TRANSACTION ISOLATION LEVEL          READ COMMITED

 WITH(XLOCK)             BEGIN TRANSACTION

                         DECLARE @var as NCHAR(10)

                         Select @var = Name

                         FROM dbo.Customers          WITH(UPDLOCK)

                         WHERE ID = @ParamID

                         ...

                         UPDATE dbo.Customers

                         SET Name = @var

                         WHERE ID = @ParamID

                         COMMIT TRANSACTION;

                         GO
```

QUESTION 12
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?

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


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


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


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

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

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 13
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

QUESTION 14

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

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 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

QUESTION 16
Drag and Drop Question
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.)

Technologies	Answer Area	
Common language runtime (CLR)	Procedure1	Technology
Extensible Markup Language (XML)	Procedure2	Technology
a table-valued parameter (TVP)		

A.

Technologies	Answer Area	
	Procedure1	a table-valued parameter (TVP)
Extensible Markup Language (XML)	Procedure2	Common language runtime (CLR)

B.
C.
D.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 17
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;
```

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

Correct Answer: A
Section: (none)
Explanation

QUESTION 18
Drag and Drop Question
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.)

Options	Answer Area	
an output parameter	SProc1	Option
a raise error	SProc2	Option
a SELECT statement		
a table-valued parameter (TVP)		

A.

Options	Answer Area	
	SProc1	a SELECT statement
a raise error	SProc2	an output parameter
a table-valued parameter (TVP)		

B.
C.
D.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 19
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

QUESTION 20
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, I, I) = 'c' to LEFT(JobTitle,1) = 'c'.
B. Change SUBSTRING(JobTitle, I, I) = '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

QUESTION 21
Drag and Drop Question
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.

```
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;
```

A.

```
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;
```

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

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

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

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

B.
C.
D.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 22
Drag and Drop Question
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.)

Functions	Answer Area	
sys.dm_db_index_usage_stats	Identify unused indexes.	Function
sys.dm_db_index_operational_stats	Identify indexes that need to be defragmented.	Function
sys.dm_db_index_physical_stats		
sys.dm_db_missing_index_columns		
sys.dm_db_missing_index_details		
sys.dm_db_missing_index_groups		

A.

Functions	Answer Area	
	Identify unused indexes.	sys.dm_db_index_usage_stats
sys.dm_db_index_operational_stats	Identify indexes that need to be defragmented.	sys.dm_db_index_physical_stats
sys.dm_db_missing_index_columns		
sys.dm_db_missing_index_details		
sys.dm_db_missing_index_groups		

B.
C.
D.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 23
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?

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

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

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

C 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
         )'
       );
```

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

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Case Study: 1 (

QUESTION 24
~

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

QUESTION 25
)

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

```
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

```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 );
```

A.

B.

C.

D.

Correct Answer:
Section: (none)
Explanation

QUESTION 26
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:
"First Test, First Pass" - www.lead2pass.com 41
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QUESTION 27
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?

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

QUESTION 28
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?

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

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

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

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

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

Correct Answer: D
Section: (none)
Explanation

QUESTION 29
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?

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


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


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


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

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

D. Option D

Correct Answer: B
Section: (none)
Explanation

QUESTION 30
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?

```
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';
```

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

Correct Answer: B
Section: (none)
Explanation

QUESTION 31
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?

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

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Case Study: 2 (

QUESTION 32
~

A.
B.
C.
D.

Correct Answer:
Section: (none)
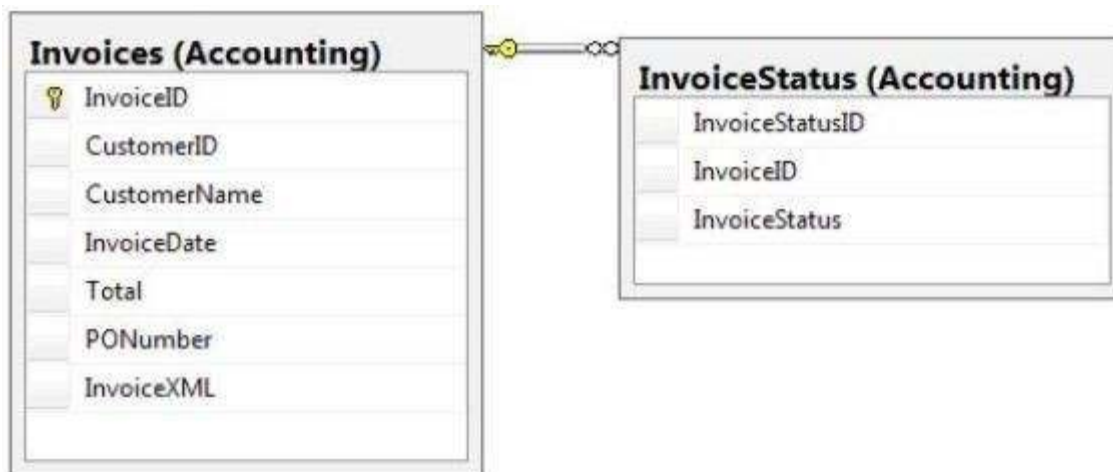**Explanation**

QUESTION 33
)
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:

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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;
```

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

QUESTION 34
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:
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QUESTION 35
Which data type should you use for CustomerID?

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

Correct Answer: D
Section: (none)
Explanation

QUESTION 36
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.

