Test Bank for Database Processing Fundamentals Design and Implementation 14th Kroenke

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***Database Processing, 14e* (Kroenke)**
Chapter 2: Introduction to Structured Query Language

1) Business Intelligence (BI) systems typically store their data in data warehouses.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the use of extracted data sets in business intelligence (BI) systems
Classification: Concept

2) An ad-hoc SQL query is typically written within an application program.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the use of ad-hoc queries in business intelligence (BI) systems
Classification: Concept

3) SQL stands for *Standard Query Language.*
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

4) SQL includes a data definition language, a data manipulation language, and SQL/Persistent stored modules.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

5) SQL is only a data manipulation language (DML).
Answer: FALSE
AACSB: Information Technology
Difficulty: Difficult
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

6) The American National Standards Institute (ANSI) maintains the standards for SQL.
Answer: TRUE
AACSB: Information Technology
Difficulty: Difficult
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

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7) SQL was developed by IBM in the late 1970s.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

8) SQL is not a complete programming language. Rather it is a data sublanguage.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

9) In addition to being a data sublanguage, SQL is also a programming language, like Java or C#.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

10) SQL commands can be embedded in application programs.
Answer: TRUE
AACSB: Information Technology
Difficulty: Difficult
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

11) SQL, although very popular, has never become a national standard.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

12) The SQL keyword SELECT is used to specify the columns to be listed in the query results.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

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13) The SQL keyword WHERE is used to specify the table(s) that contain(s) the data to be retrieved.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

14) The SQL keyword FROM is used to specify the table to be used.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

15) SQL can only query a single table.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

16) SQL statements end with a colon.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

17) The columns to be obtained by an SQL command are listed after the FROM keyword.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

18) To remove duplicate rows from the result of a query, specify the SQL DISTINCT keyword.
Answer: TRUE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL DISTINCT, TOP, and TOP PERCENT keywords
Classification: Concept

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19) To obtain all columns, use an asterisk (*) wildcard character instead of listing all the column names.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

20) The SQL WHERE clause contains the condition that specifies which rows are to be selected.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

21) The result of an SQL SELECT operation can contain duplicate rows.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

22) To have SQL automatically eliminate duplicate rows from a result, use the keyword DISTINCT with the FROM keyword.
Answer: FALSE
AACSB: Information Technology; Application of Knowledge
Difficulty: Difficult
LO: To create SQL queries that use the SQL DISTINCT, TOP, and TOP PERCENT keywords
Classification: Concept

23) An asterisk (*) following the SELECT verb means that all columns are to be displayed.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

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24) The WHERE clause contains the condition that specifies which columns are to be selected.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

25) The rows of the result table can be sorted by the values in one or more columns.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

26) Sorting is specified by the use of the SORT BY phrase.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

27) To sort the rows of the result table, the ORDER BY clause is specified.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

28) Columns can be sorted in descending sequence by using the SQL DESC keyword.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

29) A WHERE clause can contain only one condition.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

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30) When two conditions must both be true for the rows to be selected, the conditions are separated by the SQL AND keyword.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Easy
LO: To create SQL queries that use the SQL logical operators including AND, OR, and NOT
Classification: Concept

31) To refer to a set of values needed for a condition, use the SQL IN operator.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

32) To exclude one or more values using a condition, the SQL OUT keyword must be used.
Answer: FALSE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

33) To refer to a set of values in a condition, the values are placed inside parentheses ( ) and separated by commas.
Answer: TRUE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

34) The condition in WHERE clauses can refer to a set of values by using the IN operator.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

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35) The SQL keyword LIKE is used in SQL expressions to select partial string values.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

36) The SQL wildcard character "%" represents a series of one or more unspecified characters.
Answer: FALSE
AACSB: Information Technology; Application of Knowledge
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

37) The SQL wildcard character "#" indicates a single, unspecified character in a specific location in an SQL query.
Answer: FALSE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

38) The Microsoft Access wildcard character "*" (asterisk) indicates a sequence of one or more unspecified characters in a Microsoft Access SQL query.
Answer: FALSE
AACSB: Information Technology; Application of Knowledge
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

39) The Microsoft Access wildcard character "_" (underscore) indicates a single, unspecified character in a specific location in a Microsoft Access SQL query.
Answer: FALSE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

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40) The SQL built-in function ADDUP totals values in numeric columns.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

41) The SQL built-in function AVG computes the average of values in numeric columns.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

