

**GRE MATH**

**2/8/15**

**Time Limit: 90 Minutes**

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

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This question bank contains 41 pages (including this cover page) and 97 questions.

- GRE MATH
- The questions adapted from the following sources:
  - Magoosh
  - XDF Redbook

## 1 Magoosh

1. (1 point) The Sargon Corporation, which employs both men and women, offers an optional stock-option buy-in program to its employees. If 85% of the men and 77% of the women choose to participate in this plan, then which of the following could be the total number of employees? Indicate all possible values for the number of employees.
- A. 100
  - B. 200**
  - C. 350
  - D. 460**
  - E. 525
  - F. 640**
  - G. 750
  - H. 880**

**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 is 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 **do 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*).

## 2 Security

16. (1 point) A user named USER1 has been granted DATAACCESS authority for a database named PAYROLL. What is user USER1 allowed to do?
- A. Implicitly create a new schema in the PAYROLL database.
  - B. Grant and revoke privileges on objects that reside in the PAYROLL database.
  - C. Retrieve and change data stored in user tables, views, and materialized query tables.**
  - D. Create database objects, issue database-specific DB2 commands, and run DB2 utilities that do not change data.

**Explanation:**

- Answer A IMPLICIT\_SCHEMA database privilege
- Answer B ACCESSCTRL
- Answer D DBMAINT

17. (1 point) Which attribute is NOT needed to define a trusted context?
- A. A system authorization ID
  - B. A data stream encryption value
  - C. A system authorization password**
  - D. The IP address or domain name of an incoming connection
18. (1 point) Which SQL statement will take the ability to run an Embedded SQL application named PERF\_REVIEW that calls a package named CORP.CALC\_Bonus away from a user named USER1?
- A. REVOKE EXECUTION ON APPLICATION perf\_review FROM user1
  - B. REVOKE EXECUTION ON PACKAGE corp.calc\_bonus FROM user1**
  - C. REVOKE EXECUTION ON APPLICATION perf\_review PACKAGE corp.calc\_bonus FROM user1
  - D. REVOKE EXECUTION ON APPLICATION perf\_review USING PACKAGE corp.calc\_bonus FROM user1

**Explanation:**

No APPLICATION database objects (or related privileges)

19. (1 point) If a user is given **SELECT** privilege on a table named **EMPLOYEES**, which two actions are they allowed to perform? (Choose two.)
- A. Add data to the **EMPLOYEE** table.
  - B. Create a view on the **EMPLOYEE** table.**
  - C. Retrieve data from the **EMPLOYEE** table.**
  - D. Create an index for the **EMPLOYEE** table.
  - E. Change the definition for the **EMPLOYEE** table.

**Explanation:**

- *Answer A* INSERT table privilege
- *Answer D* INDEX table privilege
- *Answer E* ALTER table privilege

20. (1 point) Which SQL statement will allow a user named **USER1** to both remove records from a table named **SALES** and give the ability to remove records from the **SALES** table to others?
- A. GRANT DELETE ON TABLE sales TO user1 WITH GRANT OPTION**
  - B. GRANT REMOVE ON TABLE sales TO user1 WITH GRANT OPTION
  - C. GRANT DELETE ON TABLE sales TO user1 WITH GRANT PRIVILEGES
  - D. GRANT REMOVE ON TABLE sales TO user1 WITH GRANT PRIVILEGES

**Explanation:**

No "REMOVE" table privilege and "WITH GRANT PRIVILEGES" clause

21. (1 point) If a user is granted the **BIND** privilege, what are they allowed to do?
- A. Create a new package.
  - B. Bind or rebind (recreate) a specific package.**
  - C. Register user-defined functions (UDFs) and procedures.
  - D. Associate user-defined functions (UDFs) and procedures with specific database objects.

**Explanation:**

- *Answer A* BINDADD table privilege
- *Answer C* CREATE\_EXTERNAL\_ROUTINE table privilege
- *Answer D* No such authority or privilege exists

22. (1 point) Which statement about **Security Administrator (SECADM)** authority is true?
- A. Users with SECADM authority are not allowed to access data stored in system catalog tables and views.
  - B. Only users with SECADM authority are allowed to grant and revoke SECADM authority to/from others.**
  - C. When a user with SECADM authority creates a database, that user is automatically granted DBADM authority for that database.
  - D. With DB2 for z/OS, SYSADM authority and SECADM authority are combined under SYSADM authority and cannot be separated.

**Explanation:**

- *Answer A* CAN access data stored in system catalog tables and views; CANNOT access user data
- *Answer C* Individuals who possess SECADM CANNOT create databases
- *Answer D* CAN separate: set the SEPARATE\_SECURITY system parameter on panel DSNTIPP1 to YES during installation or migration

23. (1 point) Which statement about trusted context is true?
- A. Trusted context objects can only be defined by someone with SYSADM or SECADM authority.
  - B. An authorization ID, IP address, encryption value, and authentication type must be identified before a trusted context can be defined.
  - C. After a trusted connection is established, if a switch request is made with an authorization ID that is not allowed on the connection, the connection is placed in the "Unconnected" state.**
  - D. If a trusted context is assigned to a role, any authorization ID that uses the trusted context will acquire the authorities and privileges that have been assigned to the role; any authorities or privileges that have been granted to the authorization ID are ignored.

**Explanation:**

- *Answer A* can ONLY be defined by SECADM
- *Answer B* An authentication type is NOT needed to define a trusted context
- *Answer D* any authorities or privileges that have been granted to the authorization ID are NOT ignored. (DB2 z/OS extended trusted context)

24. (1 point) If a user has **ACCESSCTRL** authority, which two authorities and/or privileges are they allowed to grant to others? (Choose two.)
- A. **SYSADM**
  - B. **SECADM**
  - C. **EXECUTE**
  - D. **CREATETAB**
  - E. **ACCESSCTRL**

**Explanation:**

SYSADM (*Answer A*), SECADM (*Answer B*), and ACCESSCTRL (*Answer D*) are system-level and database-level authorities-not object privilege. Consequently, they can only be granted by SECADM.

