Contestant Number: _____

Time: _____

Rank: _____

SQL DATABASE FUNDAMENTALS-PILOT (345)

REGIONAL – 2015

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

Mark on the Scantron scoring sheet the letter of the answer that best answers the question or completes/describes the statement. Mark A if the statement is true. Mark B if the statement is false. (10 pts. each). If you finish before the end of the 60 minutes testing, notify the proctor. Time may be a factor in determining the winner of the event of a tie.

1. What acronym refers to all of the major functions that are implemented in relational database applications?
   a. Atomize, Create, Insert, Delete (ACID)
   b. Optimize, Persist, Commit (OPC)
   c. Create, Persist, Commit, Implement (CPCI)
   d. Create, Read, Update, Delete (CRUD)

2. In database terminology, a data file consisting of plain text or binary data is referred to as a:
   a. Two dimensional file
   b. One dimensional file
   c. Flat file
   d. Text data file

3. 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

4. An RDBMS includes:
   a. Support the use of Data Manipulation Language
   b. Support the use of Structured Query Language
   c. The ability to enforce constraints
   d. All of the above

5. The advantage(s) of an RDBMS:
   a. Concurrent data access
   b. Increased data integrity
   c. a and b
   d. None of the above

6. A table is:
   a. A collection of rows and tuples
   b. A collection of rows, columns and relationships
   c. A collection of rows and columns
   d. A data structure that enables supporting class types

7. A table column in common database terminology is also referred to as a(n):
   a. Tuple
   b. Field
   c. Ionic
   d. Doric

8. Each table in a database must have:
   a. An ID field
   b. At least one record
   c. Boyce-Codd Normal Form applied
   d. A unique name

9. 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

10. The informal definition of the database term “attribute” is:
    a. Column
    b. Domain
    c. a and b
    d. None of the above

11. 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

12. The domain of a database is the set of legal values that can be assigned to an attribute.
    a. True
    b. False

13. Domain integrity is defined by:
    a. The data type and the length
    b. The NULL value acceptance
    c. The allowable values, through techniques like constraints or rules
    d. All of the above

14. Which of the following is inconsistent with Domain information?
    a. Data type
    b. Bitwise constraints
    c. Default value if any
    d. Length

15. A primary key must be:
    a. A value that will never change
    b. Composed of at least two fields
    c. A value that is likely to be null
    d. A numeric field that increments automatically

16. A foreign key:
    a. Is a field (or collection of fields) in one table that uniquely identifies a row of another table
    b. Cannot consist of a collection of fields
    c. Establishes relationships between two databases
    d. Must follow rules established in the data definition language for the database

17. A foreign key constraint:
    a. Does not have to be linked only to a primary key constraint in another table
    b. Can also be defined to reference the columns of a UNIQUE constraint in another table
    c. All of the above
    d. None of the above apply

18. Which of the following does *not* apply to primary keys?
    a. Creating a primary key automatically creates a corresponding unique, clustered or nonclustered index
    b. All columns defined within a PRIMARY KEY constraint must be defined as NOT NULL
    c. A table can contain only one PRIMARY KEY constraint
    d. All of the above apply to primary keys

19. Which of the following is *not* a category of data integrity:
    a. Entity integrity
    b. Domain integrity
    c. Tuple integrity
    d. User-defined integrity

20. Foreign key constraints ensure:
    a. Entity integrity
    b. Domain integrity
    c. Referential integrity
    d. Transaction integrity

21. Referential Integrity:
    a. States that you may not add a record to the table that contains the foreign key unless there is a corresponding record in the linked table
    b. Ensures that relationships between tables remain consistent
    c. a and b are correct
    d. None of the above are correct

22. Which of the following is *not* included in Referential Integrity logic:
    a. Cascaded update
    b. Restricted update
    c. Cascaded Implementation
    d. Restricted Delete

23. Orphaned records are caused by:
    a. Inserting a child record when no corresponding parent record exists
    b. Deleting a parent record, leaving the corresponding child records intact
    c. Changing a parent record's primary key value, so that the child records foreign
    d. All of the above

24. Characteristics of constraints with reference to database consist of the following *except*:
    a. Constraints let you define the way the Database Engine automatically enforces the integrity of a database
    b. Constraints define rules regarding the values allowed in columns
    c. Constraints are standard mechanism for enforcing integrity
    d. All of the above are characteristics of constraints

25. Constraints use existing indexes where possible, rather than creating new ones.
    a. True
    b. False

26. Using constraints is preferred to using DML Triggers, rules, and defaults.
    a. True
    b. False

27. Which of the following is a characteristic of data types:
    a. Within a table, every field must have an assigned data type
    b. A fields data type defines the possible range of values a field can contain
    c. a and b are true
    d. None of the above pertain to data types

