

**Exam Code: DS0-001**

**Exam Name: CompTIA DataSys+**

## Exam A

### QUESTION 1

Which of the following is a characteristic of all non-relational databases?

- A. Columns with the same data type
- B. Unstructured data
- C. Logical record groupings
- D. Tabular schema

**Correct Answer: B**

**Section:**

**Explanation:**

The characteristic of all non-relational databases is unstructured data. Unstructured data is data that does not have a predefined or fixed format, schema, or structure. Unstructured data can include various types of data, such as text, images, audio, video, etc. Non-relational databases, also known as NoSQL databases, are databases that store and manage unstructured data using different models, such as key-value, document, graph, columnar, etc. Non-relational databases are suitable for handling large volumes, variety, and velocity of data that do not fit well in the relational model. The other options are either characteristics of relational databases or not related to database types at all. For example, columns with the same data type, logical record groupings, and tabular schema are characteristics of relational databases, which are databases that store and manage structured data using tables, rows, columns, and constraints. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify common database types.

### QUESTION 2

Which of the following is used to hide data in a database so the data can only be read by a user who has a key?

- A. Data security
- B. Data masking
- C. Data protection
- D. Data encryption

**Correct Answer: D**

**Section:**

**Explanation:**

The option that is used to hide data in a database so the data can only be read by a user who has a key is data encryption. Data encryption is a process that transforms data into an unreadable or scrambled form using an algorithm and a key. Data encryption helps protect data from unauthorized access or modification by third parties, such as hackers, eavesdroppers, or interceptors. Data encryption also helps verify the identity and authenticity of the source and destination of the data using digital signatures or certificates. Data encryption can be applied to data at rest (stored in a database) or data in transit (transmitted over a network). To read encrypted data, a user needs to have the corresponding key to decrypt or restore the data to its original form. The other options are either different concepts or not related to hiding data at all. For example, data security is a broad term that encompasses various methods and techniques to protect data from threats or risks; data masking is a technique that replaces sensitive data with fictitious but realistic data to protect its confidentiality or compliance; data protection is a term that refers to the legal or ethical obligations to safeguard personal or sensitive data from misuse or harm. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

### QUESTION 3

A server administrator wants to analyze a database server's disk throughput. Which of the following should the administrator measure?

- A. RPFvl

- B. Latency
- C. IOPS
- D. Reads

**Correct Answer: C**

**Section:**

**Explanation:**

The factor that the administrator should measure to analyze a database server's disk throughput is IOPS. IOPS, or Input/Output Operations Per Second, is a metric that measures the number of read and write operations that a disk can perform in one second. IOPS indicates the performance or speed of a disk and how well it can handle multiple requests or transactions. Higher IOPS means higher disk throughput and lower latency. IOPS can be affected by various factors, such as disk type, size, speed, cache, RAID level, etc. The other options are either not related or not sufficient for this purpose. For example, RPFV is not a valid acronym or metric; latency is the time delay between a request and a response; reads are the number of read operations performed by a disk. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.2 Given a scenario, monitor database performance.

#### QUESTION 4

Which of the following have data manipulation and procedural scripting power? (Choose two.)

- A. PQL
- B. PL/SQL
- C. Advanced
- D. SQL
- E. SQL
- F. T-SQL

**Correct Answer: B, F**

**Section:**

**Explanation:**

The two options that have data manipulation and procedural scripting power are PL/SQL and T-SQL. PL/SQL, or Procedural Language/Structured Query Language, is an extension of SQL that adds procedural features to SQL for Oracle databases. PL/SQL allows users to create and execute stored procedures, functions, triggers, packages, etc., using variables, loops, conditions, exceptions, etc., in addition to SQL commands. PL/SQL helps improve the performance, functionality, modularity, and security of SQL queries and applications. T-SQL, or Transact-SQL, is an extension of SQL that adds procedural features to SQL for Microsoft SQL Server databases. T-SQL allows users to create and execute stored procedures, functions, triggers, etc., using variables, loops, conditions, exceptions, etc., in addition to SQL commands. T-SQL helps improve the performance, functionality, modularity, and security of SQL queries and applications. The other options are either not related or not having both data manipulation and procedural scripting power. For example, PQL, or Power Query Language, is a data analysis and transformation language for Microsoft Power BI and Excel; Advanced SQL is a term that refers to the advanced features or techniques of SQL, such as subqueries, joins, aggregations, etc.; SQL, or Structured Query Language, is a standard language for manipulating and querying data in relational databases, but it does not have procedural features. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

#### QUESTION 5

Over the weekend, a company's transaction database was moved to an upgraded server. All validations performed after the migration indicated that the database was functioning as expected. However, on Monday morning, multiple users reported that the corporate reporting application was not working.

Which of the following are the most likely causes? (Choose two.)

- A. The access permissions for the service account used by the reporting application were not changed.
- B. The new database server has its own reporting system, so the old one is not needed.
- C. The reporting jobs that could not process during the database migration have locked the application.
- D. The reporting application's mapping to the database location was not updated.
- E. The database server is not permitted to fulfill requests from a reporting application.

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F. The reporting application cannot keep up with the new, faster response from the database.

**Correct Answer: A, D**

**Section:**

**Explanation:**

The most likely causes of the reporting application not working are that the access permissions for the service account used by the reporting application were not changed, and that the reporting application's mapping to the database location was not updated. These two factors could prevent the reporting application from accessing the new database server. The other options are either irrelevant or unlikely to cause the problem. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.2 Given a scenario, troubleshoot common database issues.

#### QUESTION 6

Refer to exhibit.

Given the following customer table:

ID	First_Purchase_Date	State	Country
12365	02-02-2020	CA	US
36745	04-01-2022	NY	US
63456	01-07-2018	VT	US

Which of the following ORM snippets would return the ID, state, and country of all customers with the newest customers appearing first?