25. (1 point) Which of the following is used to group a collection of privileges together so that they can be simultaneously granted to and revoked from multiple users?
- A. **Role**
  - B. Catalog
  - C. Function
  - D. Collection
26. (1 point) Which method for restricting data access relies on the server or the local DB2 subsystem to prevent unauthorized users from accessing data stored in a database?
- A. Privileges
  - B. **Authentication**
  - C. Label-based access control
  - D. Row and column access control

**Explanation:**

Server is the key word in this question.

27. (1 point) When is an SQL search condition used to limit access to data in a table?
- A. When **mandatory access control (MAC)** is used to protect the table.
  - B. When **label-based access control (LBAC)** is used to protect the table.
  - C. When **discretionary access control (DAC)** is used to protect the table.
  - D. **When row and column access control (RCAC) is used to protect the table.**
28. (1 point) Which SQL statement will give user **USER1** the ability to create tables in a table space named **USERSPACE2**?
- A. **GRANT USE OF TABLESPACE userspace2 TO user1**

- B. GRANT ALTER ON TABLESPACE userspace2 TO user1
- C. GRANT USAGE OF TABLESPACE userspace2 TO user1
- D. GRANT CREATETAB ON TABLESPACE userspace2 TO user1

**Explanation:**

Only one table space privilege exists-the USE (or USE OF TABLESPACE) privilege

29. (1 point) Which SQL statement will give user USER1 the ability to assign a comment to a table named MYTABLE?
- A. GRANT ALTER ON TABLE mytable TO user1
  - B. GRANT USAGE ON TABLE mytable TO user1
  - C. GRANT INSERT ON TABLE mytable TO user1
  - D. GRANT UPDATE ON TABLE mytable TO user1
30. (1 point) Which privileges are needed to invoke an SQL stored procedure that queries a table?
- A. CALL privilege on the procedure; SELECT privilege on the table.
  - B. EXECUTE privilege on the procedure; SELECT privilege on the table.
  - C. CALL privilege on the procedure; REFERENCES privilege on the table.
  - D. EXECUTE privilege on the procedure; REFERENCES privilege on the table.
31. (1 point) Which privileges allows a user to use the PREVIOUS VALUE and NEXT VALUE sequence expressions?
- A. USE
  - B. ALTER
  - C. USAGE
  - D. EXECUTE

**Explanation:**

sequence only has two privileges - USAGE (**NOT** use) & ALTER. ALTER privilege allows user to

- restarting the sequence
- changing the increment value for the sequence
- add or change the comment associated with a sequence

32. (1 point) A table named CUSTOMER was created as follows:

```
CREATE TABLE customer
(cust_id   INTEGER NOT NULL PRIMARY KEY,
 f_name    VARCHAR(30),
 l_name    VARCHAR(40),
 cc_number NUMERIC(16,0) NOT NULL)
```

Which two actions will prevent unauthorized users from accessing credit card number (CC\_NUMBER) information? (Choose two.)

- A. Assign the CC\_NUMBER column to a restricted role that only authorized users are allowed to access.
- B. Only grant ACCESSCTRL authority for the CC\_NUMBER column to users who need to access credit card number information.
- C. Alter the table definition so that CC\_NUMBER data is stored in a separate schema that only authorized users are allowed to access.
- D. Create a view for the CUSTOMER table that does not contain the CC\_NUMBER column and require unauthorized users to use the view.**
- E. Create a column mask for the CC\_NUMBER column with the ENABLE option specified and alter the CUSTOMER table to activate column access control.**

**Explanation:**

- *Answer A* No such thing as a "restricted" role
- *Answer B* ACCESSCTRL does not have ability to retrieve data
- *Answer C* Objects such as tables, views, and index can be stored in different schemas, but individual table columns cannot. And even if they could, there is no privilege that can be used to prevent certain individuals from accessing objects that have been stored in a particular schema

33. (1 point) Which authority is needed to create and drop databases?

- A. DBADM
- B. DBCTRL
- C. SYSCTRL**
- D. SYSMANT



34. (1 point) Which statement regarding label-based access control (LBAC) is true?
- A. Two types of security label components are supported: array and tree.
  - B. Every LBAC-protected table must have only one security policy associated with it.**
  - C. To configure a table for row-level LBAC protect, you must include the `SECURED WITH` clause with each column's definition.
  - D. To configure a table for column-level LBAC protection, you must include a column with the `DB2SECURITYLABEL` data type in the table's definition.

**Explanation:**

- *Answer A* Three types of security label components are supported: SET, ARRAY and TREE
- *Answer C* To configure a table for row-level LBAC protect, you must associate a security policy with the table (using the `SECURITY POLICY` clause of the `CREATE TABLE` or `ALTER TABLE` statement) and *include a column with the data type in the table's definition*
- *Answer D* To configure a table for column-level LBAC protect, you must associate a security policy with the table and *configure each of the table's columns for protection by adding the `SECURED WITH` clause to every column's definition*
- *Answer C and D* are incorrect because they state just the opposite

35. (1 point) Which method for restricting data access relies on an SQL CASE expression to control the conditions under which a user can access for a column?
- A. Authority
  - B. Authentication
  - C. Label-based access control
  - D. Row and column access control**
36. (1 point) Which two statements about Row and column Access Control (RCAC) are valid? (Choose two.)
- A. A column mask's access control rule is defined by an SQL search condition.
  - B. A column mask's access control rule is defined by an SQL CASE expression.**
  - C. A row permission's access control rule is defined by an SQL search condition.**
  - D. A row permission's access control rule is defined by an SQL CASE expression.
  - E. A column mask's access control rule is defined by a `SECURED WITH` clause of a `CREATE TABLE` or `ALTER TABLE` statement.

37. (1 point) Which privilege is needed to invoke a stored procedure?