28. A fields data type does *not* control the way in which values are stored in memory
    a. True
    b. False

29. Which range of values defines tinyint:
    a. Integer data from 0 through 143
    b. Integer data from 0 through 144
    c. Integer data from 0 through 255
    d. Integer data from 0 through 256

30. Which of the following is *not* a valid data type?
    a. bigint
    b. ntext
    c. bigmoney
    d. nvarchar

31. Approximate data types include which of the following:
    a. Float
    b. Double
    c. Real
    d. a and c are approximate data types

32. The acronym GUID stands for Global User ID
    a. True
    b. False

33. A GUID is a unique 128-bit number that is produced by the Windows OS or by some Windows applications to identify a particular component, application, file, database entry, and/or user.
    a. True
    b. False

34. What is *not* true about a GUID?
    a. A Web site may generate a GUID and assign it to a user's browser to record and track the session
    b. A GUID can be used in a Windows registry to identify COM DLLs
    c. Windows also identifies user accounts by a username (computer/domain and username) and assigns it a GUID
    d. GUIDs are not used as primary key values in databases

35. Which is *not* true when selecting appropriate data types for keys:
    a. Primary key fields must never contain NULL values
    b. Primary key values cannot have alpha data
    c. Avoid using fields that may have repeat values
    d. Primary key values cannot be changed

36. 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)

37. A data definition language (DDL) is a computer language used to create and modify the structure of database objects in a database. These database objects include, but are not limited to views, schemas, tables, indexes, etc.
    a. True
    b. False

38. The ALTER command can be used to do the following ***except***:
    a. Change the data type of columns involved in a database table
    b. Add an additional column
    c. Drop existing columns
    d. The ALTER command can do all of the above

39. There are no syntax errors or format errors in the following CREATE statement for MS SQL:
    CREATE TABLE Employee (Employee Id INTEGER PRIMARY KEY, First name CHAR (50) NULL, Last name CHAR (75) NOT NULL)
    a. True
    b. False

40. Which statement correctly renames the database EMP to EMPLOYEES:
    a. MODIFY DATABASE NAME emp TO employees
    b. ALTER DATABASE NAME emp TO employees
    c. CHANGE DATABASE MODIFY NAME emp TO employees
    d. ALTER DATABASE emp MODIFY NAME = employees

41. A database can be dropped regardless of its state.
    a. True
    b. False

42. Which of the following is true regarding database schemas:
    a. Refers to the layout of the database
    b. Is considered as the graphic model of a database
    c. Is stored in a data dictionary
    d. All of the above are true

43. The data dictionary, in database management systems, is a file that defines the basic organization of a database.
    a. True
    b. False

44. In MS SQL, the correct format for the DROP index statement is:
    a. DROP INDEX index_name ON table_name
    b. DROP INDEX table_name.index_name
    c. DROP INDEX index_name
    d. ALTER TABLE table_name DROP INDEX index_name

45. In order to create a table named “customers” with a primary key named “custID”, use the following MS SQL syntax (assume several more fields):
    a. CREATE TABLE customers (custID INT NOT NULL PRIMARY KEY,)
    b. CREATE TABLE NAME=customers (custID INT NOT NULL PRIMARY KEY,)
    c. CREATE TABLE customers (PRIMARY KEY =custID INT NOT NULL ,)
    d. CREATE TABLE NAME=customers (PRIMARY KEY =custID INT NOT NULL ,)

46. In MS SQL the parameter added to a field in order to auto increment that field is:
    a. INCREMENT 1
    b. AUTO_INC
    c. IDENTITY
    d. None of the above is a correct parameter

47. You want to add a foreign constraint referencing a table named OrdDetail to the below CREATE TABLE statement. Which MS SQL clause will syntactically accomplish this task?

```
CREATE TABLE Orders
(
O_Id int NOT NULL PRIMARY KEY,
OrderNo int NOT NULL
)
```

a. ordNum int FOREIGN KEY ordDetail(ordNum)
b. ordNum int REFERENCES FOREIGN KEY ordDetail(ordNum)
c. ordNum int FOREIGN KEY REFERENCES ordDetail(ordNum)
d. ordNum int CREATE FOREIGN KEY ordDetail(ordNum)

48. Any column(s) that can guarantee uniqueness is called a candidate key.
a. True
b. False

49. What does the SQL code in the following SQL clause define?

```
PRIMARY KEY (zipCode, PhoneNum)
```

a. A primary key and a foreign key
b. Two candidate keys that form one primary key
c. A composite key
d. The syntax is incorrect and is meaningless

50. The following code is syntactically correct:

```
ALTER TABLE Orders
DROP fk_PerOrders CONSTRAINT
```

a. True
b. False