**Contestant Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Rank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



**SQL DATABASE FUNDAMENTALS**

(345)

**REGIONAL 2022**

**CONCEPT KNOWLEDGE:**

Multiple Choice (50 @ 2 points each) (100 points)

**TOTAL POINTS (100 points)**

**Test Time: 60 minutes**

**GENERAL GUIDELINES:**

*Failure to adhere to any of the following rules will result in disqualification:*

1. Member must hand in this test booklet and all printouts if any.
2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests (handwritten, photocopied, or keyed) are allowed in the testing area.
3. Electronic devices will be monitored according to ACT standards.

**MULTIPLE CHOICE**

Identify the letter of the choice that best completes the statement or answers the question. Mark

A if the statement is true. Mark B if the statement is false.

1. The \_\_\_\_\_\_\_ statement forms the beginning of any script used to query data from a database.
   1. QUERY
   2. SELECT
   3. OPEN
   4. GET
2. A request for data to be returned from a database is called a(n) \_\_\_\_\_\_\_.
   1. Query
   2. SQL
   3. DMBS
   4. SDLC
3. When writing SQL code it is recommended to follow the ANSI SQL standard so the work can be ported between databases.
   1. True
   2. False
4. The acronym SQL stands for \_\_\_\_\_\_\_\_\_\_\_.
   1. Software Query Language
   2. Structured Query Language
   3. Service Query Language
   4. Servicing Query Language
5. SQL Keywords are case sensitive.
   1. True
   2. False
6. A \_\_\_\_\_ represents the data extracted from a query.
   1. result-Set
   2. report
   3. DBA
   4. file
7. DBMS stands for \_\_\_\_\_\_\_\_\_.
   1. Database Management Software
   2. Database Management Storage
   3. Database Management System
   4. Data Maintenance Software
8. Which of the following are NOT query language keywords?
   1. DELETE
   2. UPDATE
   3. COUNT
   4. ALIGN
9. Which of the following are NOT SQL keywords?
   1. UNDER
   2. IN
   3. AS
   4. BETWEEN
10. What is the definition of a table in database terms?
    1. Table is synonymous with a row
    2. A collection of closely related columns.
    3. A uniquely identified column
    4. How data is stored on disk
11. Which of the following is NOT a database type?
    1. Distributed Database
    2. Miniature Database
    3. Object Oriented Database
    4. Relational Database
12. The syntax for sorting data after a query runs is \_\_\_\_\_\_\_.
    1. SORT BY
    2. GROUP BY
    3. HAVING
    4. ORDER BY
13. When aggregating data together you would use a \_\_\_\_\_\_ statement.
    1. SORT BY
    2. GROUP BY
    3. HAVING
    4. ORDER BY
14. Which of the following is not an aggregate function in SQL?
    1. TOTAL
    2. COUNT
    3. AVG
    4. MIN
15. *SELECT a FROM table GROUP BY a* - \_\_\_\_\_\_\_\_ produces the same result as - *SELECT DISTINCT a FROM table*
    1. Always
    2. Never
    3. Depending on the content of the table
    4. Depending on the timeframe
16. The \_\_\_\_\_\_ keyword is used to build a database, table, view, and index.
    1. BEGIN
    2. START
    3. ASSIGN
    4. CREATE
17. Every database table must have a primary key.
    1. True
    2. False
18. \_\_\_\_\_\_\_\_\_\_ creates an alias for the name Field.
    1. SELECT name AS Output\_Name FROM table
    2. SELECT name Output\_Name FROM table
    3. SELECT name:Output\_Name FROM table
    4. SELECT name ALIAS Output\_Name FROM table
19. To sort data from largest to smallest in a query you would use the \_\_\_\_\_\_ keyword.
    1. BIGGEST
    2. TOP DOWN
    3. BACKWARD
    4. DESC
20. The \_\_\_\_\_\_ keyword is used to add data to a table.
    1. UPDATE
    2. BUILD
    3. INSERT
    4. ADD
21. The \_\_\_\_\_ keyword is used to modify data within a table.
    1. UPDATE
    2. MODIFY
    3. CHANGE
    4. ALTER
22. \_\_\_\_\_\_\_\_\_\_\_ will match the output from

