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Exam : 1D0-441

Title : CIW Database Specialist

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QUESTION 1:

Under JDBC, you can move the cursor within the resultset to a particular specified row using which of the following methods?

- A. absolute
- B. jump
- C. goto
- D. moveto
- E. nextset

Answer: A

Explanation: According to the online Java tutorial provided by Sun at java.sun.com: You can move the cursor to a particular row in a ResultSet object. The methods first, last, beforeFirst, and afterLast move the cursor to the position their names indicate. The method absolute will move the cursor to the row number indicated in the argument passed to it. If the number is positive, the cursor moves the given number from the beginning, so calling absolute(1. puts the cursor on the first row. If the number is negative, the cursor moves the given number from the end, so calling absolute(-1. puts the cursor on the last row.

QUESTION 2:

You are the database specialist of your company. You are managing the in-house database systems. With JDBC, you want to make updates to a ResultSet object. To do so, what must you supply to the ResultSet object?

- A. CONCUR_UPDATABLE
- B. UPDATABLE
- C. CONCUR
- D. CONCUR_RESULT
- E. RESULT_UPDATABLE

Answer: A

Explanation:

According to the online Java tutorial provided by Sun at java.sun.com: Before you can make updates to a ResultSet object, you need to create one that is updatable. In order to do this, you supply the ResultSet constant CONCUR_UPDATABLE to the createStatement method. The Statement object that is created will produce an updatable ResultSet object each time it executes a query.

QUESTION 3:

Under JDBC, what object represents the DBMS that supplies you with all the company SALES data?

- A. DataSource
- B. FileSource
- C. DSN
- D. ResultSource
- E. DataOrigin

Answer: A

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:
A DataSource object represents a particular DBMS or some other data source, such as a file. If a company uses more than one data source, it will deploy a separate DataSource object for each of them. A DataSource object may be implemented in three different ways:

A basic DataSource implementation-produces standard Connection objects that are not pooled or used in a distributed transaction

A DataSource class that supports connection pooling-produces Connection objects that participate in connection pooling, that is, connections that can be recycled

A DataSource class that supports distributed transactions-produces Connection objects that can be used in a distributed transaction, that is, a transaction that accesses two or more DBMS servers

QUESTION 4:

In JDBC, what class allows the use of HTTP to talk to a Java servlet that provides data access?

- A. A CachedRowSet class
- B. A JDBCRowSet class
- C. A WebRowSet class
- D. A JavaSource class
- E. A HTTPRowSet class
- F. A JavaDb class

Answer: C

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:
Although anyone can implement a rowset, most implementations will probably be provided by vendors offering RowSet classes designed for fairly specific purposes. To make writing an implementation easier, the Java™ Software division of Sun

Microsystems, Inc., plans to provide reference implementations for three different styles of rowsets in the future. The following list of planned implementations gives you an idea of some of the possibilities.

A **CachedRowSet** class-a disconnected rowset that caches its data in memory; not suitable for very large data sets, but an ideal way to provide thin Java clients, such as a Personal Digital Assistant (PD

A. or Network Computer (NC., with tabular data

A **JDBCRowSet** class-a connected rowset that serves mainly as a thin wrapper around a **ResultSet** object to make a JDBC driver look like a JavaBeans component

A **WebRowSet** class-a connected rowset that uses the HTTP protocol internally to talk to a Java servlet that provides data access; used to make it possible for thin web clients to retrieve and possibly update a set of rows

QUESTION 5:

To properly handle **SQLException** under JDBC, you must use:

- A. a try/catch block
- B. a **Exception** pointer
- C. the **Err** object
- D. the error table
- E. the master error dictionary

Answer: A

Explanation: According to the online Java tutorial provided by Sun at java.sun.com: Many of the methods in the **java.sql** package throw an **SQLException**, which requires a try/catch block like any other **Exception**. Its purpose is to describe database or driver errors (SQL syntax, for example.. In addition to the standard **getMessage()**, inherited from **Throwable**, **SQLException** has two methods which provide further information, a method to get (or chain. additional exceptions and a method to set an additional exception

QUESTION 6:

Which of the following are the valid methods for handling SQL exceptions generated in JDBC (Choose all that apply.?

- A. **getSQLState()**.
- B. **getErrorCode()**.
- C. **getNextException()**.
- D. **setNextException()**.

Answer: A, B, C, D

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:
getSQLState(. returns an SQLState identifier based on the X/Open SQL specification. Your DBMS manuals should list some of these or see Resources for information to find SQLStates.
getErrorCode(. is provided to retrieve the vendor-specific error code.
getNextException(. retrieves the next SQLException or null if there are no more. Many things can go wrong between your program and the database. This method allows tracking all problems that occur.
setNextException(. allows the programmer to add an SQLException to the chain.

QUESTION 7:

You are the database specialist of your company. You are managing the in-house database systems. In your JDBC application you want to provide warnings to users without terminating the operations. Which of the following classes may you use?

- A. SQLWarning
- B. SQLNotice
- C. SQLError
- D. SQLInform
- E. SQLWarns

Answer: A

Explanation:

According to the online Java tutorial provided by Sun at java.sun.com: An SQLWarning is a subclass of SQLException, but is not thrown like other exceptions. The programmer must specifically ask for warnings. Connections, Statements, and ResultSets all have a getWarnings(. method that allows retrieval. There is also a clearWarnings(. method to avoid duplicate retrievals. The SQLWarning class itself only adds the methods getNextWarning(. and setNextWarning(.. An SQLWarning is very similar to traditional compiler warnings: something not exactly right occurred, but its effect was not severe enough to end processing. Whether it is important enough to investigate depends on the operation and context.

QUESTION 8:

Under JDBC, which of the following are the responsibilities of the Connection object (Choose all that apply.?

- A. Creating Statement instances.
- B. Obtaining DatabaseMetadata objects.

- C. Controlling transactions
- D. Setting isolation levels

Answer: A, B, C, D

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:
The Connection itself is responsible for several areas including:
Creating Statement, PreparedStatement, and CallableStatement (used with stored procedures. instances.
Obtaining DatabaseMetadata objects.
Controlling transactions via the commit(. and rollback(. methods.
Setting the isolation level involved in transactions.

QUESTION 9:

In JDBC, what function returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements?

- A. executeUpdate(.
- B. execute(.
- C. Update(.
- D. runUpdate(.
- E. SQLUpdate(.

Answer: A

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:
executeUpdate(. returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements, or zero for SQL statements that do not return anything, like DDL statements.

