

**IBM Exam 610 Question Bank**

**2/8/15**

**Time Limit: 90 Minutes**

**Name (Print):** \_\_\_\_\_

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This question bank contains 10 pages (including this cover page) and 15 questions.

- IBM Exam 610 corresponds to **Test C2090-610: DB2 10.1 Fundamentals**
- The questions adapted from the following sources:
  - **DB 2 10.1 Fundamentals Certification Study Guide** by Roger E. Sanders

## Planning

1. (1 point) A database will be used primarily to identify sales patterns for products sold within the last three years and to summarize sales by region, on a quarterly basis. Which type of system is needed?
  - A. Analytical
  - B. DB2 pureScale
  - C. Data warehouse**
  - D. Online transaction processing (OLTP)

**Explanation:**

Data warehouses (*Correct Answer C*) are typically used to store and manage large volumes of data that is often historical in nature and that is used primarily for analysis. Thus, a data warehouse could be used to identify sales patterns for products sold within the past three years or to summarize sales by region, on a quarterly basis. *InfoSphere Warehouse* is offered for data warehouse.

Online transaction processing (OLTP) systems (*Answer D*), are designed to support day-to-day, mission-critical business activities such as web-based order entry and stock trading. *DB2 pureScale feature* is offered for OLTP workloads.

**Analytical** workloads (*Answer A*) are better handled by a specialized product known as *DB2 for i and by IBM BLU Acceleration*, which is currently available only with DB2 10.5 for LUW.

2. (1 point) Which product can be used to tune performance for a single query?
  - A. IBM Data Studio**
  - B. IBM Control Center
  - C. IBM Data Administrator
  - D. IBM Workload Manager

**Explanation:**

*IBM Data Studio* (*Correct Answer A*) is an Eclipse-based, integrated development environment (IDE) that can be used to perform instance and database administration, routine (SQL procedure, SQL functions, etc.) and application development, and performance-tuning tasks. It replaces the *DB2 Control Center* (*Answer B*) as the standard GUI tool for DB2 database administration and application development.

*IBM Workload Manager*, or WLM (*Answer D*) is a comprehensive workload management feature that can help identify, manage, and control database workloads to maximize database server **throughput** and **resource utilization**.

There is **NO** such product as IBM Data Administrator (*Answer C*).

3. (1 point) Which two DB2 products are suitable for very large data warehouse applications? (Choose two.)
- A. DB2 for i
  - B. DB2 for AIX**
  - C. DB2 for z/OS**
  - D. DB2 pureScale
  - E. DB2 Express-C

**Explanation:**

*DB2 for i (Answer A)*, formerly known as DB2 for i5/OS, is an advanced, 64-bit Relational Database Management System that leverages the high performance, virtualization, and energy efficiency features of IBM's Power Systems; its self-managing attributes, security, and built-in analytical processing functions make *DB2 for i* an ideal database server for **applications that are analytical in nature**.

*DB2 for z/OS (Correct Answer C)* is a multiuser, full-function database management system that has been designed specifically for z/OS, IBM's flagship mainframe operating system. Tightly integrated with the IBM mainframe, *DB2 for z/OS* leverages the strengths of System z 64-bit architecture to provide, among other things, the ability to support complex **data warehouses**.

In addition to DB2 for z/OS, all of the DB2 Editions available **except** *DB2 Express-C (Answer E)* and *DB2 Express Edition* can be used to create data warehouse and OLTP environments. **However**, IBM offers two solutions that are tailored specifically for one workload type or the other: *InfoSphere Warehouse* for **data warehousing** workloads and the *DB2 pureScale Feature (Answer D)* for **OLTP** workloads.

4. (1 point) What is the DB2 Workload Manager (WLM) used for?
- A. To identify, diagnose, solve, and prevent performance problems in DB2 products and associated applications.
  - B. To customize execution environments for the purpose of controlling system resources so that one department or service class does not overwhelm the system.**
  - C. To respond to significant changes in a database's workload by dynamically distributing available memory resources among several different database memory consumers.
  - D. To improve the performance of applications that require frequent, but relatively transient, simultaneous user connections by allocating host database resources only for the duration of an SQL transaction.

**Explanation:**

*IBM InfoSphere Optim Performance Manager Extended Edition* can be used to identify, diagnose, solve, and prevent performance problems in DB2 products and associated applications (*Answer A*)

With *DB2 Workload Manager*, it is possible to customize execution environments so that no single workload can control and consume all of the system resources available. (This prevents any one department or service class from overwhelming the system.) (*Correct Answer B*)

The *Self-Tuning Memory Manager (STMM)* responds to significant changes in a database's workload by dynamically distributing available memory resources among several different database memory consumers. (*Answer C*)

The *Connection Concentrator* improves the performance of applications that require frequent, but relatively transient, simultaneous user connections by allocating host database resources only for the duration of an SQL transaction. (*Answer D*)

5. (1 point) Which of the following is NOT a characteristic of a data warehouse?