*SELECT a, b FROM table WHERE a BETWEEN 10 AND 20*

* 1. SELECT a, b FROM table WHERE a >= 10, <= 20
  2. SELECT a, b FROM table WHERE a <= 10 and a >= 20
  3. SELECT a, b FROM table WHERE a > 9 and a < 21
  4. SELECT a, b FROM table WHERE a > 10 and a < 20

1. Given the following statement - *SELECT name, MIN(a) FROM table*. \_\_\_\_\_\_\_\_ can be said about the name field?
   1. It will be extracted from the same record as the minimum value of a.
   2. It will be extracted from the record whose key is the largest key in the table.
   3. It cannot be determined where the name is pulled from.
   4. Not enough information is provided.
2. Given the following statement - SELECT MIN(a), MAX(a), AVG(a) FROM table. \_\_\_\_\_\_ rows of data are being returned.
   1. 1
   2. 2
   3. 3
   4. It Depends on the data type of a as to how many
3. In a query without a GROUP BY statement, the HAVING clause and the WHERE clause produce the same result
   1. True
   2. False
4. When using a *CREATE TABLE* statement, which of the following is NOT given as an option to represent the datatype of a field?
   1. Integer
   2. String
   3. Float
   4. Date
5. INNER JOIN produces the \_\_\_\_\_\_\_ of a dataset.
   1. Compliment
   2. Cross
   3. Union
   4. Intersection
6. How many tables can be joined together in a single SQL statement?
   1. Less than 5
   2. Less than 10
   3. Less than 35
   4. Max number is database dependent

1. Given two tables table1 and table2 an INNER JOIN produces \_\_\_\_\_\_\_\_\_.
   1. Every row where the key used in the join is in both tables
   2. Every row where the key used in the join is in table1, regardless of whether or not it is in table2
   3. Every row where the key used in the join is in table2, regardless of whether or not it is in table 1
   4. Every row where every key in table1 is joined to every key in table2
2. \_\_\_\_\_\_ are used to make database queries more efficient and quicker.
   1. Stored Procedures
   2. Indexes
   3. Triggers
   4. Category Keys
3. A primary key must be unique.
   1. True
   2. False
4. A primary key can not be made of multiple columns.
   1. True
   2. False
5. \_\_\_\_\_\_\_\_ would use one statement to modify a group of records in *table* whenever total is greater than 1000:
   1. UPDATE table SET bonus = 1 WHERE total > 1000
   2. ALTER table CHANGE bonus = 1 WHERE total > 1000
   3. MODIFY table SET bonus = 1 WHERE (total > 1000)
   4. ADJUST table SET bonus =1 WHERE total > 1000
6. The \_\_\_\_\_\_\_ keywords are used to add, modify, or drop/delete columns in a database table.
   1. UPDATE TABLE
   2. MODIFY TABLE
   3. ALTER TABLE
   4. CHANGE TABLE
7. What is one difference between DELETE table and DROP table in SQL?
   1. There is no difference, they perform the same function
   2. DROP is not a valid SQL keyword
   3. Both remove data from the table; DROP removes the schema, table, and constraints as well.
   4. DELETE and DROP both remove all data; DROP table can be used in conjunction with a WHERE clause to only delete specific data.
8. The acronym DDL stands for \_\_\_\_\_\_\_\_.
   1. Data Dictionary Label
   2. Data Definition Language
   3. Data Descriptive Link
   4. Data Devise Label
9. What is the difference between DDL and DML?
   1. DDL changes the structure of the database; DML manages the data in the database
   2. DDL manages the data in the database; DML changes the structure of the database
   3. DML is a subcategory of DDL
   4. DDL is a subcategory of DML
10. Which of the following is NOT an aggregate function in SQL?
    1. AVG
    2. PRODUCT
    3. MAX
    4. COUNT
11. What is one difference between DELETE table and TRUNCATE table in SQL?
    1. There is no difference, they perform the same function.
    2. TRUNCATE is not a valid SQL keyword
    3. Both remove data from the table; TRUNCATE removes the schema, table, and constraints as well.
    4. TRUNCATE and DELETE both remove all data; DELETE table can be used in conjunction with a WHERE clause to only delete specific data.
12. A foreign key can be made up of multiple columns.
    1. True
    2. False
13. When querying data using a wildcard, how would you get every record where the state starts with an “M”?
    1. SELECT \* FROM table WHERE state = “M\*”
    2. SELECT \* FROM table WHERE state LIKE “M%”
    3. SELECT \* FROM table WHERE state == “%M”
    4. SELECT \* FROM table WHERE state like “M\*”
14. A foreign key can be made up of multiple columns.
    1. True
    2. False
15. Varchar is preferable as a data type in many situations because \_\_\_\_\_\_\_\_\_.
    1. It is the updated version of char - char has been deprecated
    2. It stores only the bytes that fill the size of the field
    3. An SQL Engine indexes varchar to be faster than char
    4. It saves space by not allocating space that may never be used

