SQL DATABASE FUNDAMENTALS
(345)

REGIONAL – 2016

Multiple Choice:

Multiple Choice (50 @ 10 points each)　　　　_____ (500 points)

TOTAL POINTS　　　　_____ ***(500 points)***

Failure to adhere to any of the following rules will result in disqualification:
1. **Contestant must hand in this test booklet and all printouts. 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 or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.**
3. **Electronic devices will be monitored according to ACT standards.**

No more than 60 minutes testing time

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. A relational database is:
    a. A single table containing all the data
    b. A database that does not incorporate the table/key model
    c. uses the BASE system (basically available, soft-state, eventually consistent)
    d. a collection of data items organized as a set of formally-described tables from which data can be accessed

2. The acronym SQL stands for
    a. Standard Query Language
    b. Structured Quantitative Language
    c. Structured Query Language
    d. None of the above

3. Which of the following can SQL *not* do?
    a. execute queries against a database
    b. retrieve data from a database
    c. insert records in a database
    d. SQL can do all of the above

4. SQL can create views in a database.
    a. True
    b. False

5. SQL can set permissions on tables, procedures, and views.
    a. True
    b. False

6. SQL can create new tables in a database, but cannot create a new database.
    a. True
    b. False

7. SQL is an ANSI standard, what does the acronym ANSI stand for:
    a. American North Standards Institute
    b. Algorithmic Notations Standards Institute
    c. American National Standards Initiative
    d. None of the above

8. In order to create a website or Windows desktop application that accesses and displays data from a database, you will need:
    a. An RDBMS database program (i.e. MS Access, SQL Server, MySQL)
    b. To use a server-side scripting language, like PHP or ASP
    c. To use SQL to get the data you want
    d. All of the above

9. RDBMS is an acronym for Relational Database Monitoring System.
    a. True
    b. False

10. RDBMS is the basis for SQL, and for all modern database systems *except*:
    a. MS SQL Server
    b. IBM DB2
    c. RPG DB
    d. MySQL

11. A row is to a tuple as a column is to an attribute.
    a. True
    b. False

12. In relational databases, a table is a set of data elements (values) using a model of vertical rows (which are identified by their name) and vertical columns, the cell being the unit where a row and column intersect.
    a. True
    b. False

13. In flat file databases, a table
    a. is a set of data elements (values) using a model of vertical columns and horizontal rows
    b. cell is the unit where a row and column intersect
    c. has a specified number of columns, but can have any number of rows
    d. is all of the above

14. Tables can also be referred to as an array because they have similar properties.
    a. True
    b. False

15. Which of the following is *not* true about table names:
    a. They can have performance benefits
    b. They make databases self-documenting and easier to code against
    c. They should reflect their business meaning
    d. All of the above are true about table names

16. The definition of a Domain is:
    a. A normalized set of tables
    b. The possible values of an attribute, i.e. column
    c. The possible values of an attribute, i.e. row
    d. A collection of records

17. Which of the following is *true* about the domain of a database?
    a. The set of all entities that can be used in a database is called the domain of the database.
    b. Database domains can be finite or infinite.
    c. Most (but not all) database domains include strings and numbers as subsets, and hence they are infinite.
    d. All of the above are true.

18. A database schema:
    a. is the structure of a database system
    b. is described in a formal language supported by the database management system
    c. defines the tables, the fields in each table, and the relationships between fields and tables.
    d. All of the above are true about a database schema

19. Database schemas are generally stored in a data dictionary.
    a. True
    b. False

20. What is *not* true about a data dictionary?
    a. It is a file that defines the basic organization of a database.
    b. Is easily edited by the database users
    c. Contains a list of all files in the database,
    d. Contains the number of records in each file, and the names and types of each field.

21. In SQL Server, each column, local variable, expression, and parameter has a related data type. A data type is an attribute that specifies the type of data that the object can hold.
    a. True
    b. False

22. Which of the following is *not* a data type category of SQL Server?
    a. Exact Numerics
    b. Approximate Numerics
    c. ANSI character strings
    d. Unicode character strings

23. Which of the following is *not* a Date and Time data type in SQL Server?
    a. Datetime
    b. Smalldatetime
    c. Datetime2
    d. Datetimeinset

24. Which of the following is *not* an Exact Numeric data type in SQL Server?
    a. Float
    b. Int
    c. Decimal
    d. Tinyint

25. Which of the following are Character String data types in SQL Server?
    a. Char
    b. Varchar
    c. String
    d. Only a and b

26. Which of the following will be removed in a future version of Microsoft SQL Server?
    a. Nvarchar(max)
    b. Image
    c. Varchar
    d. Varbinary(max)