QUESTION 10:

Mix and match question:SQL Type Java Method

FLOAT
INTEGER
LONGVARBINARY
LONGVARCHAR
NUMERIC
OTHER
Java Method
getDouble(.
getInt(.
getBytes(.

getString(.
getBigDecimal(.
getObject(.
Match the Java methods to the corresponding SQL data types:

A. SQL Type Java Method

FLOAT getDouble(.
INTEGER getInt(.
LONGVARBINARY getBytes(.
LONGVARCHAR getString(.
NUMERIC getBigDecimal(.
OTHER getObject(.
B. SQL Type Java Method

LONGVARBINARY getDouble(.
INTEGER getInt(.
FLOAT getBytes(.
LONGVARCHAR getString(.
NUMERIC getBigDecimal(.
OTHER getObject(.
C. SQL Type Java Method

NUMERIC getDouble(.
INTEGER getInt(.
LONGVARBINARY getBytes(.
LONGVARCHAR getString(.
FLOAT getBigDecimal(.
OTHER getObject(.
D. SQL Type Java Method

FLOAT getDouble(.
INTEGER getInt(.
LONGVARCHAR getBytes(.
LONGVARBINARY getString(.
NUMERIC getBigDecimal(.
OTHER getObject(.
Answer: A

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:
Memorize the list below:SQL Type Java Method

BIGINT getLong(.
BINARY getBytes(.
BIT getBoolean(.
CHAR getString(.
DATE getDate(.
DECIMAL getBigDecimal(.
DOUBLE getDouble(.
FLOAT getDouble(.
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INTEGER getInt(
LONGVARBINARY getBytes(
LONGVARCHAR getString(
NUMERIC getBigDecimal(
OTHER getObject(
REAL getFloat(
SMALLINT getShort(
TIME getTime(
TIMESTAMP getTimestamp(
TINYINT getByte(
VARBINARY getBytes(
VARCHAR getString(

QUESTION 11:

Under JDBC, which of the following are valid methods for determining scalar functions (Choose all that apply.?

- A. getNumericFunctions(.
- B. getStringFunctions(.
- C. getSystemFunctions(.
- D. getTimeDateFunctions(.

Answer: A, B, C, D

Explanation: According to the online Java tutorial provided by Sun at java.sun.com: Most databases provide scalar functions (sometimes referred to as built in functions. that can be used to perform an operation on the specific value of a column, or even to provide the value of a built-on-the-fly column. The JDBC specification supports the various math, string, system, time and date, and type conversion functions specified by the X/Open Call Level Interface (CLI., and JDBC Compliant drivers must as well, if the underlying DBMS supports the functionality. The names of these functions should match the X/Open names, although this is not always the case. Scalar functions can be valuable for their functionality or to shift work to the database from your application. JDBC provides these methods to determine the scalar functions: getNumericFunctions(., getStringFunctions(., getSystemFunctions(., getTimeDateFunctions(., and two versions of supportsConvert(.. The getXXXXFunctions(methods return the function names in a comma delimited String.

QUESTION 12:

Which of the following is known as the lingua franca of the standard database engines?

- A. JDBC
- B. ODBC
- C. SQL
- D. ADO
- E. RDO

Answer: C

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: JDBCTM is a Java™ API (Application Programming Interface. that documents a standard framework for dealing with tabular and, generally, relational data. While JDBC 2.0 begins a move to make SQL semi-transparent to the programmer, SQL is still the lingua franca of the standard database engines and represents a major industry victory in the effort to separate data from code. Before getting into the course proper, it's worth taking a few moments to provide some background on the movement from straight-ahead SQL to JDBC.

QUESTION 13:

Which of the following correctly describe SQL (Choose all that apply.?)

- A. It is application-specific
- B. It is very expressive
- C. It can initiate high-level actions
- D. It can work without connecting to a database via caching
- E. It can work without connecting to a database via offline access mode
- F. It can work without connecting to a database via auto commit mode

Answer: A, B, C

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Because SQL is an application-specific language, a single statement can be very expressive and can initiate high-level actions, such as sorting and merging, on an entire set of data. SQL was standardized in 1992 so that a program could communicate with most database systems without having to change the SQL commands. However, you must connect to a database before sending SQL commands, and each database vendor has a different interface to do so, as well as different extensions of SQL. Enter ODBC.

QUESTION 14:

Which of the following is known as the C based interface to SQL database engines?

- A. JDBC
- B. ODBC
- C. SQL
- D. ADO
- E. RDO

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: ODBC (Open Database Connectivity), a C-based interface to SQL-based database engines, provides a consistent interface for communicating with a database and for accessing database metadata (information about the database system vendor, how the data is stored, and so on.. Individual vendors provide specific drivers or "bridges" to their particular database management system. Consequently, thanks to ODBC and SQL, you can connect to a database and manipulate it in a standard way. It is no surprise that, although ODBC began as a PC standard, it has become nearly an industry standard.

QUESTION 15:

Which of the following is the Java library package for database connection?

- A. java.sql
- B. sql.java
- C. javax.sql.class
- D. sql.class
- E. jdbc.class

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: A Java program, written properly and according to specification, can run on any Java technology-enabled platform without recompilation. The Java programming language is completely specified and, by definition, a Java technology-enabled platform must support a known core of libraries. One such library is the java.sql package or JDBC, which you can think of as a portable version of ODBC, and is itself a major standard. Using the Java programming language in conjunction with JDBC provides a truly portable solution to writing database applications.

QUESTION 16:

A JDBC driver is a class that implements which of the following JDBC interfaces?

- A. Connect
- B. Driver
- C. SQL
- D. DATABASE

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: A JDBC driver is a class that implements the JDBC Driver interface and understands how to convert program (and typically SQL) requests for a particular database. Clearly, the driver is what makes it all work.

QUESTION 17:

Which of the following are NOT the interfaces and classes provided by JDBC 1.0 (Choose all that apply.)

- A. Driver
- B. DriverManager
- C. Connection
- D. Statement
- E. PreparedStatement
- F. ResultSet
- G. Types

Answer: H

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: The JDBC 1.0 API provided the basic framework for data access, consisting primarily of the following interfaces and classes:

Driver
DriverManager
Connection
Statement
PreparedStatement
CallableStatement
ResultSet
DatabaseMetaData
ResultSetMetaData
Types

QUESTION 18:

With JDBC, you obtain a connection by passing a driver to which of the following?

- A. DriverLib
- B. DriverManager
- C. Connection
- D. Statement
- E. PreparedStatement
- F. ResultSet
- G. Types

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: As you will see in this course, you pass a Driver to the DriverManager and then obtain a Connection. A Statement, PreparedStatement, or CallableStatement is then created and used to update the database or execute a query. A query returns a ResultSet containing the requested data, which is retrieved by Type. DatabaseMetaData and ResultSetMetaData classes are available to provide information about a database or a ResultSet.

QUESTION 19:

With JDBC, the requested data are usually contained in which of the following?

- A. DriverLib
- B. DriverManager
- C. Connection
- D. Statement
- E. PreparedStatement
- F. ResultSet
- G. Types

Answer: F

Explanation:
Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: As you will see in this course, you pass a Driver to the DriverManager and then obtain a Connection. A Statement, PreparedStatement, or CallableStatement is then created and used to update the database or execute a query. A query returns a ResultSet containing the requested data, which is retrieved by Type. DatabaseMetaData and ResultSetMetaData classes are available to provide information about a database or a ResultSet.

QUESTION 20:

Which of the following are the new functionality found in the core API of JDBC 2.0 (Choose all that apply.)?

- A. scrollable result sets
- B. batch updates
- C. programmatic inserts
- D. programmatic deletes
- E. programmatic updates
- F. performance hints
- G. auto scan

Answer: A, B, C, D, E, F

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: The new functionality in the core API includes scrollable result sets, batch updates, programmatic inserts, deletes, and updates, performance hints, character streams for streams of internationalized Unicode characters, full precision for java.math.BigDecimal values and support for time zones in Date, Time, and Timestamp values.

QUESTION 21:

You can always create a new database using which of the following database languages?