A)

```
result = session.execute(  
    select(Customer.ID, Customer.State, Customer.Country).  
    .order_by(Customer.First_Purchase_Date.asc())  
)
```

B)

```
result = session.execute(  
    select(Customer.ID, Customer.State, Customer.Country).  
    .order_by(Customer.First_Purchase_Date.desc())  
)
```

C)

```
result = session.execute(  
    select(Customer.ID, Customer.State, Customer.Country)  
)
```

D)

```
result = session.execute(  
    select(Customer.ID, Customer.State, Customer.Country).  
    .order_by(Customer.First_Purchase_Date)  
)
```

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

**Correct Answer: C**

**Section:**

**Explanation:**

The ORM snippet that would return the ID, state, and country of all customers with the newest customers appearing first is option C. This snippet uses the `selectmethod` to specify the columns to be returned, the `orderbymethod` to sort the results by ID in descending order, and the `allmethod` to fetch all the records. The other options either have syntax errors, use incorrect methods, or do not sort the results correctly. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

**QUESTION 7**

A DBA is reviewing the following logs to determine the current data backup plan for a primary data server:

Timestamp	Activity	Size	Duration
2023-Jan-23 23:59:00	Back up to disk	7.35GB	03:14:55
2023-Jan-24 23:59:00	Back up to disk	0.12GB	00:14:22
2023-Jan-25 23:59:00	Back up to disk	1.11GB	01:11:55
2023-Jan-26 23:59:00	Back up to disk	1.23GB	01:22:12
2023-Jan-27 23:59:00	Back up to disk	1.22GB	01:19:56
2023-Jan-28 23:59:00	Back up to disk	1.21GB	01:17:19
2023-Jan-29 23:59:00	Back up to disk	0.94GB	01:01:29
2023-Jan-30 23:59:00	Back up to disk	8.1GB	03:45:66

Which of the following best describes this backup plan?

- A. Monthly full, daily differential
- B. Daily differential
- C. Daily full
- D. Weekly full, daily incremental

**Correct Answer: D**

**Section:**

**Explanation:**

The backup plan that best describes the logs is weekly full, daily incremental. This means that a full backup of the entire database is performed once a week, and then only the changes made since the last backup are backed up every day. This can be inferred from the logs by looking at the size and duration of the backups. The full backups are larger and take longer than the incremental backups, and they occur every seven days. The other backup plans do not match the pattern of the logs. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.2 Given a scenario, implement backup and restoration of database management systems.

#### QUESTION 8

A database administrator needs to ensure that a newly installed corporate business intelligence application can access the company's transactional data. Which of the following tasks should the administrator perform first?

- A. Create a new service account exclusively for the business intelligence application.
- B. Build a separate data warehouse customized to the business intelligence application's specifications.
- C. Set up a nightly FTP data transfer from the database server to the business intelligence application server.
- D. Send the business intelligence administrator the approved TNS names file to configure the data mapping.
- E. Open a new port on the database server exclusively for the business intelligence application.

**Correct Answer: A**

**Section:**

**Explanation:**

The first task that the administrator should perform is to create a new service account exclusively for the business intelligence application. This will ensure that the application has the appropriate permissions and credentials to access the company's transactional data. The other options are either unnecessary, inefficient, or insecure. For example, building a separate data warehouse would require additional resources and time, setting up a nightly FTP data transfer would expose the data to potential breaches, sending the TNS names file would not guarantee that the application can connect to the database, and opening a new port on the database server would create a vulnerability for attackers. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.1 Given a scenario, install and configure database software and tools.

#### QUESTION 9

Which of the following scripts would set the database recovery model for sys.database?

A)

```
select name, recoverymodel from sys.database where name='XYZ'  
USE[master]  
GO  
ALTER DATABASE [xyz] SET RECOVERY FULL WITH NO_WAIT  
GO
```

B)

```
select name, recoverymodel from sys.database where name='XYZ'  
USE[master]  
GO  
UPDATE DATABASE [xyz] SET RECOVERY FULL WITH NO_WAIT  
GO
```

C)

```
select name, recoverymodel from sys.database where name='XYZ'  
USE[master]  
GO  
TRUNCATE DATABASE [xyz] SET RECOVERY FULL WITH NO_WAIT  
GO
```

D)

```
select name, recoverymodel from sys.database where name='XYZ'  
USE[master]  
GO  
DROP DATABASE [xyz] SET RECOVERY FULL WITH NO_WAIT  
GO
```

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

**Correct Answer: A**

**Section:**

**Explanation:**

The script that would set the database recovery model for sys.database is option A. This script uses the ALTER DATABASE statement to modify the recovery model of the sys.database to full with no wait. The other options either have syntax errors, use incorrect keywords, or do not specify the recovery model correctly. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.1 Given a scenario, perform common database maintenance tasks.

#### QUESTION 10

A database administrator is conducting a stress test and providing feedback to a team that is developing an application that uses the Entity Framework. Which of the following explains the approach the administrator should use when conducting the stress test?

- A. Capture business logic, check the performance of codes, and report findings.
- B. Check the clustered and non-clustered indexes, and report findings.
- C. Review application tables and columns, and report findings.
- D. Write queries directly into the database and report findings.

**Correct Answer: A**

**Section:**

**Explanation:**

The approach that the administrator should use when conducting the stress test is to capture business logic, check the performance of codes, and report findings. This will help the administrator to evaluate how well the application handles high volumes of data and transactions, identify any bottlenecks or errors in the code, and provide feedback to the development team on how to improve the application's efficiency and reliability. The other options are either too narrow or too broad in scope, and do not address the specific needs of an application that uses the Entity Framework. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.3 Given a scenario, monitor database performance and security.

#### QUESTION 11

A database administrator is creating a table, which will contain customer data, for an online business. Which of the following SQL syntaxes should the administrator use to create an object?

A)

```
CREATE TABLE
(
  ID INT,
  NAME VARCHAR(100),
  AGE INT
)
```

B)

```
CREATE CUSTOMER
(
  ID INT,
  NAME VARCHAR(100),
  AGE INT
)
```

C)

```
CREATE
(
  TABLE CUSTOMER
  ID INT,
  NAME VARCHAR(100),
  AGE INT
)
```

D)

```
CREATE TABLE CUSTOMER
(
  ID INT,
  NAME VARCHAR(100),
  AGE INT
)
```

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

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**Correct Answer: B**

**Section:**

**Explanation:**

The SQL syntax that the administrator should use to create an object is option B. This syntax uses the CREATE TABLE statement to define a new table named customer with four columns: customer\_id, name, email, and phone. Each column has a data type and a constraint, such as NOT NULL or PRIMARY KEY. The other options either have syntax errors, use incorrect keywords, or do not specify the table name or columns correctly. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify and apply database structure types.

**QUESTION 12**

A database administrator wants to remove inactive customers from a database. Which of the following statements should the administrator use?

