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# Question 1

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**Question Type:** MultipleChoice

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An automated script is using common passwords to gain access to a remote system. Which of the following attacks is being performed?

## Options:

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- A- DoS
- B- Brute-force
- C- SQL injection
- D- Phishing

## Answer:

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B

## Explanation:

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The attack that is being performed is brute-force. A brute-force attack is a type of attack that tries to guess a password or a key by systematically trying all possible combinations of characters or values until the correct one is found. A brute-force attack can use common passwords, such as "123456", "password", or "qwerty", as well as dictionaries, word lists, or patterns to speed up the process.

A brute-force attack can target a remote system, such as a web server, an email account, or a network device, and gain unauthorized access to its data or resources. The other options are either different types of attacks or not related to password guessing. For example, a DoS, or Denial-of-Service, attack is a type of attack that floods a system with requests or traffic to overwhelm its capacity and prevent legitimate users from accessing it; an SQL injection attack is a type of attack that inserts malicious SQL statements into an input field or parameter of a web application to manipulate or compromise the underlying database; a phishing attack is a type of attack that sends fraudulent emails or messages that appear to come from a trusted source to trick users into revealing their personal or financial information. 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 2

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**Question Type:** MultipleChoice

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Which of the following are the best resources for monitoring potential server issues? (Choose two.)

### Options:

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- A- User connections
- B- Firewall usage

- C- Index usage
- D- CPU usage
- E- Query execution
- F- Memory usage

**Answer:**

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D, F

**Explanation:**

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The two resources that are best for monitoring potential server issues 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, user connections are the number of users who are connected to a database server at any given time; firewall usage is the amount of data that passes through a firewall device or software; index usage is the frequency or efficiency of using indexes on tables to speed up queries; query execution is the process of running SQL statements on a database server. Reference: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.2 Given a scenario, monitor database performance.

## Question 3

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**Question Type:** MultipleChoice

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A company needs information about the performance of users in the sales department. Which of the following commands should a database administrator use for this task?

**Options:**

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- A- DROP
- B- InPDATE
- C- [delete
- D- ISELECT

**Answer:**

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D

**Explanation:**

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The command that the database administrator should use for this task is SELECT. The SELECT command is a SQL statement that retrieves data from one or more tables or views in a database. The SELECT command can also use various clauses or options to filter,

group, sort, or aggregate data according to specific criteria or conditions. By using the SELECT command, the database administrator can obtain information about the performance of users in the sales department, such as their sales volume, revenue, commission, etc. The other options are either not related or not suitable for this task. For example, DROP is a SQL command that deletes an existing table or object from a database; UPDATE is a SQL command that modifies existing data in one or more rows of a table; DELETE is a SQL command that removes existing data from one or more rows of a table. 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 4

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**Question Type:** MultipleChoice

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

### Options:

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- A- SOP
- B- Data dictionaries
- C- UML diagrams

## D- ERD

### Answer:

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D

### Explanation:

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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.

## Question 5

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**Question Type: MultipleChoice**

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Which of the following statements contains an error?

**Options:**

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- 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

**Answer:**

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B

**Explanation:**

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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
```



Copy

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 6

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**Question Type:** MultipleChoice

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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?

**Options:**

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**A-** Bandwidth

**B-** Encryption

C- Redundancy

D- Masking

**Answer:**

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B

**Explanation:**

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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 7

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**Question Type:** MultipleChoice

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

**Options:**

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- 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

**Answer:**

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B

**Explanation:**

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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 8

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**Question Type:** MultipleChoice

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

**Options:**

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

**Answer:**

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A

### **Explanation:**

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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 9**

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**Question Type:** MultipleChoice

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

**Options:**

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

**Answer:**

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A, B

**Explanation:**

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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 10

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**Question Type:** MultipleChoice

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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?

**Options:**

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

**Answer:**

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A

## **Explanation:**

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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 11**

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### **Question Type: MultipleChoice**

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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?



**Options:**

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A- INSERT USER

B- ALLOW USER

C- CREATE USER

D- ALTER USER

**Answer:**

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C

**Explanation:**

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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 12

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**Question Type:** MultipleChoice

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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?

### Options:

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

### Answer:

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B

### Explanation:

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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.

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