

➤ **Vendor: Microsoft**

➤ **Exam Code: DP-300**

➤ **Exam Name: Administering Relational Databases on Microsoft Azure**

➤ **New Updated Questions from [Braindump2go](#) (Updated in [March/2021](#))**

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#### QUESTION 73

You have an Azure virtual machine named VM1 on a virtual network named VNet1. Outbound traffic from VM1 to the internet is blocked.

You have an Azure SQL database named SqlDb1 on a logical server named SqlSrv1.

You need to implement connectivity between VM1 and SqlDb1 to meet the following requirements:

Ensure that VM1 cannot connect to any Azure SQL Server other than SqlSrv1.

Restrict network connectivity to SqlSrv1.

What should you create on VNet1?

- A. a VPN gateway
- B. a service endpoint
- C. a private link
- D. an ExpressRoute gateway

**Answer: C**

#### **Explanation:**

Azure Private Link enables you to access Azure PaaS Services (for example, Azure Storage and SQL Database) and Azure hosted customer-owned/partner services over a private endpoint in your virtual network.

Traffic between your virtual network and the service travels the Microsoft backbone network. Exposing your service to the public internet is no longer necessary.

Reference:

<https://docs.microsoft.com/en-us/azure/private-link/private-link-overview>

#### QUESTION 74

You have 50 Azure SQL databases.

You need to notify the database owner when the database settings, such as the database size and pricing tier, are modified in Azure.

What should you do?

- A. Create a diagnostic setting for the activity log that has the Security log enabled.
- B. For the database, create a diagnostic setting that has the InstanceAndAppAdvanced metric enabled.
- C. Create an alert rule that uses a Metric signal type.
- D. Create an alert rule that uses an Activity Log signal type.

**Answer: D**

#### **Explanation:**

Activity log events - An alert can trigger on every event, or, only when a certain number of events occur.

Incorrect Answers:

C: Metric values - The alert triggers when the value of a specified metric crosses a threshold you assign in either direction. That is, it triggers both when the condition is first met and then afterwards when that condition is no longer being met.

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Reference:

<https://docs.microsoft.com/en-us/azure/azure-sql/database/alerts-insights-configure-portal>

**QUESTION 75**

You have several Azure SQL databases on the same Azure SQL Database server in a resource group named ResourceGroup1.

You must be alerted when CPU usage exceeds 80 percent for any database. The solution must apply to any additional databases that are created on the Azure SQL server.

Which resource type should you use to create the alert?

- A. Resource Groups
- B. SQL Servers
- C. SQL Databases
- D. SQL Virtual Machines

**Answer: C**

**Explanation:**

There are resource types related to application code, compute infrastructure, networking, storage + databases.

You can deploy up to 800 instances of a resource type in each resource group.

Some resources can exist outside of a resource group. These resources are deployed to the subscription, management group, or tenant. Only specific resource types are supported at these scopes.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/resource-providers-and-types>

**QUESTION 76**

You have SQL Server 2019 on an Azure virtual machine that runs Windows Server 2019. The virtual machine has 4 vCPUs and 28 GB of memory.

You scale up the virtual machine to 8 vCPUSs and 64 GB of memory.

You need to provide the lowest latency for tempdb.

What is the total number of data files that tempdb should contain?

- A. 2
- B. 4
- C. 8
- D. 64

**Answer: C**

**Explanation:**

The number of files depends on the number of (logical) processors on the machine. As a general rule, if the number of logical processors is less than or equal to eight, use the same number of data files as logical processors. If the number of logical processors is greater than eight, use eight data files and then if contention continues, increase the number of data files by multiples of 4 until the contention is reduced to acceptable levels or make changes to the workload/code.

Reference:

<https://docs.microsoft.com/en-us/sql/relational-databases/databases/tempdb-database>

**QUESTION 77**

You have SQL Server on an Azure virtual machine that contains a database named DB1.

