**Member ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

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



**SQL DATABASE FUNDAMENTALS**

(345)

**REGIONAL 2024**

**Multiple Choice:**

50 @ 2 points each \_\_\_\_\_\_\_\_\_\_\_(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. Failure to do so will result in disqualification.
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 Questions**

***Directions*:** Identify the letter of the choice that *best* completes the statement or answers the question.

1. What would be the outcome of the following SELECT statement – SELECT (5+5)6 + 1 FROM table;
2. 31
3. 31 repeated for every row in table
4. 70 repeated for every row in table
5. Syntax Error
6. SQL stands for \_\_\_\_\_.
7. Sequential Query Language
8. Structured Query Language
9. Standard Query Language
10. Semantic Query Library
11. What would be the outcome of the following SELECT statement – SELECT \* FROM table WHERE name LIKE "a\_%\_%";
12. All records that have an ‘a’ in word
13. All records that have an ‘a’ in the first position and at least 3 characters
14. All records that have an ‘a’ in the first, third, and fifth positions of the name
15. All records that have an ‘a’ in the first, but not the third and fifth positions of the name
16. The SQL function to return the lowest value of a selected column would be \_\_\_\_\_.
17. SMALL()
18. LOW()
19. BOTTOM()
20. MIN()
21. When used in combination, which of the following logical operators takes precedence?
22. AND
23. OR
24. NOT
25. None (All have equal precedence)
26. An example of an aggregate function in SQL would be \_\_\_\_\_\_\_.
27. COUNT()
28. DISTINCT()
29. FILTER()
30. UPDATE()
31. When querying a database, one would sort the resulting data using which keywords?
32. SORT BY
33. LIMIT
34. ORDER BY
35. RANK BY
36. Which of the following statements will check for a NULL value in field1?
37. SELECT \* FROM table1 WHERE field1 IS NULL
38. SELECT \* FROM table1 WHERE field1 = ""
39. SELECT \* FROM table1 WHERE field1 = NULL
40. SELECT \* FROM table1 WHERE EMPTY(field1)
41. To change the contents of a fields value, you would use the \_\_\_\_\_ statement.
42. MODIFY
43. ALTER
44. UPDATE
45. INSERT
46. To make column names more readable developers often give column names using the keyword \_\_\_\_.
47. IS
48. ALIAS
49. AS
50. USE
51. To restrict how many records are returned from a completed query, one would use a \_\_\_\_.
52. LIMIT clause
53. CAP BY clause
54. SORT BY clause
55. ONLY clause
56. Assuming field1 has a datatype of VARCHAR,

SELECT \* FROM table1 WHERE field1 IS NULL is equivalent to

SELECT \* FROM table1 WHERE field1 = ""

1. TRUE
2. FALSE
3. The query – SELECT TRUE OR FALSE AND FALSE OR TRUE AND FALSE – will return \_\_\_\_.
4. 1
5. 0
6. TRUE
7. FALSE
8. Which of the following queries would have a result set where the data is sorted alphabetically (A-Z)
9. SELECT field1 FROM table SORT BY field1
10. SELECT field1 FROM table ORDER BY field1 ASC
11. SELECT SORT(field1) FROM table
12. SELECT field1 FROM table ORDER(field1)
13. Which of the following statements is NOT true about an alias?
14. An alias only exists for the duration of a query.
15. An alias can be used to make column names more readable.
16. An alias will create a temporary table.
17. An alias can be mixed case.
18. The query – SELECT name, MAX(field1) FROM table1 – will return the maximum value in field1\_\_\_\_.
19. and the corresponding name from the database
20. for each name in the database
21. and a potentially unrelated name from the database
22. and the first name in sort order from the database
23. To get the number of records that meet the criteria of a query, you would use the \_\_\_\_ function.
24. SUM()
25. TOTAL()
26. AGGREGATE()
27. COUNT()
28. To construct a new table in a database you would use a \_\_\_\_ statement?
29. BUILD table
30. CREATE table
31. MAKE table
32. CONSTRUCT table
33. Which of the following is not a database type?
34. Not only SQL
35. Distributed
36. Compound
37. OOP
38. What keyword would be used to add data to a database table?
39. INSERT
40. ADD
41. CREATE
42. NEW
43. How many rows of data are returned from the following query – SELECT name, MIN(a), AVG(a), MAX(a) FROM table
44. 1
45. 2
46. 3
47. Depends on have many rows are in the table
48. The effect of using a GROUP BY clause on a Primary Key would \_\_\_\_.
49. Return an exact data set as it would if you didn’t use a GROUP BY
50. Return an error
51. Return a larger data set then it would if you didn’t use a GROUP BY
52. Return a smaller data set then it would if you didn’t use a GROUP BY
53. What are the advantages of data denormalization?
54. Saves storage space
55. Helps get rid of complex data by saving redundant data
56. Provides for much faster queries
57. Eases database maintenance
58. The main purpose of a primary key is to \_\_\_\_.
59. Establish a connection to the database
60. Lock a database base record for reading and writing
61. Become a focal point for returning records in sorted order
62. Uniquely identify a record
63. A database record is equivalent to a \_\_\_\_.
64. Row in a table
65. Column in a table
66. A field in a table
67. A result set
68. Two queries combined using a UNION statement \_\_\_\_\_.
69. Will return a dataset with no duplicates
70. Will return a dataset sorted in descending order
71. Will create a temporary cursor
72. Must be made between two tables with equal columns
73. When aggregating data using a GROUP BY statement NULL values are ignored.
74. TRUE
75. FALSE
76. What is the limit of tables that can be joined together in one query?
77. 16
78. 64
79. 256
80. Database dependent
81. A LEFT JOIN would produce \_\_\_\_.
82. All rows from the left table whether it has a matching key in the right table or not
83. All rows from the left table that match the rows in the right table
84. All rows where the keys in both tables match
85. All rows in the left table mapped to all rows in the right table
86. One way to make database queries quicker is to add \_\_\_\_.
87. Foreign Keys
88. A Primary Key
89. An index
90. Triggers
91. A having clause and a where clause are equivalent if a group clause is not used.
92. TRUE
93. FALSE
94. Which of the following is true about an SQL constraint?
95. They are necessary to facilitate cascading deletes
96. They help make joins between tables faster
97. They specify rules for data in a table
98. They ensure a primary key is not a foreign key
99. Which of the following is NOT a type of database key?
100. Surrogate
101. Super
102. Master
103. Alternate