- A. USE
- B. CALL
- C. USAGE
- D. EXECUTE

### 3 Working with Databases and Database Objects

38. (1 point) Which statement about views is NOT true?

- A. **A view can be defined as being updatable or read-only.**
- B. Views obtain their data from the table(s) or view(s) they are based on.
- C. A view can be used to limit a user's ability to retrieve data from a table
- D. The SQL statement provided as part of a view's definition determines what data is presented when the view is referenced.

**Explanation:**

views can be defined as being *insertable*, *updatable*, *deletable*, or *read-only*.

39. (1 point) If the following SQL statement is executed:

```
CREATE DISTINCT TYPE pound_sterling AS DECIMAL (9,2) WITH COMPARISONS
```

Which event will NOT happen?

- A. A user-defined data type that can be used to store numerical data as British currency will be created.
- B. Six comparison functions will be created so that POUND\_STERLING values can be compared to each other.
- C. Two casting functions will be created so that POUND\_STERLING values can be converted to DECIMAL values, and vice versa.
- D. **A compatibility function will be created so all of DB2's built-in functions that accept DECIMAL values as input can be used with POUND\_STERLING data.**

**Explanation:**

Distinct types cannot be used as arguments for most built-in functions, and built-in data types cannot be used in arguments or operands that expect distinct data types. Instead, user-defined functions (UDFs) that provide similar functionality must be developed if that capability is needed.

40. (1 point) If the following SQL statements are executed:

```
CREATE TABLE sales(  
  order_num      INTEGER NOT NULL,  
  customer_name  VARCHAR(50),  
  amount_due     DECIMAL(6,2));  
CREATE UNIQUE INDEX idx_ordernum ON sales(order_num);
```

Which two statements are true? (Choose two.)

- A. Every **ORDER\_NUM** value must be unique.
- B. Duplicate **ORDER\_NUM** values are allowed.
- C. No other indexes can be created for the **SALES** table.
- D. A query will return rows from the **SALES** table in no specific order.
- E. Index **IDX\_ORDERNUM** will serve as the primary key for the **SALES** table.

**Explanation:**

- *Answer D* Because index do not physically change the order of records in a table, queries that do not take advantage of index will return rows from a table in no specific order (To be more concise, **cluster** clause not specified in **CREATE UNIQUE INDEX** statement)
- *Answer E* Because **ORDER\_NUM** column was not defined as a primary key in the scenario presented, the index produced by the **CREATE INDEX** statement shown will *not* serve as the primary key index for the **SALES** table

41. (1 point) What is the minimum product that is needed to give applications running on personal computers the ability to work with DB2 databases that reside on System z platforms, without using a gateway?

- A. **DB2 Connect Personal Edition**
- B. DB2 Connect Enterprise Edition
- C. IBM DB2 Connect Unlimited Advanced Edition for System z
- D. IBM DB2 Connect Unlimited Advanced Edition for System i

42. (1 point) Which action does NOT need to be performed to complete the definition of an application-period temporal table?
- A. A business-time-begin column must be created for the table.
  - B. A business-time-end column must be created for the table.
  - C. A BUSINESS\_TIME period must be specified in a CREATE or ALTER of the table.
  - D. A unique index must be created that prevents overlapping of the BUSINESS\_TIME period of the table.**
43. (1 point) What are buffer pools used for?
- A. To cache table and index data as it is read from disk.**
  - B. To keep track of changes that are made to a database as they occur.
  - C. To control the amount of processor resources that SQL statements can consume.
  - D. To provide a layer of indirection between a data object and the storage where that object's data resides.
44. (1 point) Which statement regarding distributed requests is NOT true?
- A. To implement distributed request functionality, all you need is a federated database and one or more remote data sources.**
  - B. Distributed request functionality allows a UNION operation to be performed between a DB2 table and an Oracle view.
  - C. Distributed request functionality allows SQL operations to reference two or more databases or relational database management systems in a single statement.
  - D. DB2 Connect provides the ability to perform distributed requests across members of the DB2 Family, as well as across other relational database management systems.

**Explanation:**

- *Answer A* To implement distributed request functionality, you need a *DB2 Connect instance*, a database that will serve as a federated database, and one or more remote data sources.

45. (1 point) Which statement about indexes is NOT true?
- A. An index can be used to enforce the uniqueness of records in a table.
  - B. Indexes provide a fast, efficient method for locating specific rows in a table.
  - C. When an index is created, metadata for the index is stored in the system catalog.
  - D. Indexes automatically provide both a logical and physical ordering of the rows in a table.**

**Explanation:**

An index is an object that contains pointers to rows in a table that are *logically* ordered according to the values of one or more columns (known as keys). Special index known as *clustering* index can cause the rows of a table to be physically arranged according to the ordering of their key column values, but such index are not created automatically.

46. (1 point) What are Materialized Query Tables (MQTs) used for?
- A. To physically cluster data on more than one dimension, simultaneously.
  - B. To improve the execution performance of qualified SELECT statements.**
  - C. To hold nonpresistent data temporarily, on behalf of a single application.
  - D. To track effective dates for data that is subject to changing business conditions.

**Explanation:**

- *Answer A* Multidimensional clustering tables (MDC)
- *Answer C* Declared global temporary tables
- *Answer D* application-period temporal tables

47. (1 point) Which two actions must be performed to track changes made to a system-period temporal table over time? (Choose two.)
- A. A history table must be created with columns that are identical to those of the system-period temporal table.**
  - B. The system-period temporal table must be altered using the ADD VERSIONING clause to relate it to a history table.**
  - C. A primary key must be defined for the system-period temporal table that prevents overlapping of SYSTEM\_TIME periods.
  - D. A unique index must be defined on the transaction-start-id column of both the system-period temporal table and its associated history table.
  - E. The system-period temporal table must be altered to add system-time-begin, system-time-end, transaction-start-id, and transaction-end-id columns.