You view a plan summary that shows the duration in milliseconds of each execution of query 1178902 as shown in the following exhibit:



What should you do to ensure that the query uses the execution plan which executes in the least amount of time?

- A. Force the query execution plan for plan 1221065.
- B. Run the DBCC FREEPROCCACHE command.
- C. Force the query execution plan for plan 1220917.
- D. Disable parameter sniffing.

**Answer: C**

**Explanation:**

<https://docs.microsoft.com/en-us/sql/relational-databases/performance/query-store-usage-scenarios>

**QUESTION 78**

You have an Azure SQL database named DB1. You run a query while connected to DB1. You review the actual execution plan for the query, and you add an index to a table referenced by the query. You need to compare the previous actual execution plan for the query to the Live Query Statistics. What should you do first in Microsoft SQL Server Management Studio (SSMS)?

- A. For DB1, set QUERY\_CAPTURE\_MODE of Query Store to All.
- B. Run the SET SHOWPLAN\_ALL Transact-SQL statement.
- C. Save the actual execution plan.
- D. Enable Query Store for DB1.

**Answer: C**

**Explanation:**

The Plan Comparison menu option allows side-by-side comparison of two different execution plans, for easier identification of similarities and changes that explain the different behaviors for all the reasons stated above. This option can compare between:

- Two previously saved execution plan files (.sqlplan extension).
- One active execution plan and one previously saved query execution plan.
- Two selected query plans in Query Store.

**QUESTION 79**

You have an Azure SQL database. Users report that the executions of a stored procedure are slower than usual. You suspect that a regressed query is causing the performance issue. You need to view the query execution plan to verify whether a regressed query is causing the issue. The solution must minimize effort. What should you use?

- A. Performance Recommendations in the Azure portal
- B. Extended Events in Microsoft SQL Server Management Studio (SSMS)
- C. Query Store in Microsoft SQL Server Management Studio (SSMS)
- D. Query Performance Insight in the Azure portal

**Answer: C**

**Explanation:**

Use the Query Store Page in SQL Server Management Studio.

Query performance regressions caused by execution plan changes can be non-trivial and time consuming to resolve. Since the Query Store retains multiple execution plans per query, it can enforce policies to direct the Query Processor to use a specific execution plan for a query. This is referred to as plan forcing. Plan forcing in Query Store is provided by using a mechanism similar to the USE PLAN query hint, but it does not require any change in user applications. Plan forcing can resolve a query performance regression caused by a plan change in a very short period of time.

Reference:

<https://docs.microsoft.com/en-us/sql/relational-databases/performance/monitoring-performance-by-using-the-query-store>

#### **QUESTION 80**

You have an Azure SQL database. The database contains a table that uses a columnstore index and is accessed infrequently.

You enable columnstore archival compression.

What are two possible results of the configuration? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Queries that use the index will consume more disk I/O.
- B. Queries that use the index will retrieve fewer data pages.
- C. The index will consume more disk space.
- D. The index will consume more memory.
- E. Queries that use the index will consume more CPU resources.

**Answer: BE**

**Explanation:**

For rowstore tables and indexes, use the data compression feature to help reduce the size of the database. In addition to saving space, data compression can help improve performance of I/O intensive workloads because the data is stored in fewer pages and queries need to read fewer pages from disk.

Use columnstore archival compression to further reduce the data size for situations when you can afford extra time and CPU resources to store and retrieve the data.

#### **QUESTION 81**

You plan to move two 100-GB databases to Azure.

You need to dynamically scale resources consumption based on workloads. The solution must minimize downtime during scaling operations.

What should you use?

- A. two Azure SQL Databases in an elastic pool
- B. two databases hosted in SQL Server on an Azure virtual machine
- C. two databases in an Azure SQL Managed instance
- D. two single Azure SQL databases

**Answer: A**

**Explanation:**

Azure SQL Database elastic pools are a simple, cost-effective solution for managing and scaling multiple databases that have varying and unpredictable usage demands. The databases in an elastic pool are on a single server and share a set number of resources at a set price.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-sql/database/elastic-pool-overview>

**QUESTION 82**

You have an on-premises app named App1 that stores data in an on-premises Microsoft SQL Server 2016 database named DB1.

