



CompTIA DataSys+ DS0-001 Practice Questions

Shared by Sanders on 13-08-2026

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Question 1

Question Type: MultipleChoice

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?

Options:

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

Answer:

D

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 2

Question Type: MultipleChoice

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 option best explains the approach the administrator should use when conducting the stress test?

Options:

- 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.

Answer:

A

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 3

Question Type: MultipleChoice

Which option best NFs is considered the most preferable for relational database design?

Options:

- A- 1 NF
- B- 3 NF
- C- 4 NF
- D- 2NF

Answer:

B

Explanation:

The NF (normal form) that is considered the most preferable for relational database design is 3 NF. 3 NF, or Third Normal Form, is a level of normalization that organizes data into tables and columns to reduce redundancy and improve consistency. Normalization is a process that applies a set of rules or criteria to eliminate or minimize the anomalies or problems that may arise from inserting, updating, or deleting data in a database. 3 NF is achieved when a table satisfies the following conditions: - It is in 2 NF (Second Normal Form), which means that every non-key column depends on the whole primary key and not on any subset of it - It has no transitive dependencies, which means that every non-key column depends directly on the primary key and not on any other non-key column 3 NF is considered the most preferable for relational database design because it ensures that each table has only one purpose or theme and that each column has only one value or meaning. This helps avoid data duplication, inconsistency, and update anomalies. The other options are either lower or higher levels of normalization that are either less preferable or less practical for relational database design. For example, 1 NF (First Normal Form) is the lowest level of normalization that requires each column to have atomic values and each row to have a unique identifier; 4 NF (Fourth Normal Form) is a higher level of normalization that requires each table to have no multi-valued dependencies, which means that there are no columns that can have more than one value for the same primary key value; 2 NF (Second Normal Form) is an intermediate level of normalization that requires each non-key column to depend on the whole primary key and not on any subset of it. 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

Question Type: MultipleChoice

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?

Options:

- 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.

Answer:

C

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 5

Question Type: MultipleChoice

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?

Options:

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

Answer:

B

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 6

Question Type: MultipleChoice

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?

Options:

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

Answer:

D

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 7

Question Type: MultipleChoice

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?

Options:

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

Answer:

A

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 8

Question Type: MultipleChoice

Which option best database structures is a type of NoSQL database?

Options:

- A- Hierarchical
- B- Key-value stores
- C- Cloud
- D- Object-oriented

Answer:

B

Explanation:

The database structure that is a type of NoSQL database is key-value stores. Key-value stores are databases that store and manage data as pairs of keys and values. Keys are unique identifiers that locate data in the database; values are arbitrary data that can be any type or format. Key-value stores do not use any schema or structure to organize data, but rather use hash tables or indexes to enable fast and simple access to data based on keys. Key-value stores are suitable for storing large amounts of simple or unstructured data that do not require complex queries or relationships. The other options are either different types of databases or not related to database structures at all. For example, hierarchical databases are databases that store and manage data as nodes in a tree-like structure; cloud databases are databases that are hosted and accessed over the internet using cloud computing services; object-oriented databases are databases that store and manage data as objects that have attributes and

methods. Reference: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify common database types.

Question 9

Question Type: MultipleChoice

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

Options:

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

Answer:

C

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 10

Question Type: MultipleChoice

Which of the following constraints is used to enforce referential integrity?

Options:

- A- Surrogate key
- B- Foreign key
- C- Unique key
- D- Primary key

Answer:

B

Explanation:

The constraint that is used to enforce referential integrity is foreign key. A foreign key is a column or a set of columns in a table that references the primary key of another table. A primary key is a column or a set of columns in a table that uniquely identifies each row in the table. Referential integrity is a rule that ensures that the values in the foreign key column match the values in the primary key column of the referenced table. Referential integrity helps maintain the consistency and accuracy of the data across related tables. The other options are either different types of constraints or not related to referential integrity at all. For example, a surrogate key is a column that is artificially generated to serve as a primary key, such as an auto-increment number or a GUID (Globally Unique Identifier); a unique key is a column or a set of columns in a table that uniquely identifies each row in the table, but it can have null values unlike a primary key; there is no such constraint as TID. 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

Question Type: MultipleChoice

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?

Options:

- A- Data loss prevention
- B- Data retention policies
- C- Data classification
- D- Global regulations

Answer:

B

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.



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