**Explanation:**

- A primary key (*Answer C*) or unique index (*Answer D*) does not have to be included in the definition provided for a system-period temporal table.
- *Answer E* transaction-end-id column is not needed (nor recognized by DB2)

48. (1 point) Which database object can be used to automatically generate a numeric value that is not tied to any specific column or table?
- A. Alias
  - B. Schema
  - C. Package
  - D. Sequence**

49. (1 point) Which column is NOT required as part of the table definition for a system-period temporal table?
- A. A row-begin column with a TIMESTAMP(12) data type
  - B. A row-end column with a TIMESTAMP(12) data type
  - C. A transaction-start-id column with a TIMESTAMP(12) data type
  - D. A transaction-stop-id column with a TIMESTAMP(12) data type**
50. (1 point) Which object can NOT be enabled for compression?
- A. Views**
  - B. Indexes
  - C. Base tables
  - D. Temporary tables

**Explanation:**

Since views do not contain data, they cannot be enabled for compression.

51. (1 point) What is a schema used for?
- A. To provide an alternate name for a table or view.
  - B. To provide a logical grouping of database objects.**
  - C. To generate a series of numbers, in ascending or descending order.
  - D. To provide an alternative way of describing data stored in one or more tables.

**Explanation:**

- *Answer A* Alias
- *Answer C* Sequence
- *Answer D* View

52. (1 point) Which view definition type is NOT supported?
- A. Insertable
  - B. Updatable
  - C. Read-only
  - D. Write-only**

53. (1 point) When should an application-period temporal table be used?
- A. When you want to keep track of historical versions of a table's rows.
  - B. When you want to define specific time periods in which data is valid.**
  - C. When you want to cluster data according to the time in which rows are inserted.
  - D. When you want to cluster data on more than one key or dimension, simultaneously.

**Explanation:**

- *Answer A* system-period temporal table
- *Answer C* insert time clustering (ITC) tables
- *Answer D* multidimensional clustering (MDC) tables

54. (1 point) Which statement about buffer pools is NOT true?
- A. Every table space must have a buffer pool assigned to it.
  - B. One buffer pool is created automatically as part of the database creation process.
  - C. Dirty pages are automatically removed from a buffer pool when they are written to storage.**
  - D. Once a page has been copied to a buffer pool, it remains there until the space it occupies is needed.
55. (1 point) Which DB2 object can a view NOT be derived from?
- A. Alias
  - B. View
  - C. Table
  - D. Procedure**
56. (1 point) Which two expressions can be used with a sequence? (Choose two.)
- A. NEXT VALUE**
  - B. PRIOR VALUE
  - C. CURRENT VALUE
  - D. PREVIOUS VALUE**
  - E. SUBSEQUENT VALUE



57. (1 point) Which object is a distinct data type defined into?

- A. Schema
- B. Package
- C. Database
- D. Table space

**Explanation:**

When table spaces, tables, index, *distinct data types*, functions, stored procedures, and triggers are created, they are automatically assigned to (or defined into) a schema, based upon the qualifier that was provided as part of the user-supplied name.

58. (1 point) Which two objects can NOT be created in DB2? (Choose two.)

- A. Plan
- B. Trigger
- C. Scheme
- D. Function
- E. Sequence

**Explanation:**

- *Answer A* While packages can contain data access plans that were implicitly created, there is no way to explicitly create a data access plan.
- *Answer C* There is no such thing as a "scheme" object, scheme objects cannot be explicitly created.

59. (1 point) Which statement about Type 2 connections is true?

- A. Type 2 connections cannot be used with DB2 for z/OS
- B. Type 2 connections are used by default with DB2 for Linux, Unix, and Windows.
- C. Type 2 connections allow applications to be connected to only one database at a time.
- D. **Type 2 connections allow applications to connect to and work with multiple DB2 databases simultaneously.**

**Explanation:**

- *Answer A* Type 2 connections can be used with DB2 for z/OS
- *Answer B* Type 1 connections are used by default with DB2 LUW; Type 2 connections are used by default with DB2 z/OS.
- *Answer C* Type 2 connections allow a single transaction to connect to and work with multiple databases simultaneously.

60. (1 point) Which two statements about bitemporal tables are valid? (Choose two.)
- A. Bitemporal tables are system tables and can only be queried by the table owner.
  - B. When data in a bitemporal table is updated, a row is added to its associated history table.**
  - C. Creating a bitemporal table is similar to creating a base table except users must define a `SYSTEM_TIME_PERIOD` column.
  - D. When querying a bitemporal table, you have the option of providing a system time-period specification, a business time-period specification, or both.**
  - E. Bitemporal tables must contain bitemporal-time-begin, bitemporal-time-end, and transaction-start-id columns, along with `SYSTEM_TIME` and `BUSINESS_TIME` periods.

**Explanation:**

- *Answer A* Bitemporal tables are user tables, NOT system tables.
- *Answer C* Created by executing a `CREATE TABLE` statement with both the `PERIOD SYSTEM_TIME` clause and the `PERIOD BUSINESS_TIME` clause specified.
- *Answer D* No "bitemporal-time-begin" and "bitemporal-time-end" columns exist.

61. (1 point) Which programming interface is widely used for database access because it allows applications to run, unchanged, on most hardware platforms?
- A. ODBC
  - B. SQLJ
  - C. JDBC**
  - D. OLE DB
62. (1 point) Which two types of temporal tables can be used to store time-sensitive data? (Choose two.)
- A. Bitemporal**
  - B. Time-period
  - C. System-period
  - D. Business-period
  - E. Application-period**

63. (1 point) In which of the following scenarios would a stored procedure be beneficial?
- A. An application running on a remote client needs to track every modification made to a table that contains sensitive data.
  - B. An application running on a remote client needs to be able to convert degrees Celsius to degrees Fahrenheit and vice versa.
  - C. An application running on a remote client needs to ensure that every new employee that joins the company is assigned a unique, sequential employee number.
  - D. An application running on a remote client needs to collect input values from a user, perform a calculation using the values provided, and store the input data, along with the calculation results, in a base table.**

**Explanation:**

- *Answer A* trigger
- *Answer B* UDF
- *Answer C* sequence

64. (1 point) Given the following SQL statement:

```
CREATE ALIAS emp_info FOR employees
```

Which two objects can the name EMPLOYEES refer to? (Choose two.)