42) The SQL built-in function MOST obtains the largest value in a numeric column.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

43) The SQL built-in function MIN obtains the smallest value in a numeric column.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

44) The SQL built-in function COUNT computes the number of rows in a query.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

45) The built-in function SUM can be used with any column.
Answer: FALSE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

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46) The clause SELECT COUNT (*) results in a table with a single row and a single column.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

47) Arithmetic in SQL statements is limited to the operations provided by the built-in functions.
Answer: FALSE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries to retrieve data from a single table
Classification: Concept

48) The SQL keyword *GROUP BY* instructs the DBMS to group together those rows that have the same value in a column.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

49) A WHERE clause can contain another SELECT statement enclosed in parentheses.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Easy
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

50) A SELECT statement used in a WHERE clause is called a subquery.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

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51) A nested SELECT statement (one that appears within the WHERE clause of another SQL statement) is called a subquery and must be enclosed in parentheses.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

52) Only two tables can be queried by using a subquery.
Answer: FALSE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

53) An alternative to combining tables by a subquery is to use a join.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

54) When people use the term *join* they normally mean an *equijoin*.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

55) Two or more tables are joined by giving the table names in the WHERE clause and specifying the equality of the respective column names as a condition in the GROUP BY clause.
Answer: FALSE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

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56) The names of tables to be joined in an SQL query are listed in the FROM clause.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

57) In an SQL query, a join operation is achieved by specifying the equality of the respective column names as a condition in the WHERE clause.
Answer: TRUE
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

58) Every subquery can be alternatively expressed by a join.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

59) While many subqueries can be alternatively written as joins, correlated subqueries do work that cannot be duplicated as a join.
Answer: TRUE
AACSB: Information Technology
Difficulty: Difficult
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

60) The SQL syntax JOIN . . . ON can be used as an alternate way of writing an SQL join statement.
Answer: TRUE
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

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61) Joins that show only matching rows from the joined tables in their results are called inner joins.
Answer: TRUE
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

62) Joins that show the matching rows from the joined tables plus unmatched rows from one other table in their results are called outer joins.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using the SQL OUTER JOIN operation
Classification: Concept

63) Outer joins can be either up joins or down joins.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using the SQL OUTER JOIN operation
Classification: Concept

64) The UNION of two relations A and B consists of all rows that are either in relation A or in relation B or both.
Answer: TRUE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using SQL set operators UNION, INTERSECT, and EXCEPT
Classification: Concept

65) The INTERSECT of two relations A and B consists of all rows that are in relation B but are not in relation A.
Answer: FALSE
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using SQL set operators UNION, INTERSECT, and EXCEPT
Classification: Concept

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66) A database extracted from the operational database for BI purposes typically _____.
A) is an exact copy of the operational database
B) contains only the metadata from the operational database
C) combines all the data from the operational database into one large table
D) contains just part of the operational database
Answer: D
AACSB: Information Technology
Difficulty: Difficult
LO: To understand the use of extracted data sets in business intelligence (BI) systems
Classification: Concept

67) An ad-hoc query is _____.
A) a question about the data that requires a program to be written
B) a question that can be answered from the database using SQL
C) a question that can be answered only by combining several SQL queries
D) never useful in Business Intelligence scenarios
Answer: B
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the use of ad-hoc queries in business intelligence (BI) systems
Classification: Concept

68) SQL is a _____.
A) data sublanguage
B) data manipulation language
C) data definition language
D) programming language
Answer: A
AACSB: Information Technology
Difficulty: Easy
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

69) When making an SQL query, we are using SQL as a(n) _____.
A) DDL
B) DML
C) embedded language
D) SET
Answer: B
AACSB: Information Technology
Difficulty: Moderate
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

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70) In an SQL query, which SQL keyword actually begins the query?
A) EXISTS
B) FROM
C) SELECT
D) WHERE
Answer: C
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

71) In an SQL query, which SQL keyword is used to specify the table(s) to be used?
A) EXISTS
B) FROM
C) SELECT
D) WHERE
Answer: B
AACSB: Information Technology
Difficulty: Easy
LO: To understand the SQL SELECT/FROM/WHERE framework as the basis for database queries
Classification: Concept

72) In an SQL query, which SQL keyword must be used to remove duplicate rows from the result table?
A) DELETE
B) DISTINCT
C) UNIQUE
D) KEY
Answer: B
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL DISTINCT, TOP, and TOP PERCENT keywords
Classification: Concept