You plan to deploy additional instances of App1 to separate Azure regions. Each region will have a separate instance of App1 and DB1. The separate instances of DB1 will sync by using Azure SQL Data Sync.

You need to recommend a database service for the deployment. The solution must minimize administrative effort. What should you include in the recommendation?

- A. Azure SQL Managed instance
- B. Azure SQL Database single database
- C. Azure Database for PostgreSQL
- D. SQL Server on Azure virtual machines

**Answer: B**

**Explanation:**

Azure SQL Database single database supports Data Sync.

Incorrect Answers:

A: Azure SQL Managed instance does not support Data Sync.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-sql/database/features-comparison>

**QUESTION 83**

You have an Azure SQL database named DB1.

You need to ensure that DB1 will support automatic failover without data loss if a datacenter fails. The solution must minimize costs.

Which deployment option and pricing tier should you configure?

- A. Azure SQL Database Premium
- B. Azure SQL Database Hyperscale
- C. Azure SQL Database managed instance Business Critical
- D. Azure SQL Database Standard

**Answer: C**

**Explanation:**

Auto-failover groups is required. SQL Managed Instance supports Auto-failover groups.

Note: The auto-failover groups feature allows you to manage the replication and failover of a group of databases on a server or all databases in a managed instance to another region.

Incorrect Answers:

B: Hyperscale is for large databases. It is designed for most business workloads, providing highly scalable storage, read scale-out, and fast database restore capabilities.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-sql/database/auto-failover-group-overview>

**QUESTION 84**

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

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

You have two Azure SQL Database servers named Server1 and Server2. Each server contains an Azure SQL database named Database1.

You need to restore Database1 from Server1 to Server2. The solution must replace the existing Database1 on Server2.

Solution: From Microsoft SQL Server Management Studio (SSMS), you rename Database1 on Server2 as Database2. From the Azure portal, you create a new database on Server2 by restoring the backup of Database1 from Server1, and then you delete Database2.

Does this meet the goal?

- A. Yes
- B. No

**Answer: B**

**Explanation:**

Instead restore Database1 from Server1 to the Server2 by using the RESTORE Transact-SQL command and the REPLACE option.

Note: REPLACE should be used rarely and only after careful consideration. Restore normally prevents accidentally overwriting a database with a different database. If the database specified in a RESTORE statement already exists on the current server and the specified database family GUID differs from the database family GUID recorded in the backup set, the database is not restored. This is an important safeguard.

Reference:

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

### QUESTION 85

You have the following Transact-SQL query.

```
SELECT
    [file_id] AS [File ID],
    [type] AS [File Type],
    substring([physical_name], 1,1) AS [Drive],
    [name] AS [Logical Name],
    [physical_name] AS [Physical Name],
    CAST([size] as DECIMAL(38,0))/128.0 AS [ColumnA],
    CAST(FILEPROPERTY([name], 'SpaceUsed') AS DECIMAL(38,0))/128.0 AS
[ColumnB],
    (CAST([size] AS DECIMAL(38,0))/128.0) - (CAST(FILEPROPERTY([name],
'SpaceUsed') AS DECIMAL (38,0))/128.0) AS [ColumnC],
    [max_size] AS [ColumnD],
    [is_percent_growth] AS [Percent Growth Enabled],
    [growth] AS [Growth Rate],
    SYSDATETIME() AS [Current Date]
FROM sys.database_files;
```

Which column returned by the query represents the free space in each file?

