**Multiple-Choice Quiz 1**

1. An E-Commerce system consists of the following components. Which of these same components must be included in a database? (a)

The data, such as information about the goods available for sale, customers, orders placed, shipping information, etc.

A database must include a collection of programs that control the data, such as programs to create, maintain, and manipulate the data. These programs can be easily used to create, maintain, and manipulate data in other domains.

A database must include a collection of programs that operate on the data, but are specific to the E-commerce system. These programs enable users to browse through the store-items, place orders, track shipping, etc.

(a) I only (b) I, II, and III

(c) II only (d) I and II only

2. In a database system, whose responsibility is it to provide data consistency? (b)

(a) the database administrator's (b) the DBMS's

(c) the user's (d) the application programmer's

3. An E-Commerce system consists of the following components. Which of the same components must be included in a database management system? (b)

The data, such as information about the goods available for sale, customers, orders placed, shipping information, etc.

A collection of programs must be included that control the data, such as programs to create, maintain, and manipulate the data. These programs can be easily used to create, maintain, and manipulate data in other domains, such as in a library information system.

A collection of programs that operate on the data, but are specific to the E-commerce system. These programs enable users to browse through the store-items, place orders, track shipping, etc.

(a) II and III only (b) II only

(c) I, II, and III (d) I only

4. An E-Commerce database contains data about customers, products, orders, system response times, etc. Which of the following can be specified as integrity constraints in an E-Commerce database system? (d)

No two products can have the same product ID.

The DBMS response time for all Web requests should be at most 2 seconds.

A customer order cannot have more than one shipping address.

(a) I, II, and III (b) I and II only

(c) I only (d) I and III only

5. An E-Commerce system consists of the following components. Which of these same components will constitute a database system? (c)

The data, such as information about the goods available for sale, customers, orders placed, shipping information, etc.

A collection of programs that control the data, such as programs to create, maintain, and manipulate the data constitutes a database system. These programs can be easily used to create, maintain, and manipulate data in other domains such as in a library information system.

A collection of programs that operate on the data, but are specific to the E-commerce system, constitutes a database system. These programs enable users to browse through the store-items, place orders, track shipping, etc.

(a) I only (b) II only

(c) I, II, and III (d) I and II only

6. A database is needed for which of the following application scenarios? (a)

A video store that needs to keep track of data about members, about videos carried by the store, about videos rented by members, as well as data concerning borrow-date, return-date, and payment information.

In the human resources department of a company, information about employees, their titles, their salaries and sick days, and about vacation days taken by each employee.

A computer-simulated video game which needs to calculate and display, the physical (x, y) location of each actor in the game, the speed with which they are moving at the current instant, the direction in which they are moving, the action they are performing, the angle at which the game-player is viewing the scene.

(a) I and II only (b) I only

(c) I and III only (d) I, II, and III

7. The physical storage structure will be \_\_\_\_\_ to the application programmer in a database approach, and will be \_\_\_\_\_ to the application programmer in a file system approach. (c)

(a) hidden, hidden (b) visible, visible

(c) hidden, visible (d) visible, hidden

**Multiple-Choice Quiz 2**

1. What information is necessary when specifying the structure of a table? (a)

(a) the name of the table, the names of the table's attributes, the data types of attributes, and the formats of attributes

(b) the name of the table and the names of the table's attributes

(c) the name of the table, the names of the table's attributes, the data types of the table's attributes, the formats of the table's attributes, and the maximum number of rows that the table can have

(d) the name of the table and the amount of storage space to be allocated to the table