A)

```
Update Transaction Customer;  
Delete from customer where customer_ID = 20;  
End;
```

B)

```
Open Transaction Customer;  
Delete from customer where customer_ID = 20;  
Close Transaction;
```

C)

```
While Transaction Customer;  
Delete from customer where customer_ID = 20;  
Catch;
```

D)

```
Begin Transaction Customer;  
Delete from customer where customer_ID = 20;  
Commit;
```

A. Option A

B. Option B

C. Option C

D. Option D

**Correct Answer: A**

**Section:**

**Explanation:**

The statement that the administrator should use to remove inactive customers from a database is option A. This statement uses the DELETE command to delete all the rows from the customer table where the status column is equal to 'inactive'. The other options either have syntax errors, use incorrect commands, or do not specify the condition correctly. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

**QUESTION 13**

Which of the following is the correct order of the steps in the database deployment process?

- A)
1. Connect
  2. Install
  3. Configure
  4. Confirm prerequisites
  5. Validate
  6. Test
  7. Release

- B)
1. Configure
  2. Install
  3. Connect
  4. Test
  5. Confirm prerequisites
  6. Validate
  7. Release

- C)
1. Confirm prerequisites
  2. Install
  3. Configure
  4. Connect
  5. Test
  6. Validate
  7. Release

- D)
1. Install
  2. Configure
  3. Confirm prerequisites
  4. Connect
  5. Test
  6. Validate
  7. Release

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

**Correct Answer: C**

**Section:**

**Explanation:**

The correct order of the steps in the database deployment process is option C. This order follows the best practices for deploying a database system, which are:

Confirm prerequisites: Check the system requirements and compatibility of the database software and tools before installation.

Install: Install the database software and tools on the target server or platform.

Configure: Configure the database settings and parameters according to the specifications and needs of the application or organization.

Connect: Connect the database to the network and other systems or applications that will access it.

Test: Test the functionality and performance of the database system and verify that it meets the expectations and requirements.

Validate: Validate the data quality and integrity of the database system and ensure that it complies with the standards and regulations.

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Release: Release the database system to production and make it available for use by end-users or customers. The other options do not follow this order and may result in errors, inefficiencies, or security issues. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.1 Given a scenario, install and configure database software and tools.

#### QUESTION 14

A company wants to deploy a new application that will distribute the workload to five different database instances. The database administrator needs to ensure that, for each copy of the database, users are able to read and write data that will be synchronized across all of the instances. Which of the following should the administrator use to achieve this objective?

- A. [Peer-to-peer replication
- B. Failover clustering
- C. Log shipping
- D. Availability groups

**Correct Answer: A**

**Section:**

**Explanation:**

The administrator should use peer-to-peer replication to achieve this objective. Peer-to-peer replication is a type of replication that allows data to be distributed across multiple database instances that are equal partners, or peers. Each peer can read and write data that will be synchronized across all peers. This provides high availability, scalability, and load balancing for the application. The other options are either not suitable for this scenario or do not support bidirectional data synchronization. For example, failover clustering provides high availability but does not distribute the workload across multiple instances; log shipping provides disaster recovery but does not allow writing data to secondary instances; availability groups provide high availability and read-only access to secondary replicas but do not support peer-to-peer replication. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.3 Given a scenario, implement replication of database management systems.

#### QUESTION 15

A database administrator manages a database server that is running low on disk space. A lot of backup files are stored on the server's disks. Which of the following is the best action for the administrator to take?

- A. Move all the backup files to external disks.
- B. Delete all the backup files containing data that is rated as classified.
- C. Delete all the backup files that are not required by the backup retention policy.
- D. Delete all the backup files except for the most recent one.

**Correct Answer: C**

**Section:**

**Explanation:**

The best action for the administrator to take is to delete all the backup files that are not required by the backup retention policy. This will free up disk space on the server and also comply with the best practices for data backup and recovery. The backup retention policy defines how long the backup files should be kept and when they should be deleted or archived. The other options are either risky, inefficient, or impractical. For example, moving all the backup files to external disks would require additional hardware and time, deleting all the backup files containing data that is rated as classified would compromise data security and compliance, and deleting all the backup files except for the most recent one would limit the recovery options in case of a disaster. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.2 Given a scenario, implement backup and restoration of database management systems.

#### QUESTION 16

A business analyst is using a client table and an invoice table to create a database view that shows clients who have not made purchases yet. Which of the following joins is most appropriate for the analyst to use to create this database view?

- A. INNER JOIN ON Client.Key = Invoice.Key
- B. RIGHT JOIN ON Client.Key = Invoice.Key WHERE BY Client.Key IS NOLL

- C. LEFT JOIN ON Client.Key = Invoice.Key
- D. LEFT JOIN ON Client.Key = Invoice.Key WHERE BY Invoice.Key IS NOLL

**Correct Answer: D**

**Section:**

**Explanation:**

The join that is most appropriate for the analyst to use to create this database view is option D. This join uses the LEFT JOIN clause to combine the client table and the invoice table based on the matching values in the key column. The WHERE clause filters out the rows where the invoice key column is not null, meaning that the client has made a purchase. The result is a view that shows only the clients who have not made any purchases yet. The other options either do not produce the desired result or have syntax errors. For example, option A would show only the clients who have made purchases, option B would show only the invoices that do not have a matching client, and option C would show all the clients regardless of their purchase status. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

#### QUESTION 17

A database administrator would like to create a table named XYZ. Which of the following queries should the database administrator use to create the table?

A)

```
Create Table XYZ(  
column1 datatype;  
column2 datatype);
```

B)

```
Create Table XYZ(  
column1 datatype,  
column2 datatype);
```

C)

```
Select Table XYZ(  
column1 datatype,  
column2 datatype);
```

D)

```
Append Table XYZ(  
column1 datatype;  
column2 datatype);
```

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

**Correct Answer: B**

**Section:**

**Explanation:**

The query that the administrator should use to create the table is option B. This query uses the CREATE TABLE statement to define a new table named XYZ with three columns: ID, Name, and Age. Each column has a

data type and a constraint, such as NOT NULL, PRIMARY KEY, or CHECK. The other options either have syntax errors, use incorrect keywords, or do not specify the table name or columns correctly. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify and apply database structure types.

#### QUESTION 18

A database administrator needs to provide access to data from two different tables to multiple group users in order to facilitate ongoing reporting. However, some columns in each table are restricted, and users should not be able to see the values in these columns.

Which of the following is the best action for the administrator to take?

- A. Create a stored procedure.
- B. Create a view.
- C. Create a csv export.
- D. Create a trigger.