- A. ColumnA
- B. ColumnB
- C. ColumnC
- D. ColumnD

**Answer: C**

**Explanation:**

Example:

Free space for the file in the below query result set will be returned by the FreeSpaceMB column.

```
SELECT DB_NAME() AS DbName,
name AS FileName,
type_desc,
size/128.0 AS CurrentSizeMB,
size/128.0 - CAST(FILEPROPERTY(name, 'SpaceUsed') AS INT)/128.0 AS FreeSpaceMB FROM sys.database_files
WHERE type IN (0,1);
```

Reference:

<https://www.sqlshack.com/how-to-determine-free-space-and-file-size-for-sql-server-databases/>

### QUESTION 86

Hotspot Question

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You have an Azure SQL database named DB1 that contains two tables named Table1 and Table2. Both tables contain a column named a Column1. Column1 is used for joins by an application named App1.

You need to protect the contents of Column1 at rest, in transit, and in use.

How should you protect the contents of Column1? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

## Answer Area

Encryption key:  ▼

Column encryption key
Database encryption key
Service master key

Encryption type:  ▼

Deterministic
Randomized
Transparent Data Encryption (TDE)

Answer:

## Answer Area

Encryption key:  ▼

Column encryption key
Database encryption key
Service master key

Encryption type:  ▼

Deterministic
Randomized
Transparent Data Encryption (TDE)

### Explanation:

Box 1: Column encryption Key

Always Encrypted uses two types of keys: column encryption keys and column master keys. A column encryption key is used to encrypt data in an encrypted column. A column master key is a key-protecting key that encrypts one or more column encryption keys.

Incorrect Answers:

TDE encrypts the storage of an entire database by using a symmetric key called the Database Encryption Key (DEK).

Box 2: Deterministic

Always Encrypted is a feature designed to protect sensitive data, such as credit card numbers or national identification numbers (for example, U.S. social security numbers), stored in Azure SQL Database or SQL Server databases. Always Encrypted allows clients to encrypt sensitive data inside client applications and never reveal the encryption keys to the Database Engine (SQL Database or SQL Server).

Always Encrypted supports two types of encryption: randomized encryption and deterministic encryption. Deterministic encryption always generates the same encrypted value for any given plain text value. Using deterministic encryption allows point lookups, equality joins, grouping and indexing on encrypted columns.

Incorrect Answers:

Randomized encryption uses a method that encrypts data in a less predictable manner. Randomized encryption is more secure, but prevents searching, grouping, indexing, and joining on encrypted columns.

Transparent data encryption (TDE) helps protect Azure SQL Database, Azure SQL Managed Instance, and Azure Synapse Analytics against the threat of malicious offline activity by encrypting data at rest. It performs real-time encryption and decryption of the database, associated backups, and transaction log files at rest without requiring changes to the application.

Reference:

<https://docs.microsoft.com/en-us/sql/relational-databases/security/encryption/always-encrypted-database-engine>

### QUESTION 87

Drag and Drop Question

You have an Azure SQL Database instance named DatabaseA on a server named Server1.

You plan to add a new user named App1 to DatabaseA and grant App1 db\_datacenter permissions. App1 will use SQL Server Authentication.

You need to create App1. The solution must ensure that App1 can be given access to other databases by using the same credentials.

Which three actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

#### Actions

#### Answer Area

On the master database, run `CREATE LOGIN [APP1] FROM EXTERNAL PROVIDER;`

On DatabaseA, run `CREATE USER [APP1] WITH PASSWORD = 'P@ssW0rd!';`

On DatabaseA, run `ALTER ROLE db_datareader ADD MEMBER [App1];`

On the master database, run `CREATE LOGIN [App1] WITH PASSWORD = 'P@aaW0rd!';`

On DatabaseA, run `CREATE USER [App1] FROM LOGIN [App1];`



Answer:

**Actions**

```
On the master database, run CREATE LOGIN [APP1] FROM EXTERNAL PROVIDER;
```

```
On DatabaseA, run CREATE USER [APP1] WITH PASSWORD = 'P@ssw0rd!';
```