73) In an SQL query, which of the following symbols is used by ANSI SQL to represent all the columns in a single table?
A) _ (underscore)
B) ? (question mark)
C) * (asterisk)
D) % (percent)
Answer: C
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries to retrieve data from a single table
Classification: Concept

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74) In an SQL query, which SQL keyword is used to state the condition that specifies which rows are to be selected?
A) SET
B) FROM
C) SELECT
D) WHERE
Answer: D
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries to retrieve data from a single table
Classification: Concept

75) In an SQL query, which SQL keyword is used to link two conditions that both must be true for the rows to be selected?
A) AND
B) EXISTS
C) OR
D) IN
Answer: A
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL logical operators including AND, OR, and NOT
Classification: Concept

76) In an SQL query, which SQL keyword is used to determine if a column value is equal to any one of a set of values?
A) AND
B) EXISTS
C) OR
D) IN
Answer: D
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

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77) In an SQL query, which of the following symbols is used by ANSI SQL to represent a single unspecified character?
A) _ (underscore)
B) ? (question mark)
C) * (asterisk)
D) % (percent)
Answer: A
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

78) In an SQL query, which of the following symbols is used by Microsoft Access to represent a single unspecified character?
A) _ (underscore)
B) ? (question mark)
C) * (asterisk)
D) % (percent)
Answer: B
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Concept

79) In an SQL query, which SQL keyword is used to sort the result table by the values in one or more columns?
A) GROUP BY
B) ORDER BY
C) SELECT
D) SORT BY
Answer: B
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

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80) Given a table with the structure: EMPLOYEE (EmpNo, Name, Salary, HireDate), which of the following would find all employees whose name begins with the letter "S" using standard SQL?
A) SELECT *
FROM EMPLOYEE
WHERE Name IN ['S'];
B) SELECT EmpNo
FROM EMPLOYEE
WHERE Name LIKE 'S';
C) SELECT *
FROM Name
WHERE EMPLOYEE LIKE 'S*';
D) SELECT *
FROM EMPLOYEE
WHERE Name LIKE 'S%';
Answer: D
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Application

81) Given a table with the structure: EMPLOYEE (EmpNo, Name, Salary, HireDate), which of the following would find all employees whose name begins with the letter "S" using Microsoft Access?
A) SELECT *
FROM EMPLOYEE
WHERE Name IN ['S'];
B) SELECT EmpNo
FROM EMPLOYEE
WHERE Name LIKE 'S';
C) SELECT *
FROM EMPLOYEE
WHERE Name LIKE 'S*';
D) SELECT *
FROM EMPLOYEE
WHERE Name LIKE 'S%';
Answer: C
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Application

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82) In an SQL query, which built-in function is used to total numeric columns?
A) AVG
B) COUNT
C) MAX
D) SUM
Answer: D
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

83) In an SQL query, which built-in function is used to compute the average value of numeric columns?
A) AVG
B) MEAN
C) MAX
D) SUM
Answer: A
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

84) In an SQL query, which built-in function is used to obtain the largest value of numeric columns?
A) AVG
B) COUNT
C) MAX
D) MIN
Answer: C
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

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85) In an SQL query, which built-in function is used to obtain the smallest value of numeric columns?
A) AVG
B) COUNT
C) MAX
D) MIN
Answer: D
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

86) In an SQL query, the built-in functions SUM and AVG work with columns containing data of which of the following data types?
A) Integer
B) Numeric
C) Char
D) Both A and B are correct
Answer: D
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

87) In an SQL query, which built-in function is used to compute the number of rows in a table?
A) AVG
B) COUNT
C) MAX
D) SUM
Answer: B
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

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88) Assuming the "Quantity" column of an ORDER table contains integer data, what does COUNT(Quantity) compute?
A) The number of rows in the ORDER table
B) The number of non-zero values in the Quantity column
C) The number of distinct values in the Quantity column
D) The number of non-null values in the Quantity column
Answer: D
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

89) In an SQL query, which SQL keyword is used with built-in functions to group together rows that have the same value in a specified column or columns?
A) GROUP BY
B) ORDER BY
C) SELECT
D) SORT BY
Answer: A
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

90) In an SQL query, which SQL keyword is used with GROUP BY to select groups meeting specified criteria?
A) AND
B) WHERE
C) HAVING
D) IN
Answer: C
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