**Correct Answer: B**

**Section:**

**Explanation:**

The best action for the administrator to take is to create a view. A view is a virtual table that shows a subset of data from one or more tables. The administrator can use a view to provide access to data from two different tables to multiple group users without exposing the restricted columns. The view can also simplify the queries and improve the performance of the reporting process. The other options are either not suitable for this scenario or do not address the requirement of hiding some columns from users. For example, creating a stored procedure would require additional coding and execution, creating a csv export would create a static file that may not reflect the latest data changes, and creating a trigger would perform an action in response to an event rather than provide access to data. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

#### QUESTION 19

Which of the following describes a scenario in which a database administrator would use a relational database rather than a non-relational database?

- A. An organization wants to maintain consistency among the data in the database.
- B. An organization requires data encryption.
- C. An organization wants to process complex data sets.
- D. An organization wants to store a large number of videos, photos, and documents.

**Correct Answer: A**

**Section:**

**Explanation:**

A scenario in which a database administrator would use a relational database rather than a non-relational database is when an organization wants to maintain consistency among the data in the database. A relational database is a type of database that organizes data into tables with predefined columns and rows, and enforces rules and constraints to ensure data integrity and accuracy. A relational database also supports transactions, which are sets of operations that must be executed as a whole or not at all, to prevent data corruption or inconsistency. The other options are either not exclusive to relational databases or not relevant to the choice of database type. For example, data encryption can be applied to both relational and non-relational databases, processing complex data sets may require specialized tools or techniques that are not dependent on the database type, and storing a large number of videos, photos, and documents may be better suited for a non-relational database that can handle unstructured or semi-structured data. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify and apply database structure types.

#### QUESTION 20

A database administrator set up a connection for a SQL Server instance for a new user, but the administrator is unable to connect using the user's workstation. Which of the following is the most likely cause of the issue?

- A. The SQL Server codes are performing badly.
- B. The SQL Server has not been tested properly.

- C. The SQL Server ports to the main machine are closed.
- D. The SQL Server has many concurrent users.

**Correct Answer: C**

**Section:**

**Explanation:**

The most likely cause of the issue is that the SQL Server ports to the main machine are closed. SQL Server uses TCP/IP ports to communicate with clients and other servers. If these ports are blocked by a firewall or other network device, the connection will fail. The administrator should check the port configuration on both the server and the user's workstation, and make sure that they are open and match the expected values. The other options are either unlikely or unrelated to the issue. For example, the SQL Server codes performing badly or having many concurrent users may affect the performance or availability of the server, but not prevent the connection entirely; the SQL Server not being tested properly may cause errors or bugs in the functionality or security of the server, but not affect the connection unless there is a configuration problem. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.3 Given a scenario, troubleshoot common database deployment issues.

#### QUESTION 21

A group of developers needs access to a database in a development environment, but the database contains sensitive data.

a. Which of the following should the database administrator do before giving the developers access to the environment?

- A. Audit access to tables with sensitive data.
- B. Remove sensitive data from tables
- C. Mask the sensitive data.
- D. Encrypt connections to the development environment.

**Correct Answer: C**

**Section:**

**Explanation:**

The database administrator should mask the sensitive data before giving the developers access to the environment. Data masking is a technique that replaces sensitive data with fictitious but realistic data, such as random numbers or characters, to protect it from unauthorized access or exposure. Data masking preserves the format and structure of the original data, but does not reveal its actual value. This allows developers to work with realistic data without compromising its confidentiality or compliance. The other options are either insufficient or excessive for this scenario. For example, auditing access to tables with sensitive data may help monitor and track who accesses the data, but does not prevent it from being seen; removing sensitive data from tables may compromise the quality or completeness of the data, and may not be feasible if there is a large amount of data; encrypting connections to the development environment may protect the data in transit, but not at rest or in use. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

#### QUESTION 22

A database administrator needs to aggregate data from multiple tables in a way that does not impact the original tables, and then provide this information to a department. Which of the following is the best way for the administrator to accomplish this task?

- A. Create a materialized view.
- B. Create indexes on those tables
- C. Create a new database.
- D. Create a function.

**Correct Answer: A**

**Section:**

**Explanation:**

The best way for the administrator to accomplish this task is to create a materialized view. A materialized view is a type of view that stores the result of a query on one or more tables as a separate table in the database. A materialized view can aggregate data from multiple tables in a way that does not impact the original tables, and then provide this information to a department as a single source of truth. A materialized view also improves query performance and efficiency by reducing the need to recompute complex queries every time they are executed. The other options are either not suitable or not optimal for this task. For example, creating indexes on those tables may improve query performance on individual tables, but not on aggregated data; creating a new database may require additional resources and maintenance, and may

introduce inconsistency or redundancy; creating a function may require additional coding and execution, and may not store the result as a separate table. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

#### QUESTION 23

A database administrator is migrating the information in a legacy table to a newer table. Both tables contain the same columns, and some of the data may overlap. Which of the following SQL commands should the administrator use to ensure that records from the two tables are not duplicated?

- A. UNION
- B. JOIN
- C. IINTERSECT
- D. CROSS JOIN

**Correct Answer: A**

**Section:**

**Explanation:**

The SQL command that the administrator should use to ensure that records from the two tables are not duplicated is option A. This command uses the UNION clause to combine the records from the legacy table and the newer table into a single result set. The UNION clause also eliminates any duplicate records that may exist in both tables, and sorts the result by default. The other options either do not produce the desired result or have syntax errors. For example, option B would join the records from the two tables based on a common column, but not remove any duplicates; option C would return only the records that are common to both tables, but not the ones that are unique to each table; option D would produce a Cartesian product of the records from the two tables, which would increase the number of duplicates. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

#### QUESTION 24

A company is launching a proof-of-concept, cloud-based application. One of the requirements is to select a database engine that will allow administrators to perform quick and simple queries on unstructured data. Which of the following would be best suited for this task?

- A. MongoDB
- B. MS SQL
- C. Oracle
- D. Graph database

**Correct Answer: A**

**Section:**

**Explanation:**

The best suited database engine for this task is MongoDB. MongoDB is a type of non-relational database that stores data as documents in JSON-like format. MongoDB allows administrators to perform quick and simple queries on unstructured data, such as text, images, videos, or social media posts, without requiring a predefined schema or complex joins. MongoDB also supports cloud-based deployment, scalability, and high availability. The other options are either relational databases that require a fixed schema and structure for data, or specialized databases that are designed for specific purposes, such as graph databases for storing and analyzing network data. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify and apply database structure types.

#### QUESTION 25

A database administrator needs to ensure database backups are occurring on a daily basis and at scheduled times. Which of the following actions should the administrator take?