***Consider the following three tables for questions 34-40***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Movie**   |  |  |  |  | | --- | --- | --- | --- | | **movieId** | **title** | **genreId** | **genre** | | 1 | Speed | 1 | Horror | | 2 | Strength | 2 | War | | 4 | Size | 4 | Drama | | 8 | Shape | 2 | War | | **MovieActor**   |  |  | | --- | --- | | **movieId** | **actorId** | | 1 | 1 | | 1 | 3 | | 1 | 6 | | 2 | 4 | | 2 | 2 | | 8 | 6 | | 8 | 4 | | **Actor**   |  |  |  | | --- | --- | --- | | **actorId** | **name** | **dob** | | 1 | Bob | 1950-01-01 | | 2 | Sally | 1970-05-11 | | 3 | Jane | 2000-07-12 | | 4 | Carl | 1970-05-11 | | 5 | Jim | 1999-06-01 | | 6 | Sally | 1994-06-24 | |

1. If you delete the record in the Movie table with the movieId of 2, what would the next autoincremented value be?
2. 2
3. 3
4. 5
5. 9
6. How many rows would be created from the following query?

SELECT movieId FROM Movie WHERE movieId in (SELECT movieId FROM Movie)

1. None
2. 4
3. 8
4. 16
5. What would be the result of the following query?

SELECT name, MAX(dob) FROM Actor

1. Bob, 2000-07-12
2. Jane, 2000-07-12
3. Sally, 2000-07-12
4. Can not determine which name would be returned
5. How many joins would it take to find out how many actors were in the movie named “Speed”
6. 0
7. 1
8. 2
9. 3
10. How many rows would be returned from the following query

SELECT COUNT(\*) FROM Actor GROUP BY name

1. 0
2. 1
3. 5
4. 6
5. What type of table is the MovieActor table?
6. Mapping
7. System
8. Temporary
9. User-Defined
10. How would you get a list of all names that contained an ‘a’?
11. SELECT \* FROM Actor WHERE name CONTAINS("a")
12. SELECT \* FROM Actor WHERE name == "%a"
13. SELECT \* FROM Actor WHERE name LIKE "%a%"
14. SELECT \* FROM Actor WHERE name HAS "a"
15. What command would you use to create an index on a table.
16. CREATE INDEX
17. ALTER TABLE
18. NEW INDEX
19. BUILD INDEX
20. The datatype to store variable length string data is \_\_\_\_.
21. String
22. Char
23. Text
24. Varchar
25. An example of a nonrelational database would be
26. MongoDB
27. PostgresSQL
28. MariaDB
29. Azure
30. Traditionally DBAs would not be responsible for \_\_\_\_.
31. Data Integrity
32. Data Security
33. Database Recovery
34. Creation of Stored Procedures
35. Which of the following is true about an SQL trigger?
36. They are necessary to facilitate cascading deletes
37. They help make joins between tables faster
38. They specify rules for data in a table
39. They ensure a primary key is not a foreign key
40. A Database Tuple \_\_\_\_.
41. Describes the relationship between fields in a table
42. Is a database row
43. Is the collection of Key types on a table
44. Describes the rules of joining two tables
45. A representation of the structure of a database is a \_\_\_\_.
46. Semaphore
47. Scalar Function
48. Schema
49. Stack
50. One or more columns from a table that match the primary key in a referenced table is known as a \_\_\_\_.
51. Reference Key
52. Super Key
53. Composite Key
54. Foreign Key
55. The syntax to get unique results from a query would be – SELECT \_\_\_\_ field1 FROM table1.
56. ONLY
57. UNIQUE
58. DISTINCT
59. NARROW
60. What would the result of the following query?

SELECT field1, field2 FROM table1 GROUP BY field1 HAVING MAX(count) > 3

1. All fields rolled up by field1 where there are more than 3 field2 records per field1
2. All fields rolled up by field1 where the field named “count” is greater than 3
3. All fields rolled up by field1 where there are there are 3 or more field1 records per field one
4. Syntax Error