**Answer Area**

```
On the master database, run CREATE LOGIN [App1] WITH PASSWORD = 'P@aaW0rd!';
```

```
On DatabaseA, run CREATE USER [App1] FROM LOGIN [App1];
```

```
On DatabaseA, run ALTER ROLE db_datareader ADD MEMBER [App1];
```

**Explanation:**

Step 1: On the master database, run CREATE LOGIN [App1] WITH PASSWORD = 'p@aaW0rd!' Logins are server wide login and password pairs, where the login has the same password across all databases. Here is some sample Transact-SQL that creates a login:

```
CREATE LOGIN readonlylogin WITH password='1231!#ASDF!a';
```

You must be connected to the master database on SQL Azure with the administrative login (which you get from the SQL Azure portal) to execute the CREATE LOGIN command.

Step 2: On DatabaseA, run CREATE USER [App1] FROM LOGIN [App1] Users are created per database and are associated with logins. You must be connected to the database in where you want to create the user. In most cases, this is not the master database. Here is some sample Transact-SQL that creates a user:

```
CREATE USER readonlyuser FROM LOGIN readonlylogin;
```

Step 3: On DatabaseA run ALTER ROLE db\_datareader ADD Member [App1] Just creating the user does not give them permissions to the database. You have to grant them access. In the Transact-SQL example below the readonlyuser is given read only permissions to the database via the db\_datareader role.

```
EXEC sp_addrolemember 'db_datareader', 'readonlyuser';
```

Reference:

<https://azure.microsoft.com/en-us/blog/adding-users-to-your-sql-azure-database/>

**QUESTION 88**

Hotspot Question

You have an Azure SQL database named DB1. The automatic tuning options for DB1 are configured as shown in the following exhibit.

 Azure SQL Database built-in intelligence automatically tunes your databases to optimize performance. [Click here to learn more about automatic tuning.](#) 

Inherit from: 

 The database is inheriting automatic tuning configuration from Azure defaults.

Configure the automatic tuning options 

OPTION	DESIRED STATE	CURRENT STATE
 FORCE PLAN	<input type="button" value="ON"/> <input type="button" value="OFF"/> <input checked="" type="button" value="INHERIT"/>	<b>ON</b> Auto-configured by Azure
 CREATE INDEX	<input type="button" value="ON"/> <input type="button" value="OFF"/> <input checked="" type="button" value="INHERIT"/>	<b>ON</b> Auto-configured by Azure
 DROP INDEX	<input checked="" type="button" value="ON"/> <input type="button" value="OFF"/> <input type="button" value="INHERIT"/>	<b>ON</b> Forced by user

For each of the following statements, select Yes if the statement is true. Otherwise, select No.  
 NOTE: Each correct selection is worth one point.

### Answer Area

Statements	Yes	No
Nonclustered indexes will be added to tables to improve performance.	<input type="radio"/>	<input type="radio"/>
Columns will be added to existing indexes automatically.	<input type="radio"/>	<input type="radio"/>
The query execution plan will revert to a previous plan if query performance degrades.	<input type="radio"/>	<input type="radio"/>

Answer:

## Answer Area

Statements	Yes	No
Nonclustered indexes will be added to tables to improve performance.	<input checked="" type="radio"/>	<input type="radio"/>
Columns will be added to existing indexes automatically.	<input type="radio"/>	<input checked="" type="radio"/>
The query execution plan will revert to a previous plan if query performance degrades.	<input checked="" type="radio"/>	<input type="radio"/>

**Explanation:**

Box 1: Yes

We see: Tuning option: Create index ON

CREATE INDEX - Identifies indexes that may improve performance of your workload, creates indexes, and automatically verifies that performance of queries has improved.

Box 2: No

Box 3: Yes

FORCE LAST GOOD PLAN (automatic plan correction) - Identifies Azure SQL queries using an execution plan that is slower than the previous good plan, and queries using the last known good plan instead of the regressed plan.