2. The arity of a table is the number of \_\_\_\_\_ in the table. (b)

(a) keys (b) columns

(c) rows (d) foreign keys

3. The cardinality of a table is the number of \_\_\_\_\_ in the table. (c)

(a) keys (b) foreign keys

(c) rows (d) columns

4. The degree of a table is the number of \_\_\_\_\_ in the table. (c)

(a) key (b) rows

(c) columns (d) foreign keys

5. For two tables to be union compatible, the tables should be the same with respect to which of the following? (c)

(a) keys (b) cardinality

(c) degree (d) name

6. Which of the following SQL statements can be used to add a row to a table? (b)

(a) CREATE (b) INSERT

(c) APPEND (d) ADD

7. Which of the following SQL statements can be used to remove a row from a table? (a)

(a) DELETE (b) ERASE

(c) DESTROY (d) REMOVE

8. Which of the following SQL statements can be used to modify just one row (out of many rows) in a table? (d)

(a) MODIFY (b) CHANGE

(c) ALTER (d) UPDATE

9. The SQL clause to perform a set UNION operation is (d)

(a) MELD (b) UNITE

(c) COMBINE (d) UNION

10. The term query by example refers to (d)

(a) example SQL queries provided by other users that can be modified to suit current needs

(b) a query for SQL examples

(c) example SQL queries provided by the DBMS that users can modify to suit their current needs

(d) a visual query language developed by IBM

11. The foreign key in a table T1 \_\_\_\_\_ the same \_\_\_\_\_ as the corresponding primary key in table T2. (a)

must have, name

need not have, name

must have, domain

(a) II and III (b) I and III

(c) I and II (d) I, II, and III

12. DML is used to (a)

(a) add/modify/delete data in the database.

(b) manipulate the structure of database applications.

(c) add and delete tables.

(d) specify the structure of a database.

13. What can be specified in the selection condition of a SELECT statement? (a)

(a) a Boolean operation

(b) the time at which the selection should be performed

(c) an arithmetic operation

(d) the conditions under which the statement should be executed

14. Which of the following SQL statements can be used to create a relational table? (c)

(a) ADD (b) APPEND

(c) CREATE (d) INSERT

15. With Query By Example, a user enters a query by (c)

(a) placing SQL keywords, such as select, under the column names they want to retrieve

(b) typing a syntactically correct SQL query that uses column and table names similar to the correct column and table names in a database

(c) filling in skeleton tables of the database with examples of what is to be retrieved

(d) writing an English description of the data that the user needs

16. DDL is used to (b)

(a) access the contents of tables.

(b) specify the structure of a database.

(c) add contents to tables.

(d) define the structure of database applications.

17. A join operation joins \_\_\_\_\_ tables into \_\_\_\_\_. (c)

(a) four, two (b) three, one

(c) two, one (d) three, two

18. A difference operation can be applied to tables that (d)

(a) have the same name

(b) are the same size

(c) have the same column names

(d) are union compatible

19. The SQL clause to perform a set difference operation is (b)

(a) REJECT (b) EXCEPT

(c) DIFFER (d) OMIT

**Multiple-Choice Quiz 3**

1. When a string whose length is strictly less than n is entered as the value of a field whose SQL data type is VARCHAR(n), the system responds by (c)

(a) padding the end of the string with NULL characters to length n before storing it.

(b) padding the end of the string with spaces to length n before storing it.

(c) storing the string as is.

(d) re-prompting for the entry of a string whose length is exactly n.

2. In SQL, when destroying a database, the RESTRICT option removes (b)

(a) everything in the specified database: the data, schema, etc.

(b) the schema if the database has no data (empty tables)

(c) the data and schema from the specified database, but not from related databases

(d) the data but not the schema

3. In SQL, a database can be destroyed by which of the following? (c)

(a) the command DESTROY DATABASE

(b) a series of DESTROY TABLE commands

(c) the command DROP SCHEMA

(d) the command DELETE DATABASE

4. In SQL, when destroying a database, the CASCADE option removes (b)

(a) the data and schema from the specified database, and from related databases

(b) everything in the specified database: the data, schema, etc.