- A. Query the database to observe entries.
- B. Check the database schema.
- C. Review the backup media.
- D. Review the server logs for entries.

**Correct Answer: D**

**Section:**

**Explanation:**

The action that the administrator should take is to review the server logs for entries. Server logs are files that record the events and activities that occur on a server, such as database backups, errors, warnings, or failures. By reviewing the server logs, the administrator can verify that the database backups are occurring on a daily basis and at scheduled times, and also identify any issues or anomalies that may affect the backup process or the backup quality. The other options are either not relevant or not sufficient for this task. For example, querying the database to observe entries may not show the backup status or frequency, checking the database schema may not reflect the backup schedule or policy, and reviewing the backup media may not indicate the backup time or duration. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.2 Given a scenario, implement backup and restoration of database management systems.

#### **QUESTION 26**

Which of the following is a result of an on-path attack on a system?

- A. A Wi-Fi network that redirects to clones of legitimate websites
- B. A website that has crashed and is no longer accessible
- C. An email from an unknown source requesting bank account details
- D. A web application that returns the addresses of its customers

**Correct Answer: A**

**Section:**

**Explanation:**

A result of an on-path attack on a system is a Wi-Fi network that redirects to clones of legitimate websites. An on-path attack is a type of attack that intercepts and modifies the traffic between two parties without their knowledge or consent. An attacker can use an on-path attack to create a rogue Wi-Fi network that mimics a legitimate one, and then redirect the users to fake websites that look like the ones they intended to visit. The attacker can then steal the users' personal or financial information, such as usernames, passwords, credit card numbers, or bank account details. The other options are either results of different types of attacks or not related to attacks at all. For example, a website that has crashed and is no longer accessible may be a result of a denial-of-service attack, an email from an unknown source requesting bank account details may be a result of a phishing attack, and a web application that returns the addresses of its customers may be a result of a poor design or a data breach. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.4 Given a scenario, identify common types of attacks against databases.

#### **QUESTION 27**

Which of the following is the best way to migrate a large data load from one table to another, considering total time and blocking?

- A. Split the load size into many transactions.
- B. Split the load size in half and run simultaneously.
- C. Batch into small loads and run in parallel.
- D. Batch large loads into one transaction.

**Correct Answer: C**

**Section:**

**Explanation:**

The best way to migrate a large data load from one table to another, considering total time and blocking, is to batch into small loads and run in parallel. This means that the large data load is divided into smaller chunks that can be processed simultaneously by multiple threads or processes. This reduces the total time required for the migration and also minimizes the blocking of other operations on the tables involved. The other options are either less efficient or more prone to blocking. For example, splitting the load size into many transactions may increase the overhead and latency of each transaction; splitting the load size in half and running simultaneously may still cause blocking or contention; batching large loads into one transaction may take longer and lock the tables for longer periods. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.3 Given a scenario, migrate data between databases.

#### **QUESTION 28**

Following a security breach, a database administrator needs to ensure users cannot change data unless a request is approved by the management team. Which of the following principles addresses this issue?

- A. Open access
- B. Least resistance
- C. Elevated privilege
- D. Least privilege

**Correct Answer: D**

**Section:**

**Explanation:**

The principle that addresses this issue is least privilege. Least privilege is a security principle that states that users should only have the minimum level of access or permissions required to perform their tasks or roles. By applying this principle, the administrator can ensure that users cannot change data unless they have been authorized by the management team through a request approval process. This prevents unauthorized or accidental modifications of data that may compromise its integrity or security. The other options are either opposite or unrelated to this principle. For example, open access means that users have unrestricted access to data; least resistance means that users have the easiest or most convenient access to data; elevated privilege means that users have higher or more permissions than they need. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.1 Given a scenario, apply security principles and best practices for databases.

#### QUESTION 29

A programmer wants to configure a database to only allow read or write access when requests are coming from specific IP addresses. Which of the following can be used to configure IP addresses to allow access to the database?

- A. Static IP address
- B. Firewall
- C. Dynamic IP address
- D. IDNS

**Correct Answer: B**

**Section:**

**Explanation:**

The best option to configure IP addresses to allow access to the database is a firewall. A firewall is a network device or software that controls the incoming and outgoing traffic based on a set of rules or policies. A firewall can be used to filter the traffic by IP addresses, ports, protocols, or other criteria, and allow or deny access to the database accordingly. The other options are either not relevant or not sufficient for this task. For example, a static IP address is an IP address that does not change over time, but it does not determine the access to the database; a dynamic IP address is an IP address that changes periodically, but it does not control the traffic to the database; an IDNS is an Internet Domain Name System, which translates domain names into IP addresses, but it does not regulate the access to the database. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

#### QUESTION 30

A company needs to prepare a document that establishes the responsibilities, metrics, penalties, and other generalities that a provider would have to fulfill for customers to use its platforms. Which of the following documents meets these requirements?

- A. DOU
- B. SLA
- C. MOU
- D. SOW

**Correct Answer: B**

**Section:**

**Explanation:**

The document that meets these requirements is an SLA. An SLA, or Service Level Agreement, is a contract between a service provider and a customer that defines the scope, quality, and terms of the service delivery. An SLA typically includes the responsibilities, metrics, penalties, and other generalities that a provider would have to fulfill for customers to use its platforms. An SLA also establishes the expectations and

obligations of both parties, as well as the methods for measuring and monitoring the service performance. The other options are either different types of documents or not related to service delivery. For example, a DOU, or Data Use Agreement, is a document that governs the sharing and use of data between parties; an MOU, or Memorandum of Understanding, is a document that expresses a mutual agreement or intention between parties; a SOW, or Statement of Work, is a document that describes the specific tasks and deliverables of a project or contract. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.4 Given a scenario, implement service level agreements.

### QUESTION 31

A DBA left the company, and the DBA's account was removed from the system. Soon after, scheduled jobs began failing. Which of the following would have most likely prevented this issue?

- A. Load balancing
- B. Business continuity plan
- C. Service accounts
- D. Assigning a data steward

**Correct Answer: C**

**Section:**

**Explanation:**

The most likely way to prevent this issue is to use service accounts. Service accounts are special accounts that are used by applications or services to perform tasks or run jobs on behalf of users. Service accounts have limited permissions and access rights that are tailored to their specific functions. By using service accounts, the DBA can ensure that scheduled jobs can run independently of individual user accounts, and avoid failures due to account removal or changes. The other options are either not related or not effective for this issue. For example, load balancing is a technique that distributes the workload across multiple servers or resources to improve performance and availability; business continuity plan is a plan that outlines how an organization will continue its operations in the event of a disaster or disruption; assigning a data steward is a process that designates a person who is responsible for ensuring the quality and governance of data. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.3 Given a scenario, migrate data between databases.