- A. A view**
  - B. An alias**
  - C. An index
  - D. A sequence
  - E. A procedure
65. (1 point) Which operation can NOT be performed by executing an ALTER SEQUENCE statement?
- A. Change a sequence's data type.**
  - B. Change whether a sequence cycles.
  - C. Establish new minimum and maximum sequence values.
  - D. Change the number of sequence numbers that are cached.
66. (1 point) Which object must exist before an index can be created?
- A. View
  - B. Table**
  - C. Schema
  - D. Sequence

67. (1 point) If the following SQL statement is executed:

```
CREATE DATABASE payroll
```

Which two statements are true? (Choose two.)

- A. The **PAYROLL** database will have a page size of 4KB.
- B. The PAYROLL database will have a page size of 8KB.
- C. The **PAYROLL** database will be an automatic storage database.
- D. The PAYROLL database will not be an automatic storage database.
- E. The PAYROLL database will be assigned the comment "PAYROLL DATABASE."

**Explanation:**

When the simplest form of the CREATE DATABASE command is executed, the database will be

- an automatic storage database
- have a page size of 4 KB
- be created on the default database path that is specified in the *dfldbpath* database manager configuration parameter
- default table spaces (SYSCATSPACE, TEMPSPACE1, and USERSPACE1) will be automatic storage table spaces (Their containers will also be created on the default database path.)

- 
- *Answer B* PAGESIZE 8192 option
  - *Answer C* AUTOMATIC STORAGE NO option
  - *Answer D* WITH "PAYROLL DATABASE" option

## 4 Working with DB2 Data Using SQL

68. (1 point) If the following result set is desired:

STATE	REGION	AVG_INCOME
-----	-----	-----
MARYLAND	MID-ATLANTIC	86056.00
NEW JERSEY	NORTHEAST	85005.00
CONNECTICUT	NORTHEAST	84558.00
MASSACHUSETTS	NORTHEAST	82009.00
ALASKA	PACIFIC-ALASKA	79617.00

Which SQL statement must be executed?

- A. `SELECT state, region, avg_income  
FROM census_data  
ORDER BY 3  
FETCH FIRST 5 ROWS`
- B. `SELECT state, region, avg_income  
FROM census_data  
ORDER BY 3  
FETCH FIRST 5 ROWS ONLY`
- C. `SELECT state, region, avg_income  
FROM census_data  
ORDER BY 3 DESC  
FETCH FIRST 5 ROWS`
- D. `SELECT state, region, avg_income  
FROM census_data  
ORDER BY 3 DESC  
FETCH FIRST 5 ROWS ONLY`

69. (1 point) Which type of join will usually produce the smallest result set?

- A. **INNER JOIN**
- B. LEFT OUTER JOIN
- C. RIGHT OUTER JOIN
- D. FULL OUTER JOIN

70. (1 point) Which statement about SQL subqueries is NOT true?

- A. A subquery can be used with an UPDATE statement to supply values for one or more columns that are to be updated.
- B. A subquery can be used with an INSERT statement to retrieve values from one base table or view and copy them to another.
- C. **If a subquery is used with a DELETE statement and the result set produced is empty, every record will be deleted from the table specified.**
- D. If a subquery is used with an UPDATE statement and the result set produced contains multiple rows, the operation will fail and an error will be generated.

**Explanation:**

- *Answer C* If a subquery is used with a DELETE statement and the result set produced is empty, **no** records will be deleted from the table specified and **an error will be returned**.
- *Answer D* when used with an UPDATE statement, the subselect provided must **not return more than one row**.

71. (1 point) Which statement about savepoints is NOT true?

- A. You can use as many savepoints as you desire within a single unit of work, provided you do not nest them.
- B. Savepoints provide a way to break the work being done by a single large transaction into one or more smaller subsets.
- C. **The COMMIT FROM SAVEPOINT statement is used to commit a subset of database changes that have been made within a unit of work.**
- D. The ROLLBACK TO SAVEPOINT statement is used to back out a subset of database changes that have been made within a unit of work.

**Explanation:**

- *Answer C* TO SAVEPOINT clause cannot be used with a COMMIT statement to apply a subset of database changes that have been made by a transaction to a database and make them permanent.

72. (1 point) Which two statements about UPDATE processing are true? (Choose two.)
- A. A positioned UPDATE is used to modify one or more rows, and a searched UPDATE is used to modify exactly one row.
  - B. A searched UPDATE is used to modify one or more rows, and a positioned UPDATE is used to modify exactly one row.**
  - C. When the UPDATE statement modifies parent key columns, the values of corresponding foreign key columns are modified as well.
  - D. The UPDATE statement can be used to remove data from specified columns in the rows of a table, provided those columns are not nullable.
  - E. The UPDATE statement can be used to modify the values of specified columns in the rows of a table, view, or underlying table(s) of a specified fullselect.**

**Explanation:**

- *Answer D* are ~~not~~ nullable
- *Answer C* When the UPDATE statement is used to modify the values stored in parent key columns, the update rule of the corresponding referential constraint is evaluated to determine whether the update is allowed - the values of corresponding foreign key columns are *not altered*.