(c) the schema if the database has no data (empty tables)

(d) the data but not the schema

5. In SQL, one function of the AS operator is to (d)

(a) limit the cardinality of a relation

(b) define the domain of an attribute

(c) control the order in which a query’s rows are sorted

(d) customize the names of columns in a query’s result

6. In SQL, a database can be created by which of the following? (d)

(a) the command ADD DATABASE

(b) the command INSERT DATABASE

(c) a series of CREATE TABLE commands

(d) the command CREATE SCHEMA

7. When specifying a selection criterion in SQL, attributes can be renamed with which of the following operators? (b)

(a) @ (b) AS

(c) ALIAS (d) RENAME

8. In SQL, which of the following clauses can be used to sort results in ascending or descending order of attribute values? (b)

(a) GROUP BY (b) ORDER BY

(c) SORT (d) ARRANGE BY

9. In SQL, which of the following operators can be used to express searches that test for a range in a selection condition? (a)

(a) BETWEEN (b) FROM and TO

(c) RANGE (d) START and END

10. In a FROM clause of a SELECT statement in SQL, a table can be aliased with which of the following operators? (c)

(a) @ (b) ALIAS

(c) AS (d) RENAME

11. When removing a table from the schema, using the RESTRICT option would (b)

(a) remove the table and all other tables that the specified table refers to

(b) remove the table if there are no references to it

(c) remove the table and all references to it

(d) recursively remove the table and all other tables that the removed table refers to

**Multiple-Choice Quiz 4**

1. A horizontal view allows users access to (d)

(a) only the base tables

(b) only specific columns of the defining tables

(c) only the system tables

(d) only specific rows of the defining tables

2. Which of the following is true about views being up to date? (b)

(a) Views can be automatically made up to date periodically by the system.

(b) Views are always up to date.

(c) Views are up to date only after the synchronization operation by the user.

(d) Views are never up to date; there is always a lag time.

3. Which of the following is true about updateability of views? (b)

(a) A view is not updateable if it involves one table and contains a key.

(b) A view is not updateable if it involves aggregate functions and nested queries.

(c) A view is updateable under all circumstances.

(d) A view is not updateable under any circumstance.

4. Consider two tables, Employee(EmpNo, Name, DeptNo) and Department(DeptNo, Name, Manager) with primary keys being EmpNo and DeptNo respectively. The DeptNo attribute of the Employee table has a NOT NULL constraint and is a foreign key that references the DeptNo attribute of the Department table. The Manager attribute of the Department table has a NOT NULL constraint and is a foreign key that references the EmpNo attribute of the Employee table. When the tables are empty, the only way to insert rows into the two tables is (b)

(a) to use a transaction either in DEFERRABLE mode or in NOT DEFERRABLE mode

(b) to use a transaction in DEFERRABLE mode

(c) to use a transaction in NOT DEFERRABLE mode

(d) not to use a transaction at all

5. Which of the following referentially triggered actions are supported in SQL when a referential integrity constraint is violated? (b)

SET NULL

REJECT

CASCADE

SET DEFAULT

(a) I and IV only (b) I, III, and IV only

(c) I, II, and III only (d) II and III only

6. Which of the following commands can be used to remove access privileges associated with a table? (d)

(a) DENY (b) REMOVE

(c) RETRACT (d) REVOKE

7. Which of the following commands can be used to give access permissions to a table? (d)

(a) AUTHORIZE (b) ALLOW

(c) PERMIT (d) GRANT

8. Who can always give access permissions to a table? (b)

(a) only the super-user

(b) the owner of the table

(c) the user of the table

(d) only the database administrator (DBA)

9. When is embedded SQL referred to as dynamic SQL? (c)

(a) when the embedded SQL always returns different sets of results

(b) when the SQL statements are changed in every run

(c) when the embedded SQL is translated into DBMS calls at run-time

(d) when the embedded SQL operates on the dynamic part of the database

10. When is embedded SQL referred to as static SQL? (b)

(a) when the embedded SQL operates on the static part of the database

(b) when the embedded SQL is translated into DBMS calls at compile-time

(c) when the SQL statements can never be changed

(d) when the embedded SQL always returns the same set of results

11. Which of the following is true about updateability of views? (b)

(a) A view is not updateable under any circumstance.

(b) A view is updateable if it involves one table and contains a key.