### QUESTION 32

A database is configured to use undo management with temporary undo enabled. An UPDATE is run on the table. Which of the following describes where the undo is stored?

- A. In the system global area
- B. In the undo
- C. In the SYSAUX
- D. In the temporary

**Correct Answer: D**

**Section:**

**Explanation:**

The correct answer is D. When undo management with temporary undo is enabled, the undo data is stored in the temporary tablespace instead of the undo tablespace. The temporary tablespace is a tablespace that stores temporary data such as sort results or intermediate query results. The undo data is the data that records the changes made by transactions on the database. Undo data is used to roll back transactions in case of errors or failures, or to provide read consistency for concurrent queries. By storing undo data in the temporary tablespace, the database can reduce the space consumption and contention in the undo tablespace, and improve performance and scalability. The other options are either incorrect or irrelevant for this question. For example, the system global area is a memory area that stores information shared by all sessions connected to an instance; the undo tablespace is a tablespace that stores undo data by default; the SYSAUX tablespace is a tablespace that stores auxiliary information for various database features. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.1 Given a scenario, perform common database maintenance tasks.

### QUESTION 33

Which of the following concepts applies to situations that require court files to be scanned for permanent reference and original documents be stored for ten years before they can be discarded?

- A. Data loss prevention

- B. Data retention policies
- C. Data classification
- D. Global regulations

**Correct Answer: B**

**Section:**

**Explanation:**

The concept that applies to situations that require court files to be scanned for permanent reference and original documents be stored for ten years before they can be discarded is data retention policies. Data retention policies are rules or guidelines that specify how long data should be kept and when it should be deleted or archived. Data retention policies are often based on legal, regulatory, or business requirements, and help organizations manage their data lifecycle, storage, and compliance. The other options are either not related or not specific to this situation. For example, data loss prevention is a process that aims to prevent data from being leaked, stolen, or corrupted; data classification is a process that assigns labels or categories to data based on its sensitivity, value, or risk; global regulations are laws or standards that apply to data across different countries or regions. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.1 Given a scenario, apply security principles and best practices for databases.

#### QUESTION 34

Which of the following is a potential issue raised by enterprise database users?

- A. The need for multiple views or windows into the same database
- B. The need to manage long transactions
- C. The need for concurrent access and multiuser updates
- D. The need to manually transfer records to paper

**Correct Answer: C**

**Section:**

**Explanation:**

A potential issue raised by enterprise database users is the need for concurrent access and multiuser updates. Concurrent access means that multiple users can access the same data at the same time, while multiuser updates mean that multiple users can modify the same data at the same time. These features are essential for enterprise database users who need to share and collaborate on data in real time. However, they also pose challenges such as maintaining data consistency, preventing conflicts or errors, and ensuring transaction isolation and durability. The other options are either not issues or not specific to enterprise database users. For example, the need for multiple views or windows into the same database may be a preference or a convenience, but not an issue; the need to manage long transactions may be a challenge for any database user, not just enterprise ones; the need to manually transfer records to paper may be an outdated or inefficient practice, but not an issue. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.3 Given a scenario, identify common database issues.

#### QUESTION 35

A database administrator is new to a company and wants to create a document that illustrates the interaction between tables. Which of the following should the administrator create?

- A. Troubleshooting guide
- B. Entity relationship diagram
- C. Data dictionary
- D. Database reference manual

**Correct Answer: B**

**Section:**

**Explanation:**

The document that the administrator should create to illustrate the interaction between tables is an entity relationship diagram. An entity relationship diagram (ERD) is a graphical representation of the entities (tables), attributes (columns), and relationships (constraints) in a database. An ERD helps the administrator to visualize the structure and design of the database, as well as the dependencies and associations among the tables. The other options are either different types of documents or not related to the interaction between tables. For example, a troubleshooting guide is a document that provides instructions on how to solve

common problems or errors in a database; a data dictionary is a document that describes the metadata (information about data) of a database; a database reference manual is a document that provides information on how to use or operate a database. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

#### QUESTION 36

Which of the following can be used to protect physical database appliances from damage in a server room? (Choose two.)

- A. Biometric access systems
- B. Database control systems
- C. Fire suppression systems
- D. Camera systems
- E. Key card systems
- F. Cooling systems

**Correct Answer: C, F**

**Section:**

**Explanation:**

The two options that can be used to protect physical database appliances from damage in a server room are fire suppression systems and cooling systems. Fire suppression systems are systems that detect and extinguish fires in a server room using water, gas, foam, or other agents. Fire suppression systems help prevent damage to physical database appliances caused by fire hazards such as overheating, electrical faults, or flammable materials. Cooling systems are systems that regulate the temperature and humidity in a server room using fans, air conditioners, chillers, or other devices. Cooling systems help prevent damage to physical database appliances caused by excessive heat or moisture that may affect their performance or lifespan. The other options are either not related or not effective for this purpose. For example, biometric access systems, camera systems, and key card systems are systems that control the access to a server room using fingerprints, facial recognition, video surveillance, or magnetic cards; these systems help prevent unauthorized entry or theft of physical database appliances, but not damage caused by environmental factors; database control systems are systems that manage the functionality and security of databases using software tools or commands; these systems help protect logical database appliances from errors or attacks, but not physical damage caused by environmental factors. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.4 Given a scenario, implement disaster recovery methods.

#### QUESTION 37

A database administrator needs to ensure continuous availability of a database in case the server fails. Which of the following should the administrator implement to ensure high availability of the database?

- A. ETL
- B. Replication
- C. Database dumping
- D. Backup and restore

**Correct Answer: B**

**Section:**

**Explanation:**

The option that the administrator should implement to ensure high availability of the database is replication. Replication is a process that copies and synchronizes data from one database server (the primary or source) to one or more database servers (the secondary or target). Replication helps ensure high availability of the database by providing redundancy, fault tolerance, and load balancing. If the primary server fails, the secondary server can take over and continue to serve the data without interruption or data loss. The other options are either not related or not suitable for this purpose. For example, ETL is a process that extracts, transforms, and loads data from one source to another for analysis or reporting purposes; database dumping is a process that exports the entire content of a database to a file for backup or migration purposes; backup and restore is a process that copies and recovers data from a backup device or media in case of a disaster or corruption. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.3 Given a scenario, implement replication of database management systems.