- A. Sub-second response time**
- B. Voluminous historical data
- C. Heterogeneous data sources
- D. Summarized queries that perform aggregations and joins

**Explanation:**

Sub-second response time is a feature of OLTP systems.

6. (1 point) Which statement about the DB2 pureScale feature is NOT true?

- A. The DB2 pureScale feature provides a database cluster solution for nonmainframe platforms.
- B. The DB2 pureScale feature is only available as part of DB2 Advanced Enterprise Server Edition.**
- C. The DB2 pureScale feature can only work with the General Parallel File System (GPFS) file system.
- D. The DB2 pureScale feature is best suited for online transaction processing (OLTP) workloads.

**Explanation:**

The *DB2 pureScale feature* is included as part of *DB2 Workgroup Server Edition (WSE)*, *DB2 Enterprise Server Edition (ESE)*, and *DB2 Advanced Enterprise Server Edition (AESE)*.

7. (1 point) Which two statements about large object (LOB) locators are true? (Choose two.)
- A. **A LOB locator represents a value for a LOB resource that is stored in a database.**
  - B. **A LOB locator is a simple token value that is used to refer to a much bigger LOB value.**
  - C. A LOB locator is a special data type that is used to store LOB data in external binary files.
  - D. A LOB locator represents a value for a LOB resource that is stored in an external binary file.
  - E. A LOB locator is a mechanism that acts similar to an index in the way that it organizes LOB values so they can be quickly located in response to a query.

**Explanation:**

A LOB locator is a mechanism that refers to a LOB value from within a transaction. LOB locator is **NOT** a data type (*Answer C*), nor is it a database object. Instead, it is a token value-in the form of a host variable-that is used to refer to a much bigger LOB value.

LOB data types-**not LOB locators**-are used to store binary data values in a DB2 database *Answer D*.

LOB locators **don not** store copies of LOB data (this is make it different from index)-they store a description of a base LOB value, and the actual data that a LOB locator refers to is only materialized when it is assigned to a specific location, such as an application host variable or another table record (*Answer E*)

8. (1 point) Which type of database workload typically involves making changes to a small number of records within a single transaction?
- A. Decision support
  - B. Data warehousing
  - C. Online analytical processing (OLAP)
  - D. **Online transaction processing (OLTP)**

**Explanation:**

An online transaction processing (OLTP) environment often consists of hundreds to thousands of users issuing millions of transactions per day against databases that vary in size. Consequently, the volume of data affected may be very large, even though **each transaction typically makes changes to only a small number of records**.

Data warehousing (*Answer B*) involves storing and managing large volumes of data that is often historical in nature and that is used primarily for analysis. Consequently, data warehouses are frequently used in reporting, online analytical processing (OLAP) (*Answer C*), and decision support (*Answer A*) environments.

9. (1 point) Which of the following is NOT a characteristic of an OLTP database?

- A. Current data
- B. Frequent updates
- C. Granular transactions
- D. Optimized for queries**

**Explanation:**

Data warehouse workloads typically consist of:

- bulk load operations
- short-running queries
- long-running complex queries
- random queries
- occasional updates to data
- execution of online utilities

Therefore, data warehouses are optimized for queries (*Correct Answer D*).

Online transaction processing (OLTP) systems features:

- Support day-to-day, mission-critical business activities
- Support hundreds to thousands of users issuing millions of transactions per day (*Answer C*) against databases that vary in size
- Response time requirements tend to be subsecond
- Workloads tend to be a mix of real-time insert, update (*Answer B*), and delete operations against current-as opposed to historical-data (*Answer A*)

10. (1 point) Which two platforms support DB2 10.1 pureScale environments? (Choose two.)

- A. IBM mainframes running z/OS
- B. IBM p Series servers running AIX**
- C. IBM p Series servers running Linux
- D. IBM x Series servers running Linux**
- E. IBM x Series servers running a supported version of Windows

**Explanation:**

DB2 pureScale (Version 10.1) can **ONLY** be installed on IBM p Series or x Series servers that are running either the AIX (p Series) or the Linux (x Series) operating system.