(c) A view is updateable if it involves one table and does not contain a key.

(d) A view is updateable if it involves multiple tables and no keys.

12. A vertical view allows users access to (c)

(a) only specific rows of the defining tables

(b) only the system tables

(c) only specific columns of the defining tables

(d) only the user tables

13. The SQL keyword \_\_\_\_\_ makes the modifications of the transaction permanent,

while the SQL keyword \_\_\_\_\_ discards the modifications of the transaction. (c)

(a) WRITE, ABORT (b) UPDATE, SELECT

(c) COMMIT, ROLLBACK (d) SAVE, CANCEL

**Multiple-Choice Quiz 5**

1.In an ER model, which of the following is true about a component attribute? (b)

(a) A component attribute is always atomic.

(b) A component attribute can be a composite attribute.

(c) Component attributes must always be combined by an aggregation operation.

(d) A component attribute always contains other components.

2.In the Entity-Relationship model, a derived attribute is one (c)

(a) that is composed of multiple atomic attributes

(b) that may have multiple values simultaneously

(c) whose value can be computed from the values of other attributes

(d) that characterizes a relationship instead of an entity

3.What is an identifying owner in an ER model? (d)

(a) The entity upon which a strong entity's existence depends

(b) The relationship that identifies a weak entity's owner

(c) The relationship that identifies a strong entity's owner

(d) The entity upon which a weak entity's existence depends

4.Which of the following is true about storage for derived attributes? (b)

(a) Derived attributes are usually stored because storage improves retrieval performance.

(b) Derived attributes are usually not stored because they can be computed.

(c) Derived attributes must not be stored.

(d) Derived attributes must be stored.

5.In an ER model, the cardinality ratio of a relationship type is (a)

(a) the number of relationships of that relationship type in which an entity can participate

(b) the number of entity types involved in that relationship type

(c) the minimum number of entities that can participate in that relationship type

(d) the number of instances of relationships of that relationship type

6.In the Entity-Relationship model, properties that characterize entities and relationships are modeled as (d)

(a) entity types b) participation constraints

(c) weak entities d) attributes

7.A weak entity type implies a (a)

(a) relationship with total participation constraint

(b) strong relationship type

(c) relationship with partial participation constraint

(d) weak relationship type

8.In EER modeling, generalization is the process of generating (a)

(a) superclasses out of subclasses

(b) entities out of attributes

(c) subclasses out of superclasses

(d) attributes out of entities

9.When mapping from an ER model to a relational model, a strong entity is mapped into a (d)

(a) key (b) row

(c) column (d) table

10.Which of the following is true about attributes in a relational model? (d)

Attributes can be multi-valued.

Attributes can be composite.

(a) Both I and II I only

(c) II only Neither I nor II

11. In an ER model, what is a recursive relationship type? (d)

(a) The relationship type where the related entities are one and the same

(b) The type of relationship that does not belong anywhere

(c) A never-ending type of relationship

(d) The type of relationship between entities of one entity type

12. In the Entity-Relationship model, the degree of a relationship specifies which of the following? (c)

(a) The cardinality ratio of the relationship

(b) The number of attributes that characterize the relationship

(c) The number of entities that participate in the relationship

(d) The number of integrity constraints required to implement the relationship

**Multiple-Choice Quiz 6**

1.Which of the following statements concerning normal forms is true? (d)

(a) The lower the normal form number, the better the schema design is.

(b) Schemas that are in second normal form are considered the best.

(c) Each normal form contains a state of independent properties, unrelated to other normal forms.

(d) A relation that is in second normal form is also in first normal form.

2.Which of the following is a property (are properties) exhibited by good relational schemas? (a)

The use of null values in tuples

The grouping of as many attributes as possible into one main table

The elimination of data redundancy to avoid update anomalies

(a) III only

(b) I and II only

(c) None

(d) II and III only

3.Consider the following functional dependency. (a)

{A, B} -> {C}

Regarding this dependency, which of the following statements is (are) true?

