CSIS 3222, Final Exam, Fall 2008, Chapters 2, 5, 6 (excluding subtypes & recursive relationship)

Part I: MULTIPLE CHOICE. (3 points each)
Choose the one alternative that best completes the statement or answers the question.

1) Which of the following is not a key element of an E-R model?
  A) Identifiers
  B) Objects
  C) Entities
  D) Relationships
  E) Attributes

2) Entities of a given type are grouped into a(n) _____.
  A) entity attribute
  B) entity class
  C) entity relationship
  D) entity instance
  E) None of the above.

3) Attributes may be _____.
  A) multivalued
  B) element
  C) composite
  D) both composite and multivalued
  E) both element and multivalued

4) An entity whose existence depends on the presence of another entity, but whose identifier does not include the identifier of the other entity is a(n) _____.
  A) ID-dependent entity
  B) weak entity
  C) strong entity
  D) strong entity and ID-dependent entity
  E) weak entity and ID-dependent entity

5) Each attribute of an entity becomes a _____ of a table.
  A) primary key
  B) alternate key
  C) foreign key
  D) column
  E) primary key or alternate key

6) The first step in transforming an extended E-R model into a relational database design is to ____.
  A) evaluate the entities against the normalization criteria
  B) document referential integrity constraints
  C) create a table for each relationship
  D) remove any recursive relationships
  E) create a table for each entity

7) A surrogate key should be considered when _____.
  A) a composite key is required
  B) a relationship is M:N
  C) an index needs to be created
  D) the key contains a lengthy text field
  E) the key contains a number

8) Maximum cardinality refers to _____.
  A) the minimum number of entity classes involved in a relationship
  B) whether or not an instance of one entity class is required to be related to an instance of another entity class
  C) the most instances of one entity class that can be involved in a relationship instance with another entity class
  D) whether or not an entity is a weak entity
  E) None of the above.

9) The occurrence of a particular entity is called a(n) _____.
  A) entity relationship
  B) entity attribute
  C) entity class
  D) entity instance
  E) None of the above.

10) For a relationship to be considered a binary relationship it must satisfy which of the following conditions?
  A) It must have a maximum cardinality of 1:1.
  B) It must involve exactly two entity classes.
  C) It must have a maximum cardinality of 1:N.
  D) It must involve exactly two entity classes and it must have a maximum cardinality of 1:1
  E) It must involve exactly two entity classes and it must have a maximum cardinality of 1:N

11) To represent a one-to-many relationship in a relational database design _____.
  A) the keys of both tables are joined into a composite key
  B) the key of the parent is placed as a foreign key into the child
  C) the key of the child is placed as a foreign key into the parent
  D) an intersection table must be created

E) the key of the table on the "many" side is placed in the table on the "one" side

12) When transforming an E-R data model into a relational database design, the key of the parent entity should be placed as part of the primary key into the child entity _____.
  A) when the child entity is ID-dependent
  B) when the child entity is non-ID-dependent
  C) when the child entity has a 1:N relationship with the parent entity
  D) when the child entity has a recursive relationship with the parent entity
  E) when the child entity has a 1:1 relationship with the parent entity

13) Many-to-many relationships are represented by _____.
  A) by an intersection table which has M:N relationships with the two tables
  B) by two intersection table which each have 1:N relationships with the two tables
  C) two tables with an M:N relationship
  D) two tables with a 1:N relationship
  E) by an intersection table which has 1:N relationships with the two tables

14) In many-to-many relationships in a relational database design _____.
  A) the key of the parent is placed as a foreign key into the child
  B) the key of the child is placed as a foreign key into the parent
  C) the keys of both tables are placed in a third table
  D) the keys of both tables are joined into a composite key
  E) the keys of both tables are placed in a third table and the keys of both tables are joined into a composite key

15) In many-to-many relationships in a relational database design _____.
  A) the intersection table is ID-dependent on one of the parents
  B) one of the parents is always required for a child in the intersection table
  C) the intersection table is ID-dependent on both of the parents
  D) both of the parents are always required for a child in the intersection table
  E) the intersection table is ID-dependent on both of the parents and both of the parents are always required for a child in the intersection table

Part II: SQL (5 points each)

tblCustomer

CustNO	CustName	Balance	SalesRepNo
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

Given tblCustomer shown above, write a single SQL query to solve the following problems:

1) Display the names and balances of all customers with a balance of at least 500.

2) Display the customer names of all customers associated with SalesRepNo 345 or 654 (Do not use the IN operator.).

3) Use the IN operator to display the customer names of all customers associated with SalesRepNo 345 or 654.

4) Find the average balance for all customers.

5) Find the sum of the balances for each SalesRepNo