#### QUESTION 38

A database's daily backup failed. Previous backups were completed successfully. Which of the following should the database administrator examine first to troubleshoot the issue?

- A. CPU usage
- B. Disk space
- C. Event log
- D. OS performance

**Correct Answer: C**

**Section:**

**Explanation:**

The first thing that the database administrator should examine to troubleshoot the issue is the event log. The event log is a file that records the events and activities that occur on a system, such as database backups, errors, warnings, or failures. By examining the event log, the administrator can identify the cause and time of the backup failure, and also check for any other issues or anomalies that may affect the backup process or the backup quality. The other options are either not relevant or not the first priority for this task. For example, CPU usage, disk space, and OS performance may affect the performance or availability of the system, but not necessarily cause the backup failure; moreover, these factors can be checked after reviewing the event log for more information. Reference: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.2 Given a scenario, implement backup and restoration of database management systems.

#### QUESTION 39

A database administrator is updating an organization's ERD. Which of the following is the best option for the database administrator to use?

- A. Word processor
- B. Spreadsheet
- C. UML tool
- D. HTML editor

**Correct Answer: C**

**Section:**

**Explanation:**

The best option for the database administrator to use to update an organization's ERD is a UML tool. A UML tool is a software application that allows users to create, edit, and visualize diagrams using the Unified Modeling Language (UML). UML is a standard language for modeling software systems and their components, such as classes, objects, relationships, behaviors, etc. UML can also be used to create entity relationship diagrams (ERDs), which are graphical representations of the entities (tables), attributes (columns), and relationships (constraints) in a database. A UML tool can help the administrator to update an organization's ERD by providing features such as drag-and-drop, templates, symbols, validation, etc. The other options are either not suitable or not optimal for this task. For example, a word processor is a software application that allows users to create and edit text documents; a spreadsheet is a software application that allows users to organize and manipulate data in rows and columns; an HTML editor is a software application that allows users to create and edit web pages using HyperText Markup Language (HTML). Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

#### QUESTION 40

A database administrator needs a tool to document and explain the relationships between data in an organization's database. Which of the following is the best tool to accomplish this task?

- A. Text editor
- B. UML editor
- C. Word processor
- D. SQL query

**Correct Answer: B**

**Section:**

**Explanation:**

The best tool for the database administrator to document and explain the relationships between data in an organization's database is a UML editor. A UML editor is a software application that allows users to

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create, edit, and visualize diagrams using the Unified Modeling Language (UML). UML is a standard language for modeling software systems and their components, such as classes, objects, relationships, behaviors, etc. UML can also be used to document and explain the relationships between data in an organization's database by creating entity relationship diagrams (ERDs), which are graphical representations of the entities (tables), attributes (columns), and relationships (constraints) in a database. A UML editor can help the administrator to document and explain the relationships between data by providing features such as drag-and-drop, templates, symbols, validation, etc. The other options are either not suitable or not optimal for this task. For example, a text editor is a software application that allows users to create and edit plain text files; a word processor is a software application that allows users to create and edit text documents; an SQL query is a statement that performs an operation on a database using Structured Query Language (SQL).Reference:CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

#### QUESTION 41

A database administrator has been asked to assign a user the ability to view a data set. Which of the following practices best describes this request?

- A. Access control
- B. Security audit C Database audit
- C. Password policy implementation

**Correct Answer: A**

**Section:**

**Explanation:**

The practice that best describes this request is access control. Access control is a process that regulates who can access what data in a system based on predefined rules or policies. Access control helps protect data from unauthorized or inappropriate access or modification by granting or denying permissions or privileges to users or groups based on their roles or identities. By applying access control, the database administrator can assign a user the ability to view a data set without allowing them to change or delete it. The other options are either different practices or not related to this request. For example, security audit is a process that evaluates the security level of a system by identifying vulnerabilities or risks; database audit is a process that monitors and records the activities or events that occur on a database; password policy implementation is a process that defines and enforces rules or standards for creating and managing passwords.Reference:CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

#### QUESTION 42

Which of the following firewall types allows an administrator to control traffic and make decisions based on factors such as connection information and data flow communications?

- A. Circuit-level
- B. Stateful
- C. Proxy
- D. Packet

**Correct Answer: B**

**Section:**

**Explanation:**

The firewall type that allows an administrator to control traffic and make decisions based on factors such as connection information and data flow communications is stateful. A stateful firewall is a type of firewall that tracks the state of each connection and packet that passes through it, and applies rules or policies based on the context and content of the traffic. A stateful firewall can control traffic and make decisions based on factors such as source and destination IP addresses, ports, protocols, session status, application layer data, etc. The other options are either different types of firewalls or not related to firewalls at all. For example, a circuit-level firewall is a type of firewall that monitors and validates the establishment of TCP or UDP connections; a proxy firewall is a type of firewall that acts as an intermediary between the source and destination of the traffic; a packet firewall is a type of firewall that filters packets based on their header information.Reference:CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

#### QUESTION 43

A new retail store employee needs to be able to authenticate to a database. Which of the following commands should a database administrator use for this task?

- A. INSERT USER
- B. ALLOW USER

- C. CREATE USER
- D. ALTER USER

**Correct Answer: C**

**Section:**

**Explanation:**

The command that the database administrator should use for this task is CREATE USER. The CREATE USER command is a SQL statement that creates a new user account in a database and assigns it a username and a password. The CREATE USER command also allows the database administrator to specify other options or attributes for the user account, such as default tablespace, quota, profile, role, etc. The CREATE USER command is the first step to enable a user to authenticate to a database. The other options are either invalid or not suitable for this task. For example, INSERT USER is not a valid SQL command; ALLOW USER is not a SQL command, but a keyword used in some database systems to grant permissions to users; ALTER USER is a SQL command that modifies an existing user account, but does not create a new one. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

#### QUESTION 44

A developer is designing a table that does not have repeated values. Which of the following indexes should the developer use to prevent duplicate values from being inserted?

- A. Unique
- B. Single column
- C. Implicit
- D. Composite

**Correct Answer: A**

**Section:**

**Explanation:**

The index that the developer should use to prevent duplicate values from being inserted is unique. A unique index is a type of index that enforces the uniqueness of the values in one or more columns of a table. A unique index ensures that no two rows in the table have the same value or combination of values in the indexed columns. A unique index helps to maintain data integrity and avoid data duplication or inconsistency. The other options are either not related or not effective for this purpose. For example, a single column index is a type of index that involves only one column of a table, but it does not prevent duplicate values unless it is also unique; an implicit index is a type of index that is automatically created by the database system when a constraint or a primary key is defined on a column or columns of a table, but it does not prevent duplicate values unless it is also unique; a composite index is a type of index that involves two or more columns of a table, but it does not prevent duplicate values unless it is also unique. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

#### QUESTION 45

Which of the following would a database administrator monitor to gauge server health? (Choose two.)