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91) Given a table with the structure: EMPLOYEE (EmpNo, Name, Salary, HireDate), which of the following is **not** a valid ANSI SQL command?
A) SELECT *
FROM EMPLOYEE
WHERE Name LIKE 'Ja%';
B) SELECT COUNT(*)
FROM EMPLOYEE
WHERE Salary < 30000;
C) SELECT HireDate, COUNT(*)
FROM EMPLOYEE
GROUP BY HireDate;
D) SELECT HireDate, COUNT(*)
FROM EMPLOYEE
WHERE Salary < 30000;
Answer: D
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Application

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92) Based on the tables below, which of the following ANSI SQL commands would return the average customer balance grouped by SalesRepNo?

GENERAL SALES DATABASE:

SALESREP

SalesRepNo	**RepName**	**HireDate**
654	Jones	01/02/2005
734	Smith	02/03/2007
345	Chen	01/25/2004
434	Johnson	11/23/2004

CUSTOMER

CustNo	**CustName**	**Balance**	**SalesRepNo**
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

A) SELECT AVG (Balance)
FROM CUSTOMER
WHERE SalesRepNo;
B) SELECT AVG (Balance)
FROM CUSTOMER
GROUP BY SalesRepNo;
C) SELECT AVG (Balance)
FROM CUSTOMER, SALESREP
WHERE SALESREP.SalesRepNo = CUSTOMER.SalesRepNo;
D) SELECT AVG (Balance)
FROM CUSTOMER
ORDER BY SalesRepNo;
Answer: B
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Application

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93) Based on the tables below, which of the following commands in ANSI SQL would return only the name of the sales representative and the name of the customer for each customer that has a balance greater than 400?

GENERAL SALES DATABASE:

SALESREP

SalesRepNo	**RepName**	**HireDate**
654	Jones	01/02/2005
734	Smith	02/03/2007
345	Chen	01/25/2004
434	Johnson	11/23/2004

CUSTOMER

CustNo	**CustName**	**Balance**	**SalesRepNo**
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

A) SELECT *
FROM SALESREP, CUSTOMER
WHERE Balance > 400;
B) SELECT DISTINCT RepName, CustName
FROM SALESREP, CUSTOMER
WHERE Balance > 400;
C) SELECT *
FROM SALESREP, CUSTOMER
WHERE SALESREP.SalesRepNo = CUSTOMER.SalesRepNo
AND Balance > 400;
D) SELECT RepName, CustName
FROM SALESREP, CUSTOMER
WHERE SALESREP.SalesRepNo = CUSTOMER.SalesRepNo
AND Balance > 400;
Answer: D
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Application

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94) In an SQL query, which SQL keyword is used to implement a subquery?
A) GROUP BY
B) HAVING
C) ORDER BY
D) SELECT
Answer: D
AACSB: Information Technology
Difficulty: Difficult
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

95) When one SQL query is embedded in another SQL query, this is referred to as a _____.
A) subquery
B) join
C) WHERE Query
D) subset query
Answer: A
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

96) When one SQL query is embedded in another SQL query to simulate a join, the second SQL query is embedded in the _____ of the first query.
A) SELECT
B) FROM
C) WHERE
D) HAVING
Answer: C
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

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97) When one SQL query is embedded in another SQL query, the top level SQL query can still contain an SQL _____ clause.
A) FROM or SORT BY
B) UNIQUE IN
C) GROUP BY
D) WHERE IN
Answer: C
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Concept

98) In an SQL query, which SQL keyword is used to specify the names of tables to be joined?
A) FROM
B) HAVING
C) JOIN
D) WHERE
Answer: A
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

99) In an SQL query, which SQL keyword is used to specify the column names to be used in a join?
A) FROM
B) JOIN
C) SELECT
D) WHERE
Answer: D
AACSB: Information Technology
Difficulty: Easy
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Concept

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100) Regarding the interchangeability of subqueries and joins, _____.
A) a join can always be used as an alternative to a subquery, and a subquery can always be used as an alternative to a join
B) a join can sometimes be used as an alternative to a subquery, and a subquery can sometimes be used as an alternative to a join
C) a join can always be used as an alternative to a subquery, and a subquery can sometimes be used as an alternative to a join
D) a join can sometimes be used as an alternative to a subquery, and a subquery can always be used as an alternative to a join
Answer: B
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations; To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery)
Classification: Synthesis