- A. DML
- B. DDL
- C. DEL
- D. DAL
- E. DCL

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Creating a database. A database can be created using tools supplied by the database vendor, or via SQL statements fed to the database from a Java program. Since there is normally a database administrator (of course, as a developer, this may be you., and not all JDBC drivers support database creation through Data Definition Language (DDL., this topic will, in general, be left as DBMS (DataBase Management System. and driver specific. If you are interested in more details, there typically is a CREATE DATABASE statement, but be sure to review your DBMS SQL reference, as it is not part of the SQL standard, but is DBMS-dependent

QUESTION 22:

By using JDBC, your Java program can achieve which of the following (Choose all that apply.?)

- A. Create a data source
- B. Establish connections with the data source
- C. Send queries statements to the data source
- D. Send update statements to the data source
- E. Process the results

Answer: B, C, D, E

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: In simplest terms, a JDBC technology-based driver ("JDBC driver". makes it possible to do three things:
Establish a connection with a data source
Send queries and update statements to the data source
Process the results

QUESTION 23:

Which of the following represents the best way for your Java program to use ODBC?

- A. use the JDBC-ODBC Bridge
- B. use native calls
- C. use in process RPCs
- D. use out of process RPCs

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Prior to the development of the JDBC API, Microsoft's ODBC (Open DataBase Connectivity. API was the most widely used programming interface for accessing relational databases. It offers the ability to connect to almost all databases on almost all platforms. So why not just use ODBC from Java? The answer is that you can use ODBC from Java, but this is best done with the help of the JDBC API in the form of the JDBC-ODBC Bridge. The Question now becomes, "Why do you need the JDBC API?"

QUESTION 24:

Which of the following database technologies provides functionality similar to the JDBC API's RowSet facility?

- A. RDS
- B. ADO
- C. OLE DB
- D. DAP
- E. ODBC

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Microsoft has introduced new APIs beyond ODBC such as OLE (Object Linking and Embedding. DB, ADO (ActiveX Data Objects., and RDS (Remote Data Service.. In many ways these APIs move in the same direction as the JDBC API. For example, OLE DB and ADO are also object-oriented interfaces to databases that can be used to execute SQL statements. However, OLE DB is a low-level interface designed for tools rather than developers. ADO is newer and more like the JDBC API, but it is not pure Java. RDS provides functionality similar to the JDBC API's RowSet facility, but RDS is also not written in the Java programming language, and it is not portable.

QUESTION 25:

Which of the following database technologies offer SQL3 support (Choose all that apply.?

- A. UDA
- B. OLE DB
- C. ADO
- D. RDS
- E. ODBC
- F. JDBC 1.0
- G. JDBC 2.0

Answer: G

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Most recently, Microsoft has introduced UDA (Universal Data Access. as an umbrella term that covers OLE DB, ADO, RDS, and ODBC. The JDBC 2.0 API contains all of the important functionality of UDA plus features not found in UDA, such as SQL3 support.

QUESTION 26:

JDBC supports which of the following database access models (Choose 2.?)

- A. two-tier
- B. three-tier
- C. four-tier
- D. five-tier

Answer: A, B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: The JDBC API supports both two-tier and three-tier models for database access

QUESTION 27:

Which of the following represents the standard method for dynamically loading a driver in JDBC?

- A. `Class.forName(DriverClassName.;`
- B. `Class.load (DriverClassName.;`
- C. `Class.connect (DriverClassName.;`
- D. `Class.initialize (DriverClassName.;`

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: You must load a driver that enables the JDBC classes to communicate with a data source. In the initial examples, the driver class used with Cloudscape, `RmiJdbcDriver`, is hard-coded. Here's the standard method for dynamically loading a driver:
`Class.forName(DriverClassName.;`

QUESTION 28:

In JDBC, drivers can be specified from the command line via which of the following system properties?

- A. `jdbc.drivers`
- B. `jdbc.newdrivers`
- C. `jdbc.forName`
- D. `class.driver`

Answer: A

Explanation: Quoted directly from Sun's Java document site at

<http://developer.java.sun.com/>:

Drivers can also be specified from the command line via the jdbc.drivers system property, but this method requires the driver(s) to be in the classpath at compile time:
java -Djdbc.drivers=DriverClassName AJavaApp

QUESTION 29:

Which of the following database access models is supported by JDBC and can provide reliable control over data source access?

- A. two-tier
- B. three-tier
- C. four-tier
- D. five-tier

Answer: B

Explanation: Quoted directly from Sun's Java document site at

<http://developer.java.sun.com/>: In the three-tier model, commands are sent to a "middle tier" of services, which then sends the commands to the data source. The data source processes the commands and sends the results back to the middle tier, which then sends them to the user. MIS directors find the three-tier model very attractive because the middle tier makes it possible to maintain control over access and the kinds of updates that can be made to corporate data. Another advantage is that it simplifies the deployment of applications. Finally, in many cases, the three-tier architecture can provide performance advantages.

QUESTION 30:

Under JDBC, what object is required in order to use DML for database manipulation?

- A. Statement
- B. Connections
- C. SQL
- D. DML
- E. String

Answer: A

Explanation: Quoted directly from Sun's Java document site at

<http://developer.java.sun.com/>: While the Connection class has a number of

capabilities, in order to use DDL or Data Manipulation Language (DML . SQL statements, a Statement object is required. So, the next step is to ask the Connection for a Statement object:

```
Statement stmt = con.createStatement(;
```

QUESTION 31:

The JDBC API allows any query string to be passed through to an underlying DBMS driver. True or false?

- A. True
- B. False
- C. True only for JDBC 1.0
- D. True only for JDBC 2.0
- E. True only for the coming JDBC 3.0
- F. False unless the JDBC - ODBC bridge is used
- G. None of the above

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: One way the JDBC API deals with this problem is to allow any query string to be passed through to an underlying DBMS driver. This means that an application is free to use as much SQL functionality as desired, but it runs the risk of receiving an error on some DBMSs. In fact, an application query may be something other than SQL, or it may be a specialized derivative of SQL designed for specific DBMSs (for document or image queries, for example..

QUESTION 32:

To retrieve information from a database with JDBC, you send SQL SELECT statements to the database via which of the following methods?

- A. Statement.ResultSet
- B. Statement.object
- C. Statement.ResultGet
- D. Statement.executeQuery
- E. None of the above

Answer: D

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: To retrieve information from a database, you send SQL SELECT statements to the database via the Statement.executeQuery method,

which returns the requested information as rows of data in a ResultSet object. A default ResultSet is examined row by row using ResultSet.next() to position to the next row . and ResultSet.getXXX() to obtain individual column data.

QUESTION 33:

Under JDBC, ResultSet.next() will return what type of value?

- A. string
- B. integer
- C. float
- D. Boolean
- E. double

Answer: D

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: ResultSet.next() returns a boolean: true if there is a next row and false if not (meaning the end of the data/set has been reached.. Conceptually, a pointer or cursor is positioned just before the first row when the ResultSet is obtained. Invoking next() moves to the first row, then the second and so on

QUESTION 34:

Which of the following is known as one of the first steps in obtaining a Connection under JDBC?

- A. set up the database URL
- B. construct the class
- C. lock the target row
- D. lock the target table
- E. initialize the database locking property
- F. None of the above

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: One of the first steps in obtaining a Connection is often the most frustrating: how to set up that @\$!#!@# database URL? As mentioned earlier, the basics look very clean jdbc:<subprotocol>:<subname>, with the <subprotocol>: identifying the machine or server and <subname> essentially identifying the database. In practice, the content depends on the specific driver and

can be bewildering, ranking along with classpath problems in producing "no suitable driver" errors.