*DB2 pureScale CANNOT be installed on IBM mainframes running z/OS (Answer A), IBM p Series servers running Linux (Answer C), or IBM x Series servers running Windows (Answer E).*

11. (1 point) Which tool can analyze and provide recommendations for tuning individual queries?
- A. IBM InfoSphere Data Architect
  - B. IBM InfoSphere Optim Query Tuner**
  - C. IBM InfoSphere Optim pureQuery Runtime
  - D. IBM InfoSphere Optim Performance Manager Extended Edition

**Explanation:**

*IBM InfoSphere Data Architect offers a complete solution for designing, modeling, discovering, relating, and standardizing data assets (Answer A).*

*IBM InfoSphere Optim Query Tuner, often referred to as the Query Tuner, can analyze and make recommendations on ways to tune existing queries, as well as provide expert advice on writing new queries (Correct Answer B).*

*IBM InfoSphere Optim pureQuery Runtime bridges the gap between data and Java technology by harnessing the power of SQL within an easy-to-use Java data access platform (Answer C).*

*IBM InfoSphere Optim Performance Manager Extended Edition can identify, diagnose, solve, and prevent performance problems in DB2 products and associated applications (Answer D).*

12. (1 point) Which SQL statement will create a table named EMPLOYEE that can be used to store XML data?
- A. CREATE TABLE employee (empid INT, resume XML)**
  - B. CREATE TABLE employee (empid INT, resume XML(2000))
  - C. CREATE TABLE employee (empid INT, resume CLOB AS XML)
  - D. CREATE TABLE employee (empid INT, resume CLOB USING XML)

**Explanation:**

*The DB2 pureXML offers a simple and efficient way to create a "hybrid" DB2 database that allows XML data to be stored in its native, hierarchical format. With pureXML, XML documents are stored in tables that contain one or more columns that have been defined with the XML data type.*

*Since the XML data type does not require a size specification (Answer B), and because "CLOB AS XML" (Answer C) and "CLOB USING XML" (Answer D) are not valid column definitions, the only CREATE TABLE statement shown that will execute successfully is:*

**CREATE TABLE employee (empid INT, resume XML)**

13. (1 point) What DB2 product provides a complete data warehousing solution that contains components that facilitate data warehouse construction and administration?
- A. DB2 pureScale Feature
  - B. DB2 Workload Manager
  - C. IBM InfoSphere Warehouse**
  - D. Database Partitioning Feature

**Explanation:**

*DB2 pureScale Feature* enables a DB2 for LUW database to continuously process incoming requests, even if multiple system components fail simultaneously, which makes it ideal for OLTP workloads where high availability is crucial (*Answer A*).

*DB2 Workload Manager (WLM)* is a comprehensive workload management feature that can help identify, manage, and control database workloads to maximize database server throughput and resource utilization (*Answer B*).

*IBM InfoSphere Warehouse* is a complete data warehousing solution that contains components that facilitate data warehouse construction and administration, as well as tools that enable embedded data mining and multidimensional online analytical processing (OLAP) (*Correct Answer C*).

*Data Partitioning Feature (DPF)* provides the ability to divide very large databases into multiple parts (known as partitions) and store them across a cluster of inexpensive servers (*Answer D*).

14. (1 point) Which statement about IBM Data Studio is NOT true?
- A. The IBM Data Studio administration client can be installed on servers running Red Hat Linux, SUSE Linux, Windows, and AIX.**
  - B. IBM Data Studio replaces the DB2 Control Center as the standard GUI interface for DB2 database administration and application development.
  - C. IBM Data Studio is an Eclipse-based, integrated development environment (IDE) that can be used to perform instance and database administration.
  - D. IBM Data Studio allows users to connect to a DB2 database using a wizard; however, users are required to provide login credentials before a connection will be established.

**Explanation:**

There are three different IBM Data Studio components to choose from: *IBM Data Studio administration client*, *IBM Data Studio full client*, and *IBM Data Studio web console*. All three components can be installed on servers running Red Hat Linux, SUSE Linux, and Windows; IBM Data Studio web console can be installed on servers running the AIX operating system as well. (**IBM Data Studio administration client cannot be installed on AIX servers**).

15. (1 point) Which statement about inline large objects (LOBs) is NOT true?



- A. When a table contains columns with inline LOBs, fewer rows can fit on a page.
- B. Inline LOBs are created by appending the `INLINE LENGTH` clause to a LOB column's definition.
- C. Because DML operations against inline LOBs are never logged, their use can reduce logging overhead.**
- D. Inline LOBs improve query performance by storing LOB data in the same data pages as the rest of a table's rows, rather than in a separate LOB storage object.

**Explanation:**

By default, Large object (LOB) data is stored in separate LOB storage objects and changes to LOB data are not recorded in transaction log files. However, LOBs that are relatively small can be stored in the same data pages as the rest of a table's rows-such LOBs are referred to as *inline LOBs*, and transactions that modify inline LOB data are always logged. Consequently, the use of inline LOBs can increase-**not reduce**-logging overhead.

Inline LOBs are created by appending the `INLINE LENGTH` clause to a LOB column's definition (*Answer B*), which can be specified via the `CREATE TABLE` or `ALTER TABLE` statement. Inline LOBs improve the performance of queries that access LOB data since no additional I/O is needed to access this type of data (*Answer D*). However, when a table has columns with inline LOBs in it, fewer rows will fit on a page (*Answer A*).

## Security