27. Which of the following is *not* consistent with good database design?
    a. Embrace data redundancy as a cross check
    b. Consider the current network, operating system, and software being used, including software that will interface with the database
    c. Database user requirements or user expectations
    d. Need for data to interface across multiple operating systems or be available to other programs

28. When a schema is created, it is owned by a principal. A principal is any entity or object that has access to SQL Server resources. Which of the following is included in SQL Server resources?
    a. Windows domain logins
    b. Database roles
    c. Application roles
    d. All of the above are SQL Server resources

29. Permissions are a set of defined levels of access to a securable and are applied individually or collectively to a securable.
    a. True
    b. False

30. SQL commands are generally grouped into four categories. Which of the following is not a category of SQL commands?
    a. DDL (Data Definition Language)
    b. DAL (Data Abstraction Language
    c. DML (Data Manipulation Language)
    d. DCL (Data Control Language)

31. Which of the following is an example of a DAL command?
    a. ALTER
    b. CREATE
    c. DROP
    d. None of the above are DAL commands

32. The CREATE command is used to create objects such as tables, indexes, views, stored procedures and triggers.
    a. True
    b. False

33. The following SQL Server T-SQL code is syntactically correct.
    CREATE TABLE dbo.Employee (EmployeeID int
    PRIMARY KEY CLUSTERED);
    a. True
    b. False

34. If the user does *not* supply a constraint name in a CREATE statement,
    a. a logical error will result
    b. a syntax error will be generated and the statement will not consummate
    c. the system will supply a constraint name
    d. SQL Server will ignore the constraint and the statement will consummate without reference to the constraint

35. A FOREIGN KEY constraint is used to reference another table. Foreign keys can be single-column keys or multicolumn keys.
    a. True
    b. False

36. The ALTER statement is used to accomplish which of the following in an existing database table?
    a. ADD
    b. DELETE
    c. MODIFY
    d. All of the above can be accomplished with the ALTER statement

37. ALTER TABLE does *not* acquire a schema modify (SCH-M) lock on the table to make sure that no other connections reference even the metadata for the table during the change.
    a. True
    b. False

38. You can change the length, precision, or scale of a column by specifying a new size for the column data type in the ALTER COLUMN clause.
    a. True
    b. False

39. Which of the following *update* statements are syntactically correct assuming the references to the table and field names are legitimate
    a. UPDATE Customers
       SET ContactName= "Alfred Schmidt", City="Hamburg"
       WHERE CustomerName= "Alfreds Futterkiste";
    b. UPDATE Customers
       USING ContactName='Alfred Schmidt', City='Hamburg'
       WHERE CustomerName='Alfreds Futterkiste';
    c. UPDATE TABLE Customers
       SET ContactName='Alfred Schmidt', City='Hamburg'
       WHERE CustomerName='Alfreds Futterkiste';
    d. UPDATE Customers
       SET ContactName='Alfred Schmidt', City='Hamburg'
       WHERE CustomerName='Alfreds Futterkiste';

40. In referencing the format notation for the UPDATE command: UPDATE *target* SET
    col_name1=..., the UPDATE target specifies a(n):
    a. Target table
    b. Cursor
    c. File to update
    d. All of the above

41. The SET clause in an UPDATE command specifies the columns in the table to update and
    their new values.
    a. True
    b. False

42. If you omit the WHERE clause, every row in the table is updated with the same value.
    a. True
    b. False

43. Which of the following is *not* removed by the DROP TABLE in SQL Server?
    a. Triggers
    b. Constraints
    c. Views
    d. Permissions

44. DROP TABLE can be used to drop a table that is referenced by a FOREIGN KEY
    constraint.
    a. True
    b. False

45. Which of the following is *not* true about the TRUNCATE TABLE command in SQL Server
    a. removes all rows from a table without logging the individual row deletions?
    b. is similar to the DELETE statement with no WHERE clause
    c. is slower than the DELETE command
    d. uses fewer system and transaction log resources

46. Which of the following are restrictions on the TRUNCATE TABLE command:
    a. The table is referenced by a FOREIGN KEY constraint
    b. The table participates in an indexed view
    c. The table was published using transactional or merge replication
    d. All of the above are restrictions

47. Aggregate functions perform a calculation on a set of values and return a single value.
    a. True
    b. False

48. Aggregate functions ignore null values *except* for which of the following functions?
    a. AVG
    b. COUNT
    c. MAX
    d. SUM

49. Aggregate functions can be used as expressions in the select list of a SELECT statement.
    a. True
    b. False

50. What is *not* true about NULL Values?
    a. A value of NULL indicates that the value is unknown
    b. A value of NULL is different from an empty or zero value
    c. All null values are equal
    d. Comparisons between two null values, or between a NULL and any other value, return unknown because the value of each NULL is unknown