73. (1 point) A table named SALES has two columns: SALES\_AMT and REGION\_CD. Which SQL statement will return the number of sales in each region, ordered by number of sales made?
- A. 

```
SELECT sales_amt, COUNT(*)  
FROM sales  
ORDER BY 2
```
  - B. 

```
SELECT sales_amt, COUNT(*)  
FROM sales  
GROUP BY sales_amt  
ORDER BY 1
```
  - C. 

```
SELECT region_cd, COUNT(*)  
FROM sales  
GROUP BY region_cd  
ORDER BY COUNT(*)
```
  - D. 

```
SELECT region_cd, COUNT(*)  
FROM sales  
GROUP BY sales_amt  
ORDER BY COUNT(*)
```

74. (1 point) A user wants to retrieve records from a table named SALES that satisfy at least one of the following criteria:

- The sales date (SALESDATE) is after June 1, 2012, and the sales amount (AMT) is greater than \$40.00.
- The sales was made in the hardware department.

Which SQL statement will accomplish this?

- A. `SELECT * FROM sales  
WHERE (salesdate > '2012-06-01' OR (amt > 40  
AND (dept = 'Hardware'))`
- B. `SELECT * FROM sales  
WHERE (salesdate > '2012-06-01') OR (amt > 40)  
OR (dept = 'Hardware')`
- C. `SELECT * FROM sales  
WHERE (salesdate > '2012-06-01' AND amt > 40  
AND (dept = 'Hardware'))`
- D. `SELECT * FROM sales  
WHERE (salesdate > '2012-06-01' AND amt > 40)  
OR (dept = 'Hardware')`

75. (1 point) Which two statements about INSERT operations are true? (Choose two.)

- A. The INSERT statement can be used to insert rows into a table, view, or table function.
- B. Inserted values must satisfy the conditions of any check constraints that have been defined on the table specified.
- C. The values provided in the VALUES clause of an INSERT statement are assigned to columns in the order in which they appear.
- D. If an INSERT statement omits any column from the inserted row that is defined as NULL or NOT NULL WITH DEFAULT, the statement will fail.
- E. If the underlying table of a view that is referenced by an INSERT statement has one or more unique indexes, each row inserted does not have to conform to the constraints imposed by those indexes.

**Explanation:**

- *Answer A* INSERT statement can be used to insert rows into a table or updatable view, *but not a table function*
- *Answer D* omitted column must either accept NULL values (ie. have not been defined with a NOT NULL constraint) or have been defined with a default constraint (ie, NOT NULL WITH DEFAULT). ~~not fail~~
- *Answer E* must conform



76. (1 point) Which SQL statement should be used to select the minimum and maximum rainfall amounts (RAINFALL), by month (MONTH), from a table named WEATHER?

- A. `SELECT month, MIN(rainfall), MAX(rainfall)`  
`FROM weather`  
`ORDER BY month`
- B. `SELECT month, MIN(rainfall), MAX(rainfall)`  
`FROM weather`  
`GROUP BY month`
- C. `SELECT month, MIN(rainfall), MAX(rainfall)`  
`FROM weather`  
`GROUP BY month, MIN(rainfall), MAX(rainfall)`
- D. `SELECT month, MIN(rainfall), MAX(rainfall)`  
`FROM weather`  
`ORDER BY month, MIN(rainfall), MAX(rainfall)`

77. (1 point) An SQL function named REGIONAL\_SALES was created as follows:

```
CREATE FUNCTION regional_sales()  
RETURNS TABLE (region_id VARCHAR(20),  
                sales_amt DECIMAL(8,2))  
READS SQL DATA  
BEGIN ATOMIC  
RETURN  
SELECT region, amt  
FROM sales  
ORDER BY region;  
END
```

Which two statements demonstrate the proper way to use this function in a query? (Choose two.)

- A. `SELECT * FROM regional_sales()`
- B. `SELECT regional_sales (region_id, sales_amt)`
- C. `SELECT region_id, sales_amt FROM regional_sales()`
- D. `SELECT * FROM TABLE (regional_sales()) AS results`
- E. `SELECT region_id, sales_amt FROM TABLE(regional_sales()) AS results`

78. (1 point) If the following SQL statement is executed:

```
SELECT dept, AVG(salary)
FROM employee
GROUP BY dept
ORDER BY 2
```

What will be the results?

- A. The department number and average salary for all employees will be retrieved from a table named EMPLOYEE, and the results will be arranged in descending order, by department.
- B. The department number and average salary for all departments will be retrieved from a table named EMPLOYEE, and the results will be arranged in ascending order, by department.
- C. The department number and average salary for all employees will be retrieved from a table named EMPLOYEE, and the results will be arranged in ascending order, by average departmental salary.**
- D. The department number and average salary for all departments will be retrieved from a table named EMPLOYEE, and the results will be arranged in descending order, by average departmental salary.

**Explanation:**

the average salary is being calculated using data stored in the EMPLOYEE table-*not in the DEPARTMENT table*, which is where two answers imply that salary information is to be retrieved from ( *Answer B* and *Answer D* )

79. (1 point) If a table named SALES contains information about invoices that do not have a negative balance, which two SQL statements can be used to retrieve invoice numbers for invoices that are for less than \$25,000.00 ? (Choose two.)

- A. SELECT invoice\_num FROM sales WHERE amt < 25000
- B. SELECT invoice\_num FROM sales WHERE amt < 25,000
- C. SELECT invoice\_num FROM sales WHERE amt LESS THAN 25,000
- D. SELECT invoice\_num FROM sales WHERE amt BETWEEN 0 AND 25000
- E. SELECT invoice\_num FROM sales WHERE amt BETWEEN 0 AND 25,000

80. (1 point) An SQL function designed to convert miles to kilometers was created as follows:

```
CREATE FUNCTION mi_to_km (IN miles FLOAT)
  RETURN FLOAT
  LANGUAGE SQL
  SPECIFIC convert_mtok
  READS SQL DATA
  RETURN FLOAT (miles * 1.60934)
```

How can this function be used to convert miles (MILES) values stored in a table named DISTANCES?

- A. CALL mi\_to\_km (distances.miles)
- B. CALL convert\_mtok (distances.miles)
- C. SELECT mi\_to\_km (miles) FROM distances**
- D. SELECT convert\_mtok (miles) FROM distances

**Explanation:**

- CALL statement is used to invoke a stored procedure - not a UDF
- Specific name that is assigned to a UDF can be used to reference or delete(drop) the UDF, but not to invoke it

81. (1 point) Which two statements about system-period temporal tables are true? (Choose two.)