QUESTION 35:

On the Windows platform, what is the DLL that provides access to ODBC drivers?

- A. Driver Library
- B. Driver Foundation
- C. Named Pipe
- D. RPC Manager
- E. Driver Manager
- F. None of the above

Answer: E

Explanation: The Driver Manager is a DLL that provides access to ODBC drivers. An application typically links with the Driver Manager import library (ODBC.LIB. to gain access to the Driver Manager.

QUESTION 36:

Which of the following is the JDBC 2.0 Optional Package for database connection?

- A. java.sql
- B. javax.sql
- C. java.opt
- D. sqlx.java
- E. javax.sqlx.class
- F. sql.class
- G. jdbc.class
- H. None of the above

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Before moving on, the new DataSource class introduced in the JDBC 2.0 Optional Package should be mentioned. The specification recommends DataSource as the means for obtaining a Connection and actually talks about deprecating the current DriverManager / Connection method. While the JDBC programmer should be aware of this movement, and may even use it--most commonly in a J2EE environment,--it would be very surprising to see the DriverManager approach abandoned anytime soon. More information on the optional package is available at: this site

QUESTION 37:

Which of the following are the subinterfaces of Statement under JDBC 2.0 (Choose all that apply.?)

- A. Prepared Statements
- B. Callable Statements
- C. Compiled Statements
- D. Parsed Statements

Answer: A, B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: A Statement object is a container or transport mechanism to send/execute (normally, SQL statements and retrieve any results via its associated Connection. As mentioned in Areas Controlled by the Connection Interface, there are three types of Statements, including Prepared Statements and Callable Statements, both of which are subinterfaces of Statement.

QUESTION 38:

Which of the following JDBC Statement's methods is best to be used for executing SQL statements that return a single ResultSet?

- A. executeQuery(.
- B. executeUpdate(.
- C. execute(.
- D. runQuery(.
- E. runUpdate(.
- F. run (.

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: The execute series are the most often used of Statement's methods:
executeQuery(is used to execute SQL statements that return a single ResultSet.
executeUpdate(is used to execute SQL statements that modify a table or values of columns in a table and return the number of rows affected (which is zero in the case of DDL statements..
execute(can be used to execute any type of SQL statement, but is intended for those that can return multiple results or values. execute(is not discussed further in the course.

QUESTION 39:

A database driver that claims to be JDBC Compliant must support at least which of the following ANSI SQL capabilities?

- A. ANSI SQL 90
- B. ANSI SQL 91
- C. ANSI SQL 92
- D. ANSI SQL 93
- E. ANSI SQL 94

Answer: C

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: To allow the most flexibility to work with various databases and data sources, JDBC places no restriction on the kinds of SQL statements that a Statement can send. In fact, if the data source can understand it (and this is a programmer responsibility ., the statements don't even have to be SQL, which raises some interesting possibilities. However, a driver that claims to be JDBC Compliant must support at least ANSI SQL-92 Entry Level capabilities.

QUESTION 40:

In JDBC, the executeUpdate(. method will return a zero or a value of which of the following types?

- A. string
- B. integer
- C. float
- D. Boolean
- E. double

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: executeUpdate(. returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements, or zero for SQL statements that do not return anything, like DDL statements

QUESTION 41:

In JDBC, the default ResultSet object returned by executeQuery(. has a cursor that:

- A. can move forward only
- B. can move backward only
- C. is static
- D. can jump to a specific point only
- E. is callable with the callcursor(. method

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: The default ResultSet object returned by executeQuery(. has a cursor that moves forward only, by use of the next(. method. It should be noted that executeQuery(. always returns a non-null ResultSet. Newcomers often try to determine if rows were returned by comparing the ResultSet to null.

QUESTION 42:

In JDBC, which of the following are the valid methods for handling exceptions (Choose all that apply.?

- A. getSQLState(.
- B. getErrorCode(.
- C. getNextException(.
- D. setNextException(.

Answer: A, B, C, D

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>:
getSQLState(. returns an SQLState identifier based on the X/Open SQL specification. Your DBMS manuals should list some of these or see Resources for information to find SQLStates.
getErrorCode(. is provided to retrieve the vendor-specific error code.
getNextException(. retrieves the next SQLException or null if there are no more. Many things can go wrong between your program and the database. This method allows tracking all problems that occur.
setNextException(. allows the programmer to add an SQLException to the chain.

QUESTION 43:

In JDBC, a SQLWarning is a subclass of which of the following?

- A. JDBCException
- B. QueryException

- C. Connections
- D. SQLException
- E. Statements
- F. ResultSets

Answer: D

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: An SQLWarning is a subclass of SQLException, but is not thrown like other exceptions. The programmer must specifically ask for warnings. Connections, Statements, and ResultSets all have a getWarnings(). method that allows retrieval. There is also a clearWarnings(). method to avoid duplicate retrievals. The SQLWarning class itself only adds the methods getNextWarning(). and setNextWarning(..

QUESTION 44:

In JDBC, what method can you use to avoid duplicate retrievals of the SQL warnings?

- A. clearWarnings().
- B. GetUniqueWarnings().
- C. UniqueWarnings().
- D. getNextWarning().
- E. setNextWarning().

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: An SQLWarning is a subclass of SQLException, but is not thrown like other exceptions. The programmer must specifically ask for warnings. Connections, Statements, and ResultSets all have a getWarnings(). method that allows retrieval. There is also a clearWarnings(). method to avoid duplicate retrievals. The SQLWarning class itself only adds the methods getNextWarning(). and setNextWarning(..

QUESTION 45:

In JDBC, the DataTruncation class includes which of the following methods for information about the truncated data (Choose all that apply.?)

- A. getDataSize().
- B. getIndex().
- C. getParameter().

- D. `getRead()`.
- E. `getTransferSize()`.

Answer: A, B, C, D, E

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Data truncation basically means that less information was read or written than requested. Some databases/drivers will accept data that is larger than a column can contain, truncate the data, write the truncated data, and then happily report, via a `DataTruncation SQLException` "You gave me too much data, but I handled it." The `DataTruncation` class includes the following methods for information about the truncated data: `getDataSize()`, `getIndex()`, `getParameter()`, `getRead()`, and `getTransferSize()`.

QUESTION 46:

What JDBC `DatabaseMetaData` method can you use to determine if the DBMS supports JDBC standard stored procedure escape syntax?

- A. `supportsStoredProcedures()`.
- B. `getProcedures()`.
- C. `getProcedureColumns()`.
- D. `getProcedureTerm()`.

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: There are several `DatabaseMetaData` methods that return information about the support that a particular data provides for stored procedures.

- `supportsStoredProcedures()` determines if the DBMS supports JDBC standard stored procedure escape syntax.
- `getProcedures()` returns a list of available stored procedures, while
- `getProcedureColumns()` describes parameters and results.
- `getProcedureTerm()` informs the programmer of the vendor's preferred name for stored procedures.

QUESTION 47:

In a Relational database, what do we use to refer to a single entry in any table?

- A. primary key
- B. foreign key
- C. index key

- D. row property
- E. column property
- F. row ID
- G. col ID

Answer: A

Explanation: Primary and foreign keys are what make relational databases possible. We use primary keys to refer to a single entry in any table, and we can use foreign keys to reconcile related data between two or more tables.

QUESTION 48:

In a Relational database, what do we use to reconcile related data between two tables?