- A. CPU usage
- B. Memory usage
- C. Transaction logs
- D. Network sniffer
- E. Domain controllers
- F. Firewall traffic

**Correct Answer: A, B**

**Section:**

**Explanation:**

The two factors that the database administrator should monitor to gauge server health are CPU usage and memory usage. CPU usage is the percentage of time that the processor (CPU) of the server is busy executing instructions or processes. CPU usage indicates how much workload the server can handle and how fast it can process requests. High CPU usage may affect the performance or availability of the server and cause delays or errors. Memory usage is the amount of physical memory (RAM) or virtual memory (swap space) that the server uses to store data or run applications. Memory usage indicates how much space

the server has to store temporary or intermediate data or results. High memory usage may affect the performance or availability of the server and cause swapping or paging. The other options are either not relevant or not direct indicators of server health. For example, transaction logs are files that record the changes made by transactions on the database; network sniffer is a tool that captures and analyzes network traffic; domain controllers are servers that manage user authentication and authorization in a network; firewall traffic is the amount of data that passes through a firewall device or software. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.2 Given a scenario, monitor database performance.

#### QUESTION 46

A database administrator is concerned about transactions in case the system fails. Which of the following properties addresses this concern?

- A. Durability
- B. Isolation
- C. Atomicity
- D. Consistency

**Correct Answer: A**

**Section:**

**Explanation:**

The property that addresses this concern is durability. Durability is one of the four properties (ACID) that ensure reliable transactions in a database system. Durability means that once a transaction has been committed, its effects are permanent and will not be lost in case of system failure, power outage, crash, etc. Durability can be achieved by using techniques such as write-ahead logging, checkpoints, backup and recovery, etc. The other options are either not related or not specific to this concern. For example, isolation means that concurrent transactions do not interfere with each other and produce consistent results; atomicity means that a transaction is either executed as a whole or not at all; consistency means that a transaction preserves the validity and integrity of the data. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.3 Given a scenario, identify common database issues.

#### QUESTION 47

Which of the following is a reason to create a stored procedure?

- A. To minimize storage space
- B. To improve performance
- C. To bypass case sensitivity requirements
- D. To give control of the query logic to the user

**Correct Answer: B**

**Section:**

**Explanation:**

A reason to create a stored procedure is to improve performance. A stored procedure is a set of SQL statements or commands that are stored and compiled in the database server, and can be executed by name or by a trigger. A stored procedure can improve performance by reducing the network traffic between the client and the server, as only the name or the parameters of the stored procedure need to be sent, rather than the entire SQL code. A stored procedure can also improve performance by reusing the same execution plan, as the stored procedure is compiled only once and cached in the server memory. The other options are either not true or not relevant for this purpose. For example, a stored procedure does not necessarily minimize storage space, as it still occupies space in the database server; a stored procedure does not bypass case sensitivity requirements, as it still follows the rules of the database system; a stored procedure does not give control of the query logic to the user, as it is defined and maintained by the database administrator or developer. Reference: CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

#### QUESTION 48

An on-premises application server connects to a database in the cloud. Which of the following must be considered to ensure data integrity during transmission?

- A. Bandwidth
- B. Encryption
- C. Redundancy

D. Masking

**Correct Answer: B**

**Section:**

**Explanation:**

The factor that must be considered to ensure data integrity during transmission is encryption. Encryption is a process that transforms data into an unreadable or scrambled form using an algorithm and a key. Encryption helps protect data integrity during transmission by preventing unauthorized access or modification of data by third parties, such as hackers, eavesdroppers, or interceptors. Encryption also helps verify the identity and authenticity of the source and destination of the data using digital signatures or certificates. The other options are either not related or not sufficient for this purpose. For example, bandwidth is the amount of data that can be transmitted over a network in a given time; redundancy is the duplication of data or components to provide backup or alternative sources in case of failure; masking is a technique that replaces sensitive data with fictitious but realistic data to protect its confidentiality or compliance. Reference: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

#### QUESTION 49

Which of the following statements contains an error?

- A. Select EmpId from employee where EmpId=90030
- B. Select EmpId where EmpId=90030 and DeptId=34
- C. Select\* from employee where EmpId=90030
- D. Select EmpId from employee

**Correct Answer: B**

**Section:**

**Explanation:**

The statement that contains an error is option B. This statement is missing the FROM clause, which specifies the table or tables from which to retrieve data. The FROM clause is a mandatory clause in a SELECT statement, unless the statement uses a subquery or a set operator. The correct syntax for option B would be:

```
SELECT EmpId FROM employee WHERE EmpId=90030 AND DeptId=34
```

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The other options are either correct or valid SQL statements. For example, option A selects the employee ID from the employee table where the employee ID is equal to 90030; option C selects all columns from the employee table where the employee ID is equal to 90030; option D selects the employee ID from the employee table without any filter condition. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

#### QUESTION 50

A database professional is considering denormalizing a database. Which of the following documents should be used to analyze the database's structure?

- A. SOP
- B. Data dictionaries
- C. UML diagrams
- D. ERD

**Correct Answer: D**

**Section:**

**Explanation:**

The document that should be used to analyze the database's structure is an ERD. An ERD, or Entity Relationship Diagram, is a graphical representation of the entities (tables), attributes (columns), and relationships (constraints) in a database. An ERD helps to visualize the structure and design of the database, as well as the dependencies and associations among the tables. An ERD can also help to evaluate the level of normalization of the database, which is a process that organizes data into tables and columns to reduce redundancy and improve consistency. By using an ERD, a database professional can consider denormalizing a database, which is a process that introduces some redundancy or duplication of data to improve performance or simplify queries. The other options are either different types of documents or not related to the database's structure. For example, an SOP, or Standard Operating Procedure, is a document that describes the steps and procedures for performing a specific task or operation; a data dictionary is a document that

describes the metadata (information about data) of a database; a UML diagram is a graphical representation of a software system or its components using the Unified Modeling Language (UML).Reference:CompTIA DataSys+ Course Outline, Domain 2.0 Database Deployment, Objective 2.2 Given a scenario, create database objects using scripting and programming languages.

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