- A. They store user-based period information.
- B. They do not require a separate history table.
- C. They store system-based historical information.**
- D. They can be queried without a time-period specification.**
- E. They manage data based on time criteria specified by users or applications.

82. (1 point) A table named PARTS contains a record of every part that has been manufactured by a company. A user wishes to see the total number of parts that have been made by each craftsman employed at the company. Which SQL statement will produce the desired results?

- A. SELECT name, COUNT(\*) AS parts\_made FROM parts
- B. SELECT name, COUNT(\*) AS parts\_made FROM parts GROUP BY name**
- C. SELECT name, COUNT(DISTINCT name) AS parts\_made FROM parts
- D. SELEC DISTINCT name, COUNT(\*) AS parts\_made FROM parts GROUP BY parts\_made

83. (1 point) Given an EMPLOYEES table and a DEPARTMENT table, a user wants to produce a list of all departments and employees who work in them, including departments that no employees have been assigned to. Which SQL statement will produce the desired list?
- A. 

```
SELECT employees.name, departments.deptname
FROM employees
INNER JOIN department ON
employees.dept = departments.deptno
```
  - B. 

```
SELECT employees.name, departments.deptname
FROM employees
INNER JOIN department ON
departments.deptno = employees.dept
```
  - C. 

```
SELECT employees.name, departments.deptname
FROM employees
LEFT OUTER JOIN departments ON
employees.dept = departments.deptno
```
  - D. 

```
SELECT employees.name, departments.deptname,
FROM employees
RIGHT OUTER JOIN departments ON
employees.dept = departments.deptno
```
84. (1 point) Which statements are NOT allowed in the body of an SQL scalar user-defined function?
- A. CALL statements
  - B. COMMIT statements
  - C. SQL CASE statements
  - D. SQL control statements

**Explanation:**

COMMIT and ROLLBACK statements are not allowed in the body of an SQL user-defined function (UDF).

85. (1 point) A table named TABLE\_A contains 200 rows and a user wants to update the 10 rows in this table with the lowest values in a column named COL1. Which SQL statement will produce the desired results?

- A. UPDATE  
(SELECT \* FROM table\_a  
ORDER BY col1 ASC) AS temp  
SET col2 = 99  
FETCH FIRST 10 ROWS ONLY
- B. UPDATE  
(SELECT \* FROM table\_a  
ORDER BY col1 DESC) AS temp  
SET col2=99  
FETCH FIRST 10 ROWS ONLY
- C. UPDATE  
(SELECT \* FROM table\_a  
ORDER BY col1 ASC  
FETCH FIRST 10 ROWS ONLY) AS temp  
SET col2=99
- D. UPDATE  
(SELECT \* FROM table\_a  
ORDER BY col1 DESC  
FETCH FIRST 10 ROWS ONLY) AS temp  
SET col2 = 99

86. (1 point) Which statement best describes a transaction?

- A. A transaction is a recoverable sequence of operations whose point of consistency is established only when a savepoint is created.
- B. A transaction is recoverable sequence of operations whose point of consistency can be obtained by querying the system catalog tables.
- C. A transaction is a recoverable sequence of operations whose point of consistency is established when a database connection is established or a savepoint is created.
- D. A transaction is recoverable sequence of operations whose point of consistency is established when an executable SQL statement is processed after a database connection has been established or a previous transaction has been terminated.

**Explanation:**

- Answer A and Answer C savepoints do not define points of consistency for a transaction
- Answer B System catalog has nothing to do with defining points of consistency for transactions

87. (1 point) A table named TABLE\_A contains 200 rows and a user wants to delete the last 10 rows from this table. Which SQL statement will produce the desired results?

- A. DELETE FROM  
(SELECT \* FROM table\_a  
ORDER BY col1 ASC  
FETCH FIRST 10 ROWS ONLY) AS result
- B. DELETE FROM  
(SELECT \* FROM table\_a  
ORDER BY col1 DESC  
FETCH FIRST 10 ROWS ONLY) AS result
- C. DELETE FROM  
(SELECT \* FROM table\_a  
ORDER BY col1 ASC  
FETCH LAST 10 ROWS ONLY) AS result
- D. DELETE FROM  
(SELECT \* FROM table\_a  
ORDER BY col1 DESC  
FETCH LAST 10 ROWS ONLY) AS result

**Explanation:**

no FETCH LAST ... ROWS ONLY clause

88. (1 point) Which clause could be added to the following SQL statement

```
SELECT student_id, enroll_date, gpa
FROM students
```

to ensure that only information (STUDENT\_ID, ENROLL\_DATE, and GPA) for students who started school before 2012 and who have a GPA that is higher than 3.50 will be retrieved?

- A. FOR enroll\_date < '2012-01-01' OR gpa>3.50
- B. FOR enroll\_date < '2012-01-01' AND gpa>3.50
- C. **WHERE enroll\_date < '2012-01-01' OR gpa>3.5**
- D. WHERE enroll\_date < '2012-01-01' AND gpa>3.5

89. (1 point) Which statement correctly describes what a native SQL stored procedure is?

- A. **A procedure whose body is written entirely in SQL or SQL PL.**
- B. A procedure that is written in a high-level programming language such as Java or REXX.
- C. A procedure whose body is written entirely in SQL, but that is implemented as an external program.
- D. A procedure that accesses data using an Object Linking and Embedding, Database (OLE DB) provider.

**Explanation:**

- *Answer B* External stored procedure
- *Answer C* External SQL stored procedure
- *Answer D* Cannot develop a stored procedure that accesses data using an Object Linking and Embedding, Database (OLE DB) provider - to access data in this manner, you must develop an OLE DB External Table function.