- A. primary key
- B. foreign key
- C. index key
- D. row property
- E. column property
- F. row ID
- G. col ID

Answer: B

Explanation: Primary and foreign keys are what make relational databases possible. We use primary keys to refer to a single entry in any table, and we can use foreign keys to reconcile related data between two or more tables.

QUESTION 49:

In your relational database, what types of relationships that can exist between any two fields (Choose all that apply.?)

- A. One to one
- B. One to many
- C. Many to Many
- D. On to Zero
- E. Zero to Zero

Answer: A, B, C

Explanation: In any relational database system, every field is related to every other

field. There are three types of relationships that can exist between two fields:

One to one: A one to one relationship exists when for every value of a there is one and only one corresponding value of b, and for every value of b there is one and only one corresponding value of a. One to one relationships are modeled within a single table.

One to many: A one to many relationship exists when for every value of a there is one or more corresponding values of b, and for every value of b there is one and only one corresponding value of a. One to many relationships require two tables to model.

Many to Many: A many to many relationship occurs when for every one value of a there is one or more corresponding values of b, and for every one value of b there is one or more corresponding values of a. Many to many relationships actually require three tables to model correctly.

QUESTION 50:

In a relational database, the modeling of a One to one relationship is possible with a minimum of how many tables?

- A. one
- B. two
- C. three
- D. two per relationship
- E. one per direction of each relationship

Answer: A

Explanation: One to one: A one to one relationship exists when for every value of a there is one and only one corresponding value of b, and for every value of b there is one and only one corresponding value of a. One to one relationships are modeled within a single table.

QUESTION 51:

In a relational database, the modeling of a One to many relationship is possible with a minimum of how many tables?

- A. one
- B. two
- C. three
- D. two per relationship
- E. two per direction of each relationship

Answer: B

Explanation: One to many: A one to many relationship exists when for every value

of a there is one or more corresponding values of b, and for every value of b there is one and only one corresponding value of a. One to many relationships require two tables to model.

QUESTION 52:

The process of determining the types of relationships between data and how the data should be modeled within a relational database is known as:

- A. functional dependence
- B. aggregation
- C. OLTP
- D. OLAP
- E. normalization

Answer: E

Explanation: The process of determining the types of relationships between data and how the data should be modeled is called normalization.

QUESTION 53:

In a relational DBMS, a one-to-one relationship is said to have functional dependence in how many directions?

- A. one
- B. two
- C. three
- D. four
- E. unlimited

Answer: B

Explanation: A one-to-one relationship is said to have functional dependence in both directions, because there will never be multiple values associated with a single value. A one-to-many relationship has functional dependence in one direction, resembling an algebraic function, and a many-to-many relationship has no functional dependence.

QUESTION 54:

With ODBC, a data source consists of which of the following items (Choose all that apply.?)

- A. the data to be accessed
- B. the associated DBMS
- C. the platform on which the DBMS resides
- D. the network for accessing the DBMS platform
- E. the platform SID

Answer: A, B, C, D

Explanation: A data source consists of the data a user wants to access, its associated DBMS, the platform on which the DBMS resides, and the network (if any) used to access that platform. Each data source requires that a driver provides certain information in order to connect to it. At the core level, this is defined to be the name of the data source, a user ID, and a password. ODBC extensions allow drivers to specify additional information, such as a network address or additional passwords.

QUESTION 55:

On the Windows platform, what is the DLL that provides access to ODBC drivers?

- A. Driver Library
- B. Driver Foundation
- C. Named Pipe
- D. RPC Manager
- E. Driver Manager
- F. None of the above

Answer: E

Explanation: The Driver Manager is a DLL that provides access to ODBC drivers. An application typically links with the Driver Manager import library (ODBC.LIB) to gain access to the Driver Manager.

QUESTION 56:

In a LIKE predicate, what character is used to match zero or more of any character?

- A. %
- B. &
- C. *
- D. !
- E. @
- F. ^

G. _

Answer: A

Explanation: In a LIKE predicate, the percent character (%) matches zero or more of any character and the underscore character (_) matches any one character. The percent and underscore characters can be used as literals in a LIKE predicate by preceding them with an escape character.

QUESTION 57:

In SQL, an outer join request must appear:

- A. after the FROM keyword and before the WHERE clause
- B. before the FROM keyword and the WHERE clause
- C. after the FROM keyword and the WHERE clause
- D. before the FROM keyword and after the WHERE clause

Answer: A

Explanation: An outer join request must appear after the FROM keyword and before the WHERE clause (if one exists..

QUESTION 58:

Under JDBC, what object is required in order to use DML for database manipulation?

- A. Statement
- B. Connections
- C. SQL
- D. DML
- E. String

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: While the Connection class has a number of capabilities, in order to use DDL or Data Manipulation Language (DML . SQL statements, a Statement object is required. So, the next step is to ask the Connection for a Statement object:
Statement stmt = con.createStatement(;

QUESTION 59:

Under JDBC, a new Connection object is in manual-commit mode by default.

- A. True
- B. False
- C. True only if you are using the latest version of JDBC manager
- D. True only if you are accessing JDBC via native calls
- E. True only if you are using JDBC 1.0
- F. False for any data source running on Microsoft platforms

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: Generally a new Connection object is in auto-commit mode by default, meaning that when a statement is completed, the method commit will be called on that statement automatically. In this case, since each statement is committed individually, a transaction consists of only one statement. If auto-commit mode has been disabled, a transaction will not terminate until the method commit or rollback is called explicitly, so it will include all the statements that have been executed since the last invocation of either commit or rollback. In this second case, all the statements in the transaction are committed or rolled back as a group.

QUESTION 60:

With JDBC 2.0, how many transaction isolation levels are defined by the Connection interface?

- A. six
- B. five
- C. four
- D. three
- E. two
- F. one

Answer: B

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: The higher the transaction isolation level, the more care is taken to avoid conflicts. The Connection interface defines five levels, with the lowest specifying that transactions are not supported at all and the highest specifying that while one transaction is operating on a database, no other transactions may make any changes to the data read by that transaction.

TRANSACTION_READ_UNCOMMITTED, used in the previous example, is one level up from the lowest level. Typically, the higher the level of isolation, the slower the application executes (due to increased locking overhead and decreased concurrency between users.. The developer must balance the need for performance with the need for data consistency when making a decision about what isolation level to use. Of course, the level that can actually be supported depends on the capabilities of the underlying DBMS.

QUESTION 61:

In JDBC, all DriverManager methods are declared:

- A. static
- B. friendly
- C. dynamic
- D. inbound
- E. global
- F. hidden

Answer: A

Explanation: Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: All DriverManager methods are declared static, which means that they operate on the class as a whole and not on particular instances. In fact, the constructor for DriverManager is declared private to prevent users from instantiating it. Logically, there is one instance of the DriverManager class. This means that methods are called by qualifying them with DriverManager, as in the following line of code.
DriverManager.setLogWriter(out.;

QUESTION 62:

In JDBC, what function returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements?

- A. executeUpdate(.
- B. execute(.
- C. Update(.
- D. runUpdate(.
- E. SQLUpdate(.

Answer: A

Explanation: According to the online Java tutorial provided by Sun at java.sun.com:

executeUpdate(). returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements, or zero for SQL statements that do not return anything, like DDL statements

QUESTION 62.

QUESTION 63:

When evaluating a DBMS, in terms of development tools which of the following will you consider, as recommended by CIW (Choose all that apply.)?