The values of C are uniquely determined by the values of A.

The values of A are uniquely determined by the values of C.

(a) None

(b) I only

(c) I and II

(d) II only

4.Through normalization, update anomalies (b)

(a) is usually left unchanged

(b) can be eliminated

(c) can be minimized but not eliminated

(d) can be maximized

5.Which of the following problems can be caused by data redundancy in a relational schema? (d)

Inefficient use of space

Update anomalies and possible loss of data

Inefficient use of processing time

(a) I and II only b) II only

(c) I and III only d) I, II, and III

6.For a relation to be in 2NF, \_\_\_\_\_ attribute must be fully functionally dependent on \_\_\_\_\_. (d)

(a) every alternate key, the primary key

(b) every non-key, every key

(c) every non-key, at least one key

(d) every non-primary-key, the primary key

7.Consider a table with atomic attributes A, B, and C and the following functional dependencies. (a)

A -> B

B -> C

If the primary key of this table is attribute A, then this relation satisfies which of the following normal forms?

First

Second

Third

(a) I and II only b) I, II and III

(c) None ) I only

8.The FD X -> Y is a full dependency in a relation R, if there is \_\_\_\_\_ attribute A that can be \_\_\_\_\_ X and the dependency still holds. (d)

(a) at least one, added to

(b) at least one, removed from

(c) no, added to

(d) no, removed from

9.The FD X -> Y is a partial dependency in a relation R, if there is \_\_\_\_\_ attribute A that can be \_\_\_\_\_ X and the dependency still holds. (d)

(a) no, removed from

(b) at least one, added to

(c) no, added to

(d) at least one, removed from

10.For a relation to be in 3NF, it should not contain \_\_\_\_\_ attribute that is transitively dependent on \_\_\_\_\_. (a)

(a) a non-primary key, the primary key

(b) a non-primary key, a foreign key

(c) a primary key, a foreign key

(d) a primary key, a non-primary key

11. Through normalization, data redundancy (a)

(a) can be eliminated

(b) are usually left unchanged

(c) can be minimized but not eliminated

(d) can be maximized

**Multiple-Choice Quiz 7**

1. All changes made by a committed transaction can be recovered (b)

(a) only if there have been no hardware failures

(b) irrespective of whether there have been hardware or software failures

(c) only if there have been no software failures

(d) only if there have been no software AND no hardware failures

2. Is it possible for a valid transaction to see the modified, yet uncommitted data of another valid transaction when the isolation level is set to SERIALIZABLE? (a)

(a) It is not possible for a transaction to see the modified, yet uncommitted, data of another transaction, even if both transactions are working on the same data, and even if both transactions are concurrent.

(b) It is possible for a transaction to see the modified, yet uncommitted, data of another transaction, only if both transactions work on the same data, AND both transactions are concurrent.

(c) It is possible for a transaction to see the modified, yet uncommitted, data of another transaction only if both transactions work on the same data, AND both transactions are NOT concurrent.

(d) It is possible for a transaction to see the modified, yet uncommitted, data of another transaction even if both transactions are not working on the same data, AND even if both transactions are NOT concurrent.

3. A livelock occurs when (c)

(a) a transaction holding a lock is aborted

(b) an aborted transaction holding a lock is restarted

(c) a transaction is aborted and restarted repeatedly

(d) 2 or more transactions wait indefinitely because each holds the data items of another

4. In a two-phase locking protocol, what happens during the growing phase? (a)

(a) The transaction can acquire locks, but cannot release its locks.

(b) The transaction can acquire locks, and can release its locks as long as the number of acquired locks is greater than the number of released locks.

(c) The transaction can acquire locks, and can release its locks.

(d) The transaction cannot acquire locks, but can release its locks.