101) In an SQL query of two tables, which SQL keyword indicates that we want data from all the rows of one table to be included in the result, even if the row does not correspond to any data in the other table?
A) LEFT JOIN
B) RIGHT JOIN
C) INCLUDE
D) Both A and B are correct
Answer: D
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using the SQL OUTER JOIN operation
Classification: Concept

102) Suppose tables EMPLOYEE and CUSTOMER both store address information, and you want to send a letter to all employees and customers of your company to make a major announcement. Which SQL keyword would you most likely use here?
A) INTERSECT
B) UNION
C) UNION ALL
D) JOIN
Answer: B
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using SQL set operators UNION, INTERSECT, and EXCEPT
Classification: Application

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103) Suppose your company stores EMPLOYEE and CUSTOMER data in separate tables. If you want to find all employees who are also customers, which SQL keyword would you most likely use?
A) INTERSECT
B) UNION
C) EXCEPT
D) UNION ALL
Answer: A
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using SQL set operators UNION, INTERSECT, and EXCEPT
Classification: Application

104) Suppose your company stores EMPLOYEE and CUSTOMER data in separate tables. If you want to find all customers who are not also employees, which SQL keyword would you most likely use?
A) INTERSECT
B) UNION
C) EXCEPT
D) UNION ALL
Answer: C
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that retrieve data from multiple tables using SQL set operators UNION, INTERSECT, and EXCEPT
Classification: Application

105) What is SQL?
Answer: Structured Query Language (SQL) is used to create and use databases, tables, and relationships. SQL is divided into two categories: SQL statements for database definition and SQL statements for database processing (querying and updating). The database definition commands are referred to as a data definition language (DDL), and the database query and update commands are referred to as a data manipulation language (DML). SQL was developed by IBM, and is endorsed as a national standard by the American National Standards Institute (ANSI). Although a newer standard, SQL3, exists, the most widely implemented version of SQL is the ANSI SQL-92 standard. SQL is not a full-featured programming language, but rather it is considered to be a data sublanguage.
AACSB: Information Technology
Difficulty: Easy
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

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106) Explain why it is important to learn SQL.
Answer: Most modern DBMS products support SQL as a standardized data language. These products usually provide graphical tools to perform the tasks associated with SQL, but there are some tasks that cannot be performed using these graphical tools. SQL is text-oriented, and SQL code must be written in order to embed SQL commands within program applications.
AACSB: Information Technology; Reflective Thinking
Difficulty: Easy
LO: To understand the history and significance of Structured Query Language (SQL)
Classification: Concept

107) Briefly describe subqueries and joins. Explain when each is not an acceptable alternative for the other.
Answer: Subqueries and joins are both methods for retrieving data from multiple tables. Subqueries involve nesting one SELECT statement within another. The nested SELECT is used as part of a condition in the WHERE clause of the first SELECT statement. The nested SELECT statement can return a set of records from one table, which are then used in a logical operator within the parent SELECT query. A join combines records from each table into concatenated records containing the fields of both tables. The records are concatenated based on matching values in similar columns in the two tables. Subqueries cannot be used in situations where the results to be displayed include attributes from more than one table. Joins cannot be used as an alternative to a correlated subquery.
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that retrieve data from a single table while restricting the data based upon data in another table (subquery); To create SQL queries that retrieve data from multiple tables using the SQL join and JOIN ON operations
Classification: Synthesis

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108) The following database will be used in this question:

GENERAL SALES DATABASE:

SALESREP

SalesRepNo	**RepName**	**HireDate**
654	Jones	01/02/2005
734	Smith	02/03/2007
345	Chen	01/25/2004
434	Johnson	11/23/2004

CUSTOMER

CustNo	**CustName**	**Balance**	**SalesRepNo**
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

Explain the use of the of SQL keyword SELECT. Include an example based on the CUSTOMER table in the General Sales database.
Answer: The SQL keyword SELECT forms the basis for all SQL querying. Although SELECT technically specifies columns to be used in a query, it is always the first SQL keyword or command in an SQL phrase that includes at least the SQL keyword FROM and often the SQL keyword WHERE. The SQL keyword FROM is used to specify which tables are used in the query, while the SQL keyword WHERE is used to specify conditions or constraints imposed on the query. For example,

```
SELECT *
FROM CUSTOMER
WHERE CustNo = 8590;
```

is a query that returns all information in the table CUSTOMER about the customer whose customer number is 8590.
AACSB: Information Technology; Application of Knowledge
Difficulty: Easy
LO: To create SQL queries to retrieve data from a single table
Classification: Application