- A. availability of fourth generation language tools
- B. availability of case tool
- C. availability of fifth generation language tools
- D. availability of OO method
- E. availability of XML support

Answer: A, B, C

Explanation: According to webopedia.com: DBMS - A collection of programs that enables you to store, modify, and extract information from a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes. The following are examples of database applications:

computerized library systems
automated teller machines
flight reservation systems
computerized parts inventory systems

From a technical standpoint, DBMSs can differ widely. The terms relational, network, flat, and hierarchical all refer to the way a DBMS organizes information internally. The internal organization can affect how quickly and flexibly you can extract information. Requests for information from a database are made in the form of a query, which is a stylized question. For example, the query

SELECT ALL WHERE NAME = "SMITH" AND AGE > 35

requests all records in which the NAME field is SMITH and the AGE field is greater than 35. The set of rules for constructing queries is known as a query language. Different DBMSs support different query languages, although there is a semi-standardized query language called SQL (structured query language.. Sophisticated languages for managing database systems are called fourth-generation languages, or 4GLs for short.

The information from a database can be presented in a variety of formats. Most DBMSs include a report writer program that enables you to output data in the form of a report. Many DBMSs also include a graphics component that enables you to output information in the form of graphs and charts.

QUESTION 64:

When evaluating a DBMS, in terms of transactions capability which of the following will you consider, as recommended by CIW (Choose all that apply.?)

- A. backup and recovery
- B. logging
- C. concurrency control
- D. advanced transaction capabilities
- E. rollback and commit support
- F. stored procedures
- G. transaction speed

Answer: A, B, C, D, E, F, G

Explanation: According to webopedia.com: Transaction processing - A type of computer processing in which the computer responds immediately to user requests. Each request is considered to be a transaction. Automatic teller machines for banks are an example of transaction processing.

The opposite of transaction processing is batch processing, in which a batch of requests is stored and then executed all at one time. Transaction processing requires interaction with a user, whereas batch processing can take place without a user being present.

QUESTION 65:

When evaluating a DBMS, in terms of GUI which of the following will you consider, as recommended by CIW (Choose all that apply.?)

- A. Descriptive page titles
- B. Clear instructions
- C. Consistent grouping of input fields
- D. Logical labelled field
- E. Consistent color use

Answer: A, B, C, D, E

Explanation: According to webopedia.com: GUI - A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages. On the other hand, many users find that they work more effectively with a command-driven interface, especially if they already know the command language.

Graphical user interfaces, such as Microsoft Windows and the one used by the Apple Macintosh, feature the following basic components:

pointer : A symbol that appears on the display screen and that you move to select objects and commands. Usually, the pointer appears as a small angled arrow. Text -processing applications, however, use an I-beam pointer that is shaped like a capital I.

pointing device : A device, such as a mouse or trackball, that enables you to select objects on the display screen.

icons : Small pictures that represent commands, files, or windows. By moving the pointer to the icon and pressing a mouse button, you can execute a command or convert the icon into a window. You can also move the icons around the display screen as if they were real objects on your desk.

desktop : The area on the display screen where icons are grouped is often referred to as the desktop because the icons are intended to represent real objects on a real desktop.

windows: You can divide the screen into different areas. In each window, you can run a different program or display a different file. You can move windows around the display screen, and change their shape and size at will.

menus : Most graphical user interfaces let you execute commands by selecting a choice from a menu.

QUESTION 66:

When evaluating a DBMS, in terms of GUI which of the following will you NOT consider, as recommended by CIW (Choose all that apply.?)

- A. Properly sized data entry fields
- B. Logical cursor movement
- C. Error messages
- D. Clearly indicated optional fields
- E. Completion message
- F. Data validation
- G. Application logic

Answer: F, G

Explanation: According to webopedia.com: A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages. On the other hand, many users find that they work more effectively with a command-driven interface, especially if they already know the command language.

Graphical user interfaces, such as Microsoft Windows and the one used by the Apple Macintosh, feature the following basic components:

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menus : Most graphical user interfaces let you execute commands by selecting a choice from a menu.

QUESTION 67:

In the world of SQL relational database, the data type of smallint, in general, is:

- A. 16-bit signed integer
- B. 32-bit signed integer
- C. Signed decimal number, p digits, q decimals
- D. Floating point number of p bits precision
- E. Fixed length string of n characters
- F. Variable length string up to n characters

Answer: A

Explanation: Memorize this list: SMALLINT 16-bit signed integer

INTEGER 32-bit signed integer

DECIMAL(p,q. Signed decimal number, p digits, q decimals

FLOAT(p. Floating point number of p bits precision

CHAR Fixed length string of n characters

VARCHAR(n. Variable length string up to n characters

DATE Date (in the form yyyyymmmd.

TIME Time (in the form hhmmss.

TIMESTAMP Combines a DATE and a TIME

QUESTION 68:

In the world of SQL relational database, the data type of integer, in general, is:

- A. 16-bit signed integer
- B. 32-bit signed integer
- C. Signed decimal number, p digits, q decimals
- D. Floating point number of p bits precision
- E. Fixed length string of n characters
- F. Variable length string up to n characters

Answer: B

Explanation: Memorize this list: SMALLINT 16-bit signed integer
INTEGER 32-bit signed integer
DECIMAL(p,q. Signed decimal number, p digits, q decimals
FLOAT(p. Floating point number of p bits precision
CHAR Fixed length string of n characters
VARCHAR(n. Variable length string up to n characters
DATE Date (in the form yyyyymmdd.
TIME Time (in the form hhmmss.
TIMESTAMP Combines a DATE and a TIME

QUESTION 69:

In the world of SQL relational database, a timestamp usually comprises of (choose all that apply.:

- A. DATE
- B. TIME
- C. Signed
- D. Float
- E. Decimal

Answer: A, B

Explanation: Memorize this list: SMALLINT 16-bit signed integer
INTEGER 32-bit signed integer
DECIMAL(p,q. Signed decimal number, p digits, q decimals
FLOAT(p. Floating point number of p bits precision
CHAR Fixed length string of n characters
VARCHAR(n. Variable length string up to n characters
DATE Date (in the form yyyyymmdd.
TIME Time (in the form hhmmss.
TIMESTAMP Combines a DATE and a TIME

QUESTION 70:

In a RDBMS, what is the fundamental concept of placing relations into 2nd Normal Form?

- A. Functional dependency
- B. Indexed relations
- C. Vertical dependency
- D. Horizontal dependency
- E. None of the above.

Answer: A

Explanation: According to webopedia.com: There are three main normal forms, each with increasing levels of normalization:

First Normal Form (1NF.: Each field in a table contains different information. For example, in an employee list, each table would contain only one birthdate field.

Second Normal Form (2NF.: No field values can be derived from another field. For example, if a table already included a birthdate field, it could not also include a birth year field, since this information would be redundant.

Third Normal Form (3NF.: No duplicate information is permitted. So, for example, if two tables both require a birthdate field, the birthdate information would be separated into a separate table, and the two other tables would then access the birthdate information via an index field in the birthdate table. Any change to a birthdate would automatically be reflect in all tables that link to the birthdate table.

QUESTION 71:

Which of the following are directly related to the utilities criteria of a DBMS, in terms of evaluation, as recommended by CIW (Choose all that apply.?