5. An exclusive lock on a data item represents permission to perform which of the operations, read and write, on the data item? (a)

(a) Both read and write (b) Write only

(c) Read only (d)Neither read nor write

6. The strict two-phase locking protocol is \_\_\_\_\_ to implement. (a)

(a) the easiest two-phase locking protocol

(b) easier than most two-phase locking protocols

(c) more difficult than most two-phase locking protocols

(d) the most difficult two-phase locking protocol

7. In a two-phase locking protocol, what happens during the shrinking phase? (a)

(a) The transaction cannot acquire locks, but can release its locks.

(b) The transaction can acquire locks, but cannot release its locks.

(c) The transaction can acquire locks, and can release its locks.

(d) The transaction can acquire locks, and can release its locks as long as the number of released locks is greater than the number of acquired locks.

8. During recovery, in which of the following ways are the before and after images used by the undo and redo actions? (d)

undo action uses the before image

undo action uses the after image

redo action uses the after image

redo action uses the before image

(a) I, II, III, and IV b) I, III, and IV only

(c) I, II, and III only (d) I and III only

9. Force propagation policy \_\_\_\_\_ redo actions, and no-force propagation policy \_\_\_\_\_ redo actions. (d)

(a) does not require, does not require

(b) requires, does not require

(c) requires, requires

(d) does not require, requires

10. Immediate update policy \_\_\_\_\_ undo actions, and deferred update policy \_\_\_\_\_ undo actions. (b)

(a) requires, requires

(b) requires, does not require

(c) does not require, does not require

(d) does not require, requires

**Multiple-Choice Quiz 8**

1. How does chained overflow solve the problem of collisions in hashing? (b)

(a) The first available slot in the overflow area where slots are chained using a hash function is used.

(b) The first available slot in a linked list of overflow buckets that is connected to the hashed bucket is used.

(c) The first available slot in a linked list of slots that is connected to the collision slot is used.

(d) The first available empty bucket in a chained list of buckets is used.

2. Collisions occur in hashing when (b)

(a) a record hashes to two locations

(b) a new record hashes to a location already occupied by an existing record

(c) all overflow buckets are full

(d) a hash function is static

3. Hashing exhibits the best performance for (a)

(a) equality searches involving the key, provided the key is used for hashing

(b) ordering query results based on the key used for hashing

(c) sequential scan of the entire table

(d) range queries

4. Each index entry in an index file contains (c)

an indexing value

a pointer to the page where the record with the value appears

an indexing function

(a) III only

(b) I, II, and III

(c) I and II only

(d) I only

5. A sparse index contains entries for (a)

(a) some records of a table

(b) all fields of a table

(c) some fields of a table

(d) all records of a table

6. A secondary index is an index defined on a(n) \_\_\_\_\_ field. (c)

(a) primary key

(b) ordering

(c) non-ordering

(d) alternate key

7. Which of the following can be used to measure hard disk drive performance? (c)

Seek time

Rotational latency

Block transfer time

(a) II and III only (b) II only

(c) I, II, and III (d) I only

8. The term block transfer time refers to the amount of time it takes to (c)

(a) load the address of a disk block from an index

(b) position the appropriate disk block under the read/write head

(c) read data from a disk

(d) move the read/write head to the appropriate track on the disk

9. To improve the performance of a database, (b)

(a) never use buffering when transferring data between secondary storage and main memory

(b) minimize the amount of data transferred between secondary storage and main memory

(c) never use hash files when deciding on an appropriate indexing structure

(d) always use hash files when deciding on an appropriate indexing structure

10. A cylinder of a multi-platter hard disk consists of (d)

(a) the outermost track

(b) the innermost track

(c) tracks with different diameters

(d) tracks with the same diameter

11. A primary index \_\_\_\_\_ defined on a key field, and a secondary index \_\_\_\_\_ defined on a key field. (d)

(a) need not be, should not be

(b) need not be, need not be

(c) should be, should not be

(d) should be, need not be

12. The term blocking factor refers to the number of (a)

(a) database records that can be stored on a disk block

(b) cylinders on a hard disk drive

(c) disk blocks that form a track

(d) disk blocks that are on a hard disk drive platter

13. Where do heap files add new records? (c)

(a) at random locations in the heap file

(b) in the middle of the heap file

(c) at the end of the heap file

(d) at the beginning of the heap file

14. Which of the following are properties of a good hash function? (b)

It should be computed efficiently.

