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**Exam : Data Management
Foundations**

**Title : WGU Data Management –
Foundations Exam**

Version : DEMO

1.What is the role of the database administrator?

- A. The database administrator is a consumer of data in a database.
- B. The database administrator is responsible for securing the database system against unauthorized users.
- C. The database administrator determines the format of each data element and the overall database structure.
- D. The database administrator develops computer programs that utilize a database.

Answer: B

Explanation:

A Database Administrator (DBA) is responsible for the management, security, and performance of a database system. This includes controlling access to data, ensuring database integrity, optimizing performance, managing backups, and protecting the system from unauthorized access.

Option A (Incorrect): A DBA is not just a consumer of data but is primarily responsible for the database's management.

Option B (Correct): Security is one of the key responsibilities of a DBA, including enforcing user access controls and implementing encryption and authentication mechanisms.

Option C (Incorrect): While DBAs work with data structures, it is typically the role of a data architect or database designer to define data formats and schema structures.

Option D (Incorrect): Developing application programs that interact with the database is typically the role of software developers or database programmers, not DBAs.

Reference: Database Administration best practices from SE 3050 zyBooks.

2.What is the role of the transaction manager within the database system architecture?

- A. The transaction manager uses information from the catalog to perform query optimization.
- B. The transaction manager is composed of a query processor, storage manager, transaction manager, log, and catalog.
- C. The transaction manager logs insert, update, and delete queries, and the result is sent back to the application.
- D. The transaction manager translates the query processor instructions into filesystem commands and uses an index to quickly locate the requested data.

Answer: C

Explanation:

A Transaction Manager ensures ACID (Atomicity, Consistency, Isolation, Durability) properties in database transactions. It manages concurrent transactions, ensuring no conflicts occur and logs modifications to support recovery mechanisms.

Option A (Incorrect): Query optimization is managed by the query processor, not the transaction manager.

Option B (Incorrect): The transaction manager is a component of the database architecture but is not composed of the entire system (query processor, storage manager, etc.).

Option C (Correct): The transaction manager logs transactions like INSERT, UPDATE, and DELETE, ensuring consistency and recoverability.

Option D (Incorrect): The storage manager is responsible for translating queries into file system commands.

Reference: Transaction Management section in SE 3050 zyBooks.

3.Which product has an open-source license in addition to having a non-relational system?

- A. MongoDB
- B. SQL Server
- C. MySQL
- D. Oracle Database

Answer: A

Explanation:

MongoDB is a NoSQL (non-relational) database that is open-source and supports document-oriented storage. It allows for flexible schema design and is optimized for big data applications.

Option A (Correct): MongoDB is a NoSQL database with an open-source AGPL license, making it both free to use and non-relational.

Option B (Incorrect): SQL Server is a relational database (RDBMS) developed by Microsoft and is not open-source.

Option C (Incorrect): MySQL is open-source but is a relational database (RDBMS), not a NoSQL system.

Option D (Incorrect): Oracle Database is relational and proprietary (not open-source).

Reference: Database Management Systems Comparison.

4.Which description defines a data type?

- A. It is a named set of values.
- B. It is an unnamed tuple of values.
- C. It has values corresponding to columns.
- D. It has a name and a varying set of rows.

Answer: A

Explanation:

A data type defines the kind of data a column can store in a database. It ensures data consistency and efficient storage.

Option A (Correct): A data type is a named set of values, such as INTEGER, VARCHAR, DATE, etc.

Option B (Incorrect): A tuple refers to a row in a relational database, not a data type.

Option C (Incorrect): Data types define column values, but they do not correspond directly to columns.

Option D (Incorrect): Data types do not have a varying set of rows; they define attributes for columns.

Reference: Data types in relational databases.

5.What does the aggregate function do?

- A. It computes values over a set of rows.
- B. It selects rows that appear in one table but not another.
- C. It eliminates one or more columns of a table.
- D. It lists combinations of rows in two tables.

Answer: A

Explanation:

An aggregate function performs a calculation over multiple rows and returns a single value.

Examples include SUM(), AVG(), MAX(), MIN(), and COUNT() in SQL.

Option A (Correct): Aggregate functions compute values over a set of rows, like summing total sales or averaging grades.

Option B (Incorrect): Selecting rows that appear in one table but not another is done using set operations (EXCEPT or MINUS in SQL).

Option C (Incorrect): Eliminating columns is done using the PROJECT operation or SELECT with specific columns.

Option D (Incorrect): Combining rows from two tables refers to a JOIN operation, not aggregation.

Reference: Aggregate functions in relational algebra.