- A. performance monitoring
- B. use monitoring
- C. SQL support
- D. interface capabilities with other systems
- E. programming languages

Answer: A, B

Explanation: According to webopedia.com: DBMS - A collection of programs that enables you to store, modify, and extract information from a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes. The following are examples of database applications:

computerized library systems

automated teller machines

flight reservation systems

computerized parts inventory systems

From a technical standpoint, DBMSs can differ widely. The terms relational, network, flat, and hierarchical all refer to the way a DBMS organizes information internally. The internal organization can affect how quickly and flexibly you can extract information.

Requests for information from a database are made in the form of a query, which is a stylized question. For example, the query

```
SELECT ALL WHERE NAME = "SMITH" AND AGE > 35
```

requests all records in which the NAME field is SMITH and the AGE field is greater than

35. The set of rules for constructing queries is known as a query language. Different DBMSs support different query languages, although there is a semi-standardized query language called SQL (structured query language.. Sophisticated languages for managing database systems are called fourth-generation languages, or 4GLs for short.

The information from a database can be presented in a variety of formats. Most DBMSs include a report writer program that enables you to output data in the form of a report. Many DBMSs also include a graphics component that enables you to output information in the form of graphs and charts.

QUESTION 72:

Under ODBC, every SQL statement is automatically committed in auto-commit mode. True or false?

- A. True
- B. False
- C. True only if you are using the latest version of ODBC manager
- D. True only if you are accessing ODBC via ADO
- E. True only if you are accessing ODBC via OLE DB
- F. False for any data source running on Microsoft platforms

Answer: A

Explanation: In auto-commit mode, every SQL statement is a complete transaction, which is automatically committed. In manual-commit mode, a transaction consists of one or more statements. In manual-commit mode, when an application submits an SQL statement and no transaction is open, the driver implicitly begins a transaction. The transaction remains open until the application commits or rolls back the transaction with SQLTransact.

QUESTION 73:

With JDBC, a Connection is automatically closed when it is:

- A. idle for 5 minutes
- B. garbage collected
- C. idle for 10 minutes
- D. flushing its buffer
- E. cleaning up its queue
- F. None of the above

Answer: B

Explanation:

Quoted directly from Sun's Java document site at <http://developer.java.sun.com/>: A Connection is automatically closed when it is garbage collected, but cautious programmers always close the Connection explicitly to directly determine that and when this occurs and to conserve resources. Note that while the API specifically says that closing a Connection "releases... database and JDBC resources immediately," the JDBC recommendation is to explicitly close Connections and Statements.

QUESTION 74:

Under JDBC, you can move the cursor within the resultset to a particular specified row using which of the following methods?

- A. absolute
- B. jump
- C. goto
- D. moveto
- E. nextset

Answer: A

You can move the cursor to a particular row in a ResultSet object. The methods first, last, beforeFirst, and afterLast move the cursor to the position their names indicate. The method absolute will move the cursor to the row number indicated in the argument passed to it. If the number is positive, the cursor moves the given number from the beginning, so calling absolute(1) puts the cursor on the first row. If the number is negative, the cursor moves the given number from the end, so calling absolute(-1) puts the cursor on the last row.

QUESTION 75:

You are the database specialist of your company. You are managing the in-house database systems. With JDBC, you want to make updates to a ResultSet object. To do so, what must you supply to the ResultSet object?

- A. CONCUR_UPDATABLE
- B. UPDATABLE
- C. CONCUR
- D. CONCUR_RESULT
- E. RESULT_UPDATABLE

Answer: A

Before you can make updates to a ResultSet object, you need to create one that is updatable. In order to do this, you supply the ResultSet constant CONCUR_UPDATABLE to the createStatement method. The Statement object that is created will produce an updatable ResultSet object each time it executes a query.

QUESTION 76:

Under JDBC, what object represents the DBMS that supplies you with all the company SALES data?

- A. DataSource
- B. FileSource
- C. DSN
- D. ResultSource
- E. DataOrigin

Answer: A

A DataSource object represents a particular DBMS or some other data source, such as a file. If a company uses more than one data source, it will deploy a separate DataSource object for each of them. A DataSource object may be implemented in three different ways:

1. A basic DataSource implementation-produces standard Connection objects that are not pooled or used in a distributed transaction
2. A DataSource class that supports connection pooling-produces Connection objects that participate in connection pooling, that is, connections that can be recycled
3. A DataSource class that supports distributed transactions-produces Connection objects that can be used in a distributed transaction, that is, a transaction that accesses two or more DBMS servers

QUESTION 77:

In JDBC, what class allows the use of HTTP to talk to a Java servlet that provides data access?

- A. A CachedRowSet class
- B. A JDBCRowSet class
- C. A WebRowSet class
- D. A JavaSource class
- E. A HTTPRowSet class
- F. A JavaDb class

Answer: C

According to the online Java tutorial provided by Sun at <http://www.java.sun.com>: Although anyone can implement a rowset, most implementations will probably be provided by vendors offering RowSet classes designed for fairly specific purposes. To make writing an implementation easier, the Java™ Software division of Sun Microsystems, Inc., plans to provide reference implementations for three different styles of rowsets in the future. The

following list of planned implementations gives you an idea of some of the possibilities.

- </dt><dd>A `CachedRowSet` class-a disconnected rowset that caches its data in memory; not suitable for very large data sets, but an ideal way to provide thin Java clients, such as a Personal Digital Assistant (PDA) or Network Computer (NC), with tabular data
A `JDBCRowSet` class-a connected rowset that serves mainly as a thin wrapper around a `ResultSet` object to make a JDBC driver look like a JavaBeans component
A `WebRowSet` class-a connected rowset that uses the HTTP protocol internally to talk to a Java servlet that provides data access; used to make it possible for thin web clients to retrieve and possibly update a set of rows </dd></dl>

QUESTION 78:

To properly handle `SQLException` under JDBC, you must use:

- A. a try/catch block
- B. a `Exception` pointer
- C. the `Err` object
- D. the error table
- E. the master error dictionary

Answer: A

Many of the methods in the `java.sql` package throw an `SQLException`, which requires a try/catch block like any other `Exception`. Its purpose is to describe database or driver errors (SQL syntax, for example). In addition to the standard `getMessage()` inherited from `Throwable`, `SQLException` has two methods which provide further information, a method to get (or chain) additional exceptions and a method to set an additional exception.

QUESTION 79:

Which of the following are the valid methods for handling SQL exceptions generated in JDBC (Choose all that apply)?

- A. `getSQLState()`
- B. `getErrorCode()`
- C. `getNextException()`
- D. `setNextException()`

Answer: A,B,C,D

`getSQLState()` returns an `SQLState` identifier based on the X/Open SQL specification. Your DBMS manuals should list some of these or see Resources for information to find `SQLStates`.

`getErrorCode()` is provided to retrieve the vendor-specific error code.

`getNextException()` retrieves the next `SQLException` or null if there are no more. Many things can go wrong between your program and the database. This method allows

tracking all problems that occur.

setNextException() allows the programmer to add an SQLException to the chain.

QUESTION 80:

You are the database specialist of your company. You are managing the in-house database systems. In your JDBC application you want to provide warnings to users without terminating the operations. Which of the following classes may you use?

- A. SQLWarning
- B. SQLNotice
- C. SQLError
- D. SQLInform
- E. SQLWarns

Answer: A

An SQLWarning is a subclass of SQLException, but is not thrown like other exceptions. The programmer must specifically ask for warnings. Connections, Statements, and ResultSets all have a getWarnings() method that allows retrieval. There is also a clearWarnings() method to avoid duplicate retrievals. The SQLWarning class itself only adds the methods getNextWarning() and setNextWarning(). An SQLWarning is very similar to traditional compiler warnings: something not exactly right occurred, but its effect was not severe enough to end processing. Whether it is important enough to investigate depends on the operation and context.