```
☐ A.   CREATE ASSEMBLY TaxCalc FROM 'c:\temp\TreyTax.DLL'


☐ B.   EXEC SP_CONFIGURE 'clr enabled', '1';


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


☐ D.   EXEC sp_recompile @objname = 'TaxCalc'


☐ E.   CREATE ASSEMBLY TaxCalc FROM 'C:\temp\Amortize.cs';


☐ F.   RECONFIGURE;
```

A. Option A
B. Option B
C. Option C
D. Option D
E. Option E
F. Option F

Correct Answer: ACDE
Section: (none)
Explanation

QUESTION 37
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?

A. 06
B. 04
C. 19
D. 05

Correct Answer: C
Section: (none)
Explanation

QUESTION 38
You need to create the InvoiceStatus table in DB1. How should you define the InvoiceID column in the CREATE TABLE statement?

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


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


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


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

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

Correct Answer: D
Section: (none)
Explanation

QUESTION 39
You execute IndexManagement.sql and you receive the following error message: "Msg 512, Level 16, State 1, Line 12
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 18?

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

QUESTION 40
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?

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


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


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


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

A. Option A
B. Option B
C. Option C
D. Option D
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Correct Answer: B
Section: (none)
Explanation

QUESTION 41
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?

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:
Case Study: 3 (

QUESTION 42
~

A.

B.

C.

D.

Correct Answer:
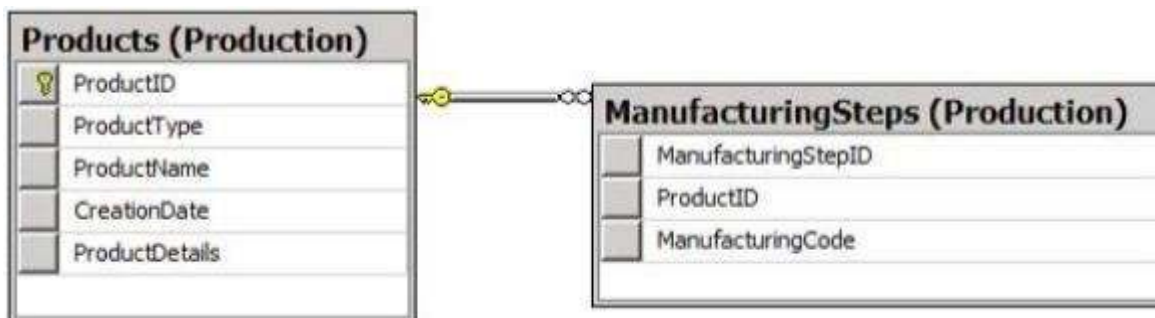**Section: (none)**
Explanation

QUESTION 43
)
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

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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;
```

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

QUESTION 44
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

QUESTION 45
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\ProcessProduc


☐ 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\ProcessProduc
```

A. Option A
B. Option B
C. Option C
D. Option D
E. Option E
F. Option F
G. Option G

Correct Answer: ACDE
Section: (none)
Explanation

QUESTION 46
You are planning the ManufacturingSteps table. You need to define the ProductID column in the CREATE
TABLE statement. Which code segment should you use?

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


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


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


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

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

Correct Answer: B
Section: (none)
Explanation

QUESTION 47
An administrator provides a digital certificate named ServerCert. You need to implement Transparent Data
Encryption (TDE) on ProductsDB. Which code segment should you use?

C 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

C 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 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

C 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

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

Correct Answer: C
Section: (none)
Explanation

QUESTION 48
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 ' 0x9D876A3468B911EIBA4CFCBF4724019B'.
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';
```

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

Correct Answer: B
Section: (none)
Explanation

QUESTION 49
You need to modify Production.ProductDetails_Insert to comply with the application requirements.
Which code segment should you execute?

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:
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QUESTION 50
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?

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


C B.  CREATE FUNCTION Production.fnProductsByProductType (@ProductType v
      RETURNS xml
      AS
      RETURN


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


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

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

Correct Answer: B
Section: (none)
Explanation

QUESTION 51

You execute IndexManagement.sql and you receive the following error message: "Msg 512, Level 16, State 1, Line 12
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 18?

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:
Case Study: 4 (

QUESTION 52
~

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

QUESTION 53
)
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

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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
```

A.
B.
C.
D.

Correct Answer:
Section: (none)
Explanation

QUESTION 54
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

QUESTION 55
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.)

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```
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);
```

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

Correct Answer: BC
Section: (none)
Explanation

QUESTION 56
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?

A. ALTER TABLE Employees
   ADD Confirmed bit DEFAULT 0;
B. ALTER TABLE Employees

ADD Confirmed char(l) DEFAULT '1';

C. ALTER TABLE Employees
ADD Confirmed bit DEFAULT 1;

D. ALTER TABLE Employees
ADD Confirmed char(l) DEFAULT '0';

Correct Answer: C
Section: (none)
Explanation

QUESTION 57
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 execution

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

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

Correct Answer: D
Section: (none)
Explanation

QUESTION 58
You need to recommend a solution to ensure that SQL1 supports the auditing requirements of
usp_UpdateEmployeeName. What should you include in the recommendation?

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

Correct Answer: D
Section: (none)
Explanation

QUESTION 59
You need to create the object used by the parameter of usp_UpdateEmployeeName. Which code segment
should you use?

A. CREATE XML SCHEMA COLLECTION EmployeesInfo
B. CREATE TABLE EmployeesInfo
C. CREATE TYPE EmployeesInfo AS Table
D. CREATE SCHEMA EmployeesInfo

Correct Answer: C

QUESTION 60
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:
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