90. (1 point) Given the following statements:

```
CREATE TABLE customer (custid INTEGER, custinfo XML);
INSERT INTO customer VALUES (100,
'<customerinfo>
  <name>ACME Manufacturing</name>
  <addr country="United States">
    <street>25 Elm Street</street>
  <city>Raleigh</city>
  <state>North Carolina</state>
  <zip>27603</zip>
  </addr>
</customerinfo>');

```

If the following XQuery statement is executed:

```
XQUERY
for $info in db2-fn:xmlcolumn('CUSTOMER.CUSTINFO')/customerinfo
return $info/name

```

What will be the result?

- A. ACME Manufacturing
- B. <name>ACME Manufacturing</name>
- C. <customerinfo>ACME Manufacturing</customerinfo>
- D. <customerinfo><name>ACME Manufacturing</name></customerinfo>

**Explanation:**

The FLOWER XQuery expression is comparable to the SELECT-FROM-WHERE statement/clause combination available with SQL. The basic syntax for a FLOWER expression is:

```
XQUERY
for $Variable1 IN Expression1
let $Variable2 := Expression2

```

```
where Expression3  
order by Expression4 [ASCENDING | DESCENDING]  
return Expression3
```

Consequently, the XQuery statement used in the scenario presented will return the expression "<name>ACME Manufacturing</name>". This expression is obtained by searching the XML data value stored in the CUSTINFO column of a table named CUSTOMER for the first opening tag found under the customerinfo root (outermost) element that is followed by a value.

Had the text() function been used with the XQuery statement, the opening and closing tags for the name would have been removed and the value "ACME Manufacturing" would have been returned (*Answer A*) Because the customerinfo element is the root element of the XML data value presented, it is typically referenced in the for expression of the XQuery statement and is not returned as part of the return expression(*Answer C* and *Answer D*)

91. (1 point) Which two statements about roll back operations are correct? (Choose two.)
- A. When a ROLLBACK statement is executed, all locks held by the terminating transaction are released.
  - B. When a ROLLBACK TO SAVEPOINT statement is executed, all locks acquired after the most recent savepoint are released.
  - C. When a ROLLBACK statement is executed, all locks acquired for open cursors that were declared WITH HOLD are held.
  - D. When a ROLLBACK TO SAVEPOINT statement is executed, all locks acquired up to the most recent savepoint are released.
  - E. When a ROLLBACK TO SAVEPOINT statement is executed, a savepoint is not automatically deleted as part of the rollback operation.

**Explanation:**

- *Answer C* are released
- *Answer B* When a ROLLBACK TO SAVEPOINT statement is executed, all locks acquired after the savepoint specified was created are released-*not the locks acquired after the most recent savepoint*
- *Answer D* nor the locks acquired up to the most recent savepoint



92. (1 point) Which SQL statement illustrates the proper way to perform a positioned update operation on a table named SALES?
- A. `UPDATE sales SET amt = 102.45`
  - B. `UPDATE sales SET amt = 102.45 WHERE cust_id='000290'`
  - C. `UPDATE sales SET amt = 102.45 WHERE CURRENT OF cursor1`
  - D. `UPDATE sales SET amt = 102.45`  
`WHERE ROWID = (SELECT ROWID FROM sales WHERE cust_id='000290')`
93. (1 point) Which two statements about application-period temporal tables are true? (Choose two.)
- A. **They are useful when one wants to keep user-based time period information.**
  - B. They consist of explicitly supplied timestamps and a separate associated history table.
  - C. They are useful when one wants to keep both user-based and system-based time period information.
  - D. **They are based on explicitly supplied timestamps that define the time periods during which data is valid.**
  - E. They consist of a pair of columns with database-manager maintained values that indicate the period when a row is current.

**Explanation:**

- *Answer E* System-period temporal table

94. (1 point) When should the TRUNCATE statement be used?
- A. **When you want to delete all rows from a table without generating log records.**
  - B. When you want to delete select rows from a table without generating log records.
  - C. When you want to delete all rows from a table and fire any delete triggers that have been defined for the table.
  - D. When you want to delete select rows from a table and fire any delete triggers that have been defined for the table.

**Explanation:**

- If IGNORE DELETE TRIGGERS clause is specified with the TRUNCATE statement used, DELETE tiggers that have been defined on the table *will not be fired* as the data in the table is deleted
- If RESTRICT WHEN DELETE TRIGGERS clause is used instead, DB2 will examine the system catalog to determine whether DELETE triggers on the table exist; if one or more triggers are found, the truncate operation will fail and error will be returned.

95. (1 point) Which two commands will terminate the current transaction and start a new transaction boundary? (Choose two.)
- A. **COMMIT**
  - B. REFRESH
  - C. RESTART
  - D. CONNECT
  - E. **ROLLBACK**
96. (1 point) Which SQL statement should be used to retrieve the minimum and maximum annual temperature (TEMP) for each major city (CITY), sorted by city, from a table named WEATHER?
- A. 

```
SELECT city, MIN(temp), MAX(temp)
FROM weather
ORDER BY city
```
  - B. 

```
SELECT city, MIN(temp), MAX(temp)
FROM weather
GROUP BY city
```
  - C. 

```
SELECT city, MIN(temp), MAX(temp)
FROM weather
GROUP BY city
ORDER BY city
```
  - D. 

```
SELECT city, MIN(temp), MAX(temp)
FROM weather
GROUP BY MIN(temp), MAX(temp)
ORDER BY city
```
97. (1 point) What is the XMLTABLE() function typically used for?
- A. To convert a well-formed XML document into a table of character string values.
  - B. **To obtain values from XML documents that are to be inserted into one or more tables.**
  - C. To parse a character string value and return a table of well-formed XML documents.
  - D. To produce a temporary table whose columns are based on the elements found in a well-formed XML document.

**Explanation:**

- *Answer A* XMLSERIALIZE()
- *Answer C* XMLPARSE()
- *Answer D* No such XML function exist; need to construct a query or XQuery expression to perform this type of operation