It should minimize the number of collisions by spreading keys as evenly and uniformly as possible.

It should always use the Modulo (MOD) function.

(a) I only (b) I and II only

(c) II only (d) III only

15. A primary ISAM is a \_\_\_\_\_ index, and a secondary ISAM is a \_\_\_\_\_ index. (d)

(a) dense, dense

(b) dense, sparse

(c) sparse, sparse

(d) sparse, dense

**Exam 1 Multiple-Choice**

1.With respect to a relational table, what is a key? (a)

(a) A minimal subset of columns that uniquely identifies a row in the table

(b) The ID and password needed to access the table

(c) The subset of all the rows and columns in the table that are visible to all users in the database system

(d) The one column that uniquely identifies a row in the table

2.Which of the following is true about the number of primary keys and alternate keys with respect to a table? (b)

(a) There can be many primary keys, but only one alternate key.

(b) There can be only one primary key, but many alternate keys.

(c) There can be only one primary key and only one alternate key.

(d) There can be many primary keys and many alternate keys.

3.An insertion operation will \_\_\_\_\_ if the insertion violates the uniqueness property of a key. (c)

(a) succeed with warning (b) crash the system

(c) fail (d) succeed without warning

4.An insertion operation will \_\_\_\_\_ if the inserted primary key has a NULL value. (c)

(a) succeed with warning (b) succeed without warning

(c) fail (d) crash the system

5.For two tables to be union compatible, corresponding columns from each table should have which of the following? (c)

(a) different domains (b) different names

(c) the same domain (d) the same name

6.In the relational model, which of the following is true about the data type of a column? (d)

(a) It need not be atomic and it cannot be an abstract data type.

(b) It must be atomic and it cannot be an abstract data type.

(c) It need not be atomic and it can be an abstract data type.

(d) It must be atomic and it can be an abstract data type.

7.What is an alternate key? (a)

(a) Any key that is not a primary key

(b) The key to use when the primary key does not work

(c) A key that was added to the table after the table was designed

(d) A key that will become the primary key when the primary key is deleted

8.What does a projection operation do? (d)

(a) It extends the number of columns in a table.

(b) It selects rows from a table.

(c) It extends the number of rows in a table.

(d) It selects columns from a table.

9.The result of a set difference operation r - s will be (d)

(a) tuples in r after deducting their values by the corresponding values in the tuples in s

(b) tuples in s after deducting their values by the corresponding values in the tuples in r

(c) those tuples that are in s but not in r

(d) those tuples that are in r but not in s

10.Which of the following is true about primary keys and foreign keys holding NULL value? (d)

(a) A primary key can hold a NULL value and a foreign key cannot hold a NULL value

(b) A primary key cannot hold a NULL value and a foreign key cannot hold a NULL value

(c) A primary key can hold a NULL value and a foreign key can hold a NULL value

(d) A primary key cannot hold a NULL value and a foreign key can hold a NULL value

11.In contrast to \_\_\_\_\_ tables, a view refers to \_\_\_\_\_. (a)

(a) base, a virtual table (b) empty, non-empty tables

(c) non-empty, empty tables (d) virtual, base tables

12.When removing a table from the schema, using the CASCADE option would (a)

(a) remove the table and all references to it

(b) recursively remove the table and all other tables that the removed table refers to

(c) remove the table and all other tables that the specified table refers to.

(d) remove the table if there are no references to it

13.In a transaction, COMMIT specifies that (b)

(a) all updates (including inserts, deletes, modifications) of a transaction are about to be made permanent in the database

(b) all updates (including inserts, deletes, modifications) of a transaction are to be made permanent in the database

(c) only the inserts and deletes of a transaction are to be made permanent in the database

(d) only the inserts and deletes of a transaction are about to be made permanent in the database

14.Which of the following is true about the physical storage of tables defined by views? (b)

(a) Extra physical storage is needed for storing the tables defined by views, only if views define

additional non-existing columns.