QUESTION 81:

Under JDBC, which of the following are the responsibilities of the Connection object (Choose all that apply)?

- A. Creating Statement instances.
- B. Obtaining DatabaseMetadata objects.
- C. Controlling transactions
- D. Setting isolation levels

Answer: A,B,C,D

1. The Connection itself is responsible for several areas including:
 2. Creating Statement, PreparedStatement, and CallableStatement (used with stored procedures) instances.
 3. Obtaining DatabaseMetadata objects.
 4. Controlling transactions via the commit() and rollback() methods.
 5. Setting the isolation level involved in transactions.
-

QUESTION 82:

In JDBC, what function returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements?

- A. executeUpdate()
- B. execute()
- C. Update()
- D. runUpdate()
- E. SQLUpdate()

Answer: A

executeUpdate() returns an int containing the affected row count for INSERT, UPDATE, or DELETE statements, or zero for SQL statements that do not return anything, like DDL statements.

QUESTION 83:

Under JDBC, which of the following are valid methods for determining scalar functions (Choose all that apply)?

- A. getNumericFunctions()
- B. getStringFunctions()
- C. getSystemFunctions()
- D. getTimeDateFunctions()

Answer: A,B,C,D

Most databases provide scalar functions (sometimes referred to as built in functions) that can be used to perform an operation on the specific value of a column, or even to provide the value of a built-on-the-fly column. The JDBC specification supports the various math, string, system, time and date, and type conversion functions specified by the X/Open Call Level Interface (CLI), and JDBC Compliant drivers must as well, if the underlying DBMS supports the functionality. The names of these functions should match the X/Open names, although this is not always the case. Scalar functions can be valuable for their functionality or to shift work to the database from your application. JDBC provides these methods to determine the scalar functions: getNumericFunctions(), getStringFunctions(), getSystemFunctions(), getTimeDateFunctions(), and two versions of supportsConvert(). The getXXXFunctions() methods return the function names in a comma delimited String.

QUESTION 84:

Which of the following is known as the lingua franca of the standard database

engines?

- A. JDBC
- B. ODBC
- C. SQL
- D. ADO
- E. RDO

Answer: C

JDBCTM is a Java™ API (Application Programming Interface) that documents a standard framework for dealing with tabular and, generally, relational data. While JDBC 2.0 begins a move to make SQL semi-transparent to the programmer, SQL is still the lingua franca of the standard database engines and represents a major industry victory in the effort to separate data from code. Before getting into the course proper, it's worth taking a few moments to provide some background on the movement from straight-ahead SQL to JDBC.

QUESTION 85:

Which of the following correctly describe SQL (Choose all that apply)?

- A. It is application-specific
- B. It is very expressive
- C. It can initiate high-level actions
- D. It can work without connecting to a database via caching
- E. It can work without connecting to a database via offline access mode
- F. It can work without connecting to a database via auto commit mode

Answer: A,B,C

Because SQL is an application-specific language, a single statement can be very expressive and can initiate high-level actions, such as sorting and merging, on an entire set of data. SQL was standardized in 1992 so that a program could communicate with most database systems without having to change the SQL commands. However, you must connect to a database before sending SQL commands, and each database vendor has a different interface to do so, as well as different extensions of SQL. Enter ODBC.

QUESTION 86:

Which of the following is known as the C based interface to SQL database engines?

- A. JDBC
- B. ODBC
- C. SQL
- D. ADO

E. RDO

Answer: B

ODBC (Open Database Connectivity), a C-based interface to SQL-based database engines, provides a consistent interface for communicating with a database and for accessing database metadata (information about the database system vendor, how the data is stored, and so on). Individual vendors provide specific drivers or "bridges" to their particular database management system. Consequently, thanks to ODBC and SQL, you can connect to a database and manipulate it in a standard way. It is no surprise that, although ODBC began as a PC standard, it has become nearly an industry standard.

QUESTION 87:

Which of the following is the Java library package for database connection?

- A. java.sql
- B. sql.java
- C. javax.sql.class
- D. sql.class
- E. jdbc.class

Answer: A

A Java program, written properly and according to specification, can run on any Java technology-enabled platform without recompilation. The Java programming language is completely specified and, by definition, a Java technology-enabled platform must support a known core of libraries. One such library is the java.sql package or JDBC, which you can think of as a portable version of ODBC, and is itself a major standard. Using the Java programming language in conjunction with JDBC provides a truly portable solution to writing database applications.

QUESTION 88:

A JDBC driver is a class that implements which of the following JDBC interfaces?

- A. Connect
- B. Driver
- C. SQL
- D. DATABASE

Answer: B

A JDBC driver is a class that implements the JDBC Driver interface and understands how to convert program (and typically SQL) requests for a particular database. Clearly, the driver is what makes it all work.

QUESTION 89:

You can always create a new database using which of the following database languages?

- A. DML
- B. DDL
- C. DEL
- D. DAL
- E. DCL

Answer: B

Creating a database. A database can be created using tools supplied by the database vendor, or via SQL statements fed to the database from a Java program. Since there is normally a database administrator (of course, as a developer, this may be you), and not all JDBC drivers support database creation through Data Definition Language (DDL), this topic will, in general, be left as DBMS (DataBase Management System) and driver specific. If you are interested in more details, there typically is a CREATE DATABASE statement, but be sure to review your DBMS SQL reference, as it is not part of the SQL standard, but is DBMS-dependent.

QUESTION 90:

With JDBC, you obtain a connection by passing a driver to which of the following?

- A. DriverLib
- B. DriverManager
- C. Connection
- D. Statement
- E. PreparedStatement
- F. ResultSet
- G. Types

Answer: B

You pass a Driver to the DriverManager and then obtain a Connection. A Statement, PreparedStatement, or CallableStatement is then created and used to update the database or execute a query. A query returns a ResultSet containing the requested data, which is retrieved by Type. DatabaseMetaData and ResultSetMetaData classes are available to provide information about a database or a ResultSet.

QUESTION 91:

With JDBC, the requested data are usually contained in which of the following?

- A. DriverLib
- B. DriverManager
- C. Connection
- D. Statement
- E. PreparedStatement
- F. ResultSet
- G. Types

Answer: F

You pass a Driver to the DriverManager and then obtain a Connection. A Statement, PreparedStatement, or CallableStatement is then created and used to update the database or execute a query. A query returns a ResultSet containing the requested data, which is retrieved by Type. DatabaseMetaData and ResultSetMetaData classes are available to provide information about a database or a ResultSet.

QUESTION 92:

Which of the following represents the best way for your Java program to use ODBC?

- A. use the JDBC-ODBC Bridge
- B. use native calls
- C. use in process RPCs
- D. use out of process RPCs

Answer: A

Prior to the development of the JDBC API, Microsoft's ODBC (Open DataBase Connectivity) API was the most widely used programming interface for accessing relational databases. It offers the ability to connect to almost all databases on almost all platforms. So why not just use ODBC from Java? The answer is that you can use ODBC from Java, but this is best done with the help of the JDBC API in the form of the JDBC-ODBC Bridge. The question now becomes, "Why do you need the JDBC API?"