*Consider the following two tables for questions 44 - 50*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **People Table**   |  |  |  | | --- | --- | --- | | **peopleId** | **lastName** | **startDate** | | 4 | Jones | 1990-01-01 | | 24 | Smith | 2014-10-10 | | 16 | Apple | 2000-12-12 | | 33 | Jones | 2005-05-15 | | **Sales Table**   |  |  |  |  | | --- | --- | --- | --- | | **salesId** | **peopleId** | **ItemId** | **numBought** | | 4 | 2 | 7 | 2 | | 127 | 4 | 7 | 3 | | 128 | 4 | 14 | 2 | | 131 | 16 | 7 | 6 | | 144 | 4 | 22 | 2 | |

1. What will the following code return - SELECT count(peopleId) FROM People CROSS JOIN Sales?
   1. 25
   2. 20
   3. 8
   4. 4
2. Visual inspection of the tables above would indicate a foreign key would be \_\_\_\_\_\_\_\_.
   1. People.peopleId
   2. Sales.salesId
   3. Sales.peopleId
   4. People.lastName
3. How many rows would the following query return - SELECT lastName FROM People GROUP by lastName WHERE lastName like “%Jones%”
   1. 0
   2. 1
   3. 2
   4. 4
4. The following query \_\_\_\_\_\_\_ will produce the following result.

Name Item Total

Apple null null

Jones null null

* 1. SELECT lastname ALIAS Name, itemId ALIAS item, numBought ALIAS Total FROM People FULL OUTER JOIN Sales ON People.peopleId = Sales.peopleId
  2. SELECT Name, Item, Total FROM People LEFT OUTER JOIN Sales ON People.peopleId=Sales.peopleId
  3. SELECT lastname AS Name, itemID as item, numBought as Total FROM People RIGHT OUTER JOIN Sales ON People.peopleId=Sales.peopleId
  4. SELECT lastname AS Name, itemID as item, numBought as Total FROM People LEFT OUTER JOIN Sales ON People.peopleId=Sales.peopleId WHERE Sales.peopleId IS NULL

1. What query would tell us how many products each member bought assuming each we only want people who bought at least one item?
   1. SELECT lastName, COUNT(numBought) FROM People INNER JOIN SalesONPeople.peopleId=Sales.peopleId GROUP BY lastName
   2. SELECT lastName, AVG(numBought) FROM People INNER JOIN SalesONPeople.peopleId=Sales.peopleId
   3. SELECT lastName, SUM(numBought) FROM People INNER JOIN SalesONPeople.peopleId=Sales.peopleId GROUP BY peopleId
   4. SELECT lastName, SUM(numBought) FROM People INNER JOIN SalesONPeople.peopleId=Sales.peopleId
2. The People table breaks the rules of referential integrity.
   1. True
   2. False
3. The Sales table breaks the rules of referential integrity.
   1. True
   2. False