(b) There is no extra physical storage needed to store tables that a view defines.

(c) Extra physical storage is always needed to store tables that a view defines.

(d) Extra physical storage is needed to store tables that a view defines, only when rows are inserted into the view.

15.Which of the following SQL commands can be used to change, add, or drop column definitions from a table? (d)

(a) MODIFY TABLE (b) UPDATE TABLE

(c) CHANGE TABLE (d) ALTER TABLE

16.Which of the following SQL commands can be used to destroy and remove a table from the schema? (a)

(a) DROP TABLE (b) DESTROY TABLE

(c) REMOVE TABLE (d) DELETE TABLE

17.In SQL, which of the following operators are used to check for set membership in a SELECT statement? (b)

(a) MEMBER and NOT MEMBER (b) IN and NOT IN

(c) SUBSET and NOT SUBSET (d) COMPONENT and NOT COMPONENT

18.In SQL, the results of a \_\_\_\_\_ statement can be used to process a \_\_\_\_\_ statement. (b)

(a) INSERT, SELECT

(b) SELECT, INSERT

(c) INSERT, DELETE

(d) DELETE, INSERT

19.In a transaction, a ROLLBACK is used to (c)

(a) roll all the updates (including inserts, deletes, modifications) of an aborted transaction into the database

(b) roll only the inserts and deletes of an aborted transaction into the database

(c) discard all the updates (including inserts, deletes, modifications) of a transaction from the database

(d) discard only the inserts and updates of a transaction from the database

20.When a string whose length is strictly less than n is entered as the value of a field whose SQL data

type is CHAR(n), the system responds by (a)

(a) padding the end of the string with spaces to length n before storing it

(b) padding the end of the string with NULL characters to length n before storing it

(c) re-prompting for the entry of a string whose length is exactly n

(d) storing the string as is

**Exam 2 Multiple-Choice**

1.Database design typically consists of which of the following phases (a)

Conceptual design

Logical design

Physical design

(a) I, II, and III (b) II only

(c) II and III only (d) I only

2.The term physical data independence refers to the ability to change (b)

(a) the application programs without changing the conceptual schema

(b) the physical layout of the data without changing the external schemas, the conceptual schemas,

or the application programs

(c) the data without physically relocating the tables

(d) the conceptual schema without changing the application programs

3.What attributes does a subclass have (c)

(a) A subset of the attributes of its superclass

(b) None of the attributes of its superclass

(c) All the attributes of its superclass, and possibly more

(d) Just the attributes from the superclass

4.Relationships in an ER model are primarily translated to which of the following in a relational model (c)

(a) dummy relationship tables (b) relationships

(c) primary keys and foreign keys (d) three-way tables

5.Y is transitively dependent on X, if (c)

(a) X - Y and A – Y (b) X - A, B and Y - A, B

(c) X - A, B and A – Y (d) X - Y and Y - A

6.In EER modeling, specialization is the process of generating (b)

(a) attributes out of entities (b) subclasses out of superclasses

(c) entities out of attributes (d) superclasses out of subclasses

7.In an ER model, what is the degree of a relationship type (a)

(a) The number of entity types participating in the relationship type

(b) The strength of the relationship type

(c) The number of instances of the relationship type

(d) The validity of the relationship type

8.In an ER model, a derived attribute is one whose values (d)

(a) have been derived at some time in the past

(b) can be derived from another table

(c) can be derived from the system tables

(d) can be derived from the values of some other attributes

9.If X - Y, which of the following would make Y fully dependent on X (d)

(a) Y is a single attribute (b) Y consists of multiple attributes

(c) X consists of multiple attributes (d) X is a single attribute

10.A relational schema is in first normal form, if the domain of all of its (d)

(a) primary keys and alternate keys are not multi-valued (b) primary keys are not multi-valued

(c) primary keys are not composite (d) attributes can take on only atomic values