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109) The following database will be used in this question:

GENERAL SALES DATABASE:

SALESREP

SalesRepNo	RepName	HireDate
654	Jones	01/02/2005
734	Smith	02/03/2007
345	Chen	01/25/2004
434	Johnson	11/23/2004

CUSTOMER

CustNo	CustName	Balance	SalesRepNo
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

Explain the use of the SQL keyword LIKE. Include an example based on the CUSTOMER table from the General Sales database; use at least one wildcard.
Answer: The LIKE keyword is used in the WHERE clause of an SQL query to select rows based on partial values. Through the use of wildcard characters that can represent one or more unspecified characters, the LIKE operator can search for a given string of characters within a column value. The ANSI wildcard "%" represents zero or more unspecified characters, and the wildcard "_" (underscore) represents any single unspecified character. For example,

```
SELECT *
FROM CUSTOMER
WHERE CustName LIKE 'H%';
```

is a query that returns all information in the table CUSTOMER about customers whose CustName starts with the letter H.
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Application

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110) The following database will be used in this question:

GENERAL SALES DATABASE:

SALESREP

SalesRepNo	**RepName**	**HireDate**
654	Jones	01/02/2005
734	Smith	02/03/2007
345	Chen	01/25/2004
434	Johnson	11/23/2004

CUSTOMER

CustNo	**CustName**	**Balance**	**SalesRepNo**
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

Explain the use of the GROUP BY keyword. Include an example based on the CUSTOMER table from the General Sales database.
Answer: The GROUP BY keyword is used in conjunction with the built-in functions of SQL. The GROUP BY keyword is given a column that records are to be grouped on. Records in the result table are then collected into groups based on the value of the grouping column. The built-in function is then performed on the records of each group separately. For example,

```
SELECT AVG(Balance)
FROM CUSTOMER
GROUP BY SalesRepNo;
```

is a query that returns the average balance of all customers associated with a specific sales representative.
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Application

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111) Given the table **CUSTOMER(CustID, Name, PhoneNumber, AccountBalance)**, write the standard SQL query to retrieve the Name and PhoneNumber of customers with a balance greater than 50.
Answer: SELECT Name, PhoneNumber
FROM CUSTOMER
WHERE AccountBalance > 50;
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries to retrieve data from a single table
Classification: Application

112) Given the table **CUSTOMER(CustID, Name, PhoneNumber, AccountBalance)**, write the standard SQL query to retrieve the Name and PhoneNumber of customers whose name begins with 'S'.
Answer: SELECT Name, PhoneNumber
FROM CUSTOMER
WHERE Name LIKE 'S%';
AACSB: Information Technology; Application of Knowledge
Difficulty: Moderate
LO: To create SQL queries that use the SQL comparison operators including BETWEEN, LIKE, IN, and IS NULL
Classification: Application

113) What are SQL Built-in Functions?
Answer: SQL Built-in Functions are functions that manipulate the results of an SQL SELECT statement. The built-in functions for standard SQL are COUNT, SUM, AVG, MAX, and MIN. The COUNT function counts the number of rows in the result. The SUM function totals the values in a number-oriented field. The AVG function calculates the mean of the values in a number-oriented field. The MAX function determines the highest value, and the MIN function determines the lowest value, in a number-oriented field or any other field whose values can be compared using "<".
AACSB: Information Technology
Difficulty: Moderate
LO: To create SQL queries that use the SQL built-in aggregate functions of SUM, COUNT, MIN, MAX, and AVG with and without the SQL GROUP BY clause
Classification: Concept

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114) Distinguish between the HAVING clause and the WHERE clause.
Answer: The HAVING clause and the WHERE clause differ in that the WHERE clause is used to identify rows that satisfy a stated condition. The HAVING clause is used to identify groups, which have been created by the GROUP BY clause, that satisfy a stated condition. In cases when the WHERE clause and the HAVING clause are both allowed to appear in the same SELECT statement, the WHERE clause is implemented to execute before the HAVING clause.
AACSB: Information Technology; Analytical Thinking
Difficulty: Difficult
LO: To create SQL queries that use the SQL SELECT, FROM, WHERE, ORDER BY, GROUP BY, and HAVING clauses
Classification: Concept

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