CHAPTER 5: ADVANCED DATA MODELING

1. The entity supertype contains common characteristics, and the entity subtypes each contain their own unique characteristics.
   a. True
   b. False

   ANSWER: True
   PTS: 1 DIF: Difficulty: Easy REF: p.171
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

2. Entity supertypes and subtypes are organized in a specialization hierarchy.
   a. True
   b. False

   ANSWER: True
   PTS: 1 DIF: Difficulty: Easy REF: p.171
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

3. The relationships depicted within the specialization hierarchy are sometimes described in terms of "is-a" relationships.
   a. True
   b. False

   ANSWER: True
   PTS: 1 DIF: Difficulty: Easy REF: p.171
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

4. Within a specialization hierarchy, a supertype can exist only within the context of a subtype.
   a. True
   b. False

   ANSWER: False
   PTS: 1 DIF: Difficulty: Easy REF: p.171
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

5. One important inheritance characteristic is that all entity subtypes inherit their primary key attribute from their supertype.
   a. True
   b. False

   ANSWER: True
   PTS: 1 DIF: Difficulty: Easy REF: p.172
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

6. A subtype contains attributes that are common to all of its supertypes.
   a. True
   b. False

   ANSWER: False
   PTS: 1 DIF: Difficulty: Easy REF: p.172
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

7. At the implementation level, the supertype and its subtype(s) depicted in the specialization hierarchy maintain a 1:1 relationship.
   a. True
   b. False

   ANSWER: True
   PTS: 1 DIF: Difficulty: Easy REF: p.173
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

8. Entity subtypes do not inherit the relationships in which the supertype entity participates.
   a. True
   b. False

   ANSWER: False
   PTS: 1 DIF: Difficulty: Easy REF: p.173
   NAT: BUSPROG: Technology STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

9. In specialization hierarchies with multiple levels of supertype and subtypes, a lower-level subtype can inherit only a few of the attributes and relationships from its upper-level supertypes.
   a. True
   b. False

   ANSWER: False
   PTS: 1 DIF: Difficulty: Moderate REF: p.173
   NAT: BUSPROG: Analytic STATE: DISC: Information Technology
   KEY: Bloom's: Comprehension TOP: The Extended Entity Relationship Model

10. The property of a subtype discriminator enables an entity supertype to inherit the attributes and relationships of the subtype.
    a. True
    b. False

    ANSWER: False
    PTS: 1 DIF: Difficulty: Easy REF: p.173
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

11. An entity supertype can have disjoint or overlapping entity subtypes.
    a. True
    b. False

    ANSWER: True
    PTS: 1 DIF: Difficulty: Easy REF: p.173
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

12. Disjoint subtypes are subtypes that contain nonunique subsets of the supertype entity set.
    a. True
    b. False

    ANSWER: False
    PTS: 1 DIF: Difficulty: Easy REF: p.174
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

13. Overlapping subtypes are subtypes that contain a unique subset of the supertype entity set.
    a. True
    b. False

    ANSWER: False
    PTS: 1 DIF: Difficulty: Easy REF: p.174
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

14. Implementing overlapping subtypes requires the use of one discriminator attribute for each subtype.
    a. True
    b. False

    ANSWER: True
    PTS: 1 DIF: Difficulty: Easy REF: p.175
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

15. Implementing nonoverlapping subtypes requires the use of one discriminator attribute for each subtype.
    a. True
    b. False

    ANSWER: False
    PTS: 1 DIF: Difficulty: Easy REF: p.175
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

16. The completeness constraint can be partial or total.
    a. True
    b. False

ANSWER: True
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

17. Specialization is the top-down process of identifying lower-level, more specific entity subtypes from a higher-level entity supertype.
a. True
b. False

ANSWER: True
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

18. Generalization is based on grouping unique characteristics and relationships of the subtypes.
a. True
b. False

ANSWER: False
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

19. An entity cluster is a "virtual" entity type used to represent multiple entities and relationships in the ERD.
a. True
b. False

ANSWER: True
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Clustering

20. The function of the primary key is to describe an entity.
a. True
b. False

ANSWER: False
PTS: 1 DIF: Difficulty: Easy REF: p.178
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

21. To model time-variant data, one must create a new entity in an M:N relationship with the original entity.
a. True
b. False

ANSWER: False
PTS: 1 DIF: Difficulty: Moderate REF: p.184
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: Design Cases: Learning Flexible Database Design

22. A design trap occurs when a relationship is improperly or incompletely identified and is therefore represented in a way that is not consistent with the real world.
    a. True
    b. False

    ANSWER: True
    PTS: 1 DIF: Difficulty: Easy REF: p.186
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

23. Some designs use redundant relationships as a way to simplify the design.
    a. True
    b. False

    ANSWER: True
    PTS: 1 DIF: Difficulty: Easy REF: p.187
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

24. The extended entity relationship model (EERM) is sometimes referred to as the_____.
    a. enclosed entity relationship model b. enhanced entity relationship model
    c. entity clustering relationship model d. extended entity relationship diagram

    ANSWER: b

    PTS: 1 DIF: Difficulty: Easy REF: p.170
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

25. _____is a generic entity type that is related to one or more entity subtypes.
    a. A subtype discriminator b. Inheritance
    c. A specialization hierarchy d. An entity supertype

    ANSWER: d
    PTS: 1 DIF: Difficulty: Easy REF: p.171
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

26. The_____depicts the arrangement of higher-level entity supertypes (parent entities) and lower-level entity subtypes (child entities).
    a. subtype discriminator b. inheritance
    c. specialization hierarchy d. entity supertype

    ANSWER: c
    PTS: 1 DIF: Difficulty: Easy REF: p.171
    NAT: BUSPROG: Technology STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

27. Within a specialization hierarchy, every subtype can have_____supertype(s) to which it is directly related.
a. zero b. only one
c. one or many d. many

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.171-172
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

28. A specialization hierarchy can have_____level(s) of supertype/subtype relationships.
a. zero b. only one
c. one or many d. many

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.172
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

29. The property of_____enables an entity subtype to inherit the attributes and relationships of the supertype.
a. subtype discriminator b. inheritance
c. specialization hierarchy d. entity supertype

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.172
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

30. One important inheritance characteristic is that all entity subtypes inherit their_____key attribute from their supertype.
a. primary b. natural
c. foreign d. surrogate

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.172
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

31. At the implementation level, the supertype and its subtype(s) depicted in a specialization hierarchy maintain a(n)_____relationship.
a. self-referencing b. 1:1
c. 1:M d. M:N

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.173
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

32. A(n)_____is the attribute in the supertype entity that determines to which entity subtype each supertype occurrence is related.

a. subtype discriminator b. inheritance discriminator

c. specialization hierarchy d. entity supertype

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.173
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

33. The default comparison condition for the subtype discriminator attribute is the_____comparison.

a. nonequality b. less than

c. greater than d. equality

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.173
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

34. Which of the following is a specialization hierarchy disjoint constraint scenario in case of partial completeness?

a. Subtype discriminator can be null.

b. Subtype discriminator cannot be null.

c. Each supertype occurrence is a member of only one subtype.

d. Each supertype occurrence is a member of at least one subtype.

ANSWER: a
PTS: 1 DIF: Difficulty: Moderate REF: p.176
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: The Extended Entity Relationship Model

35. Which of the following is a specialization hierarchy overlapping constraint scenario in case of partial completeness?

a. Subtype sets are unique.

b. Supertype has optional subtypes.

c. Subtype discriminators cannot be null.

d. Subtype does not have a supertype.

ANSWER: b
PTS: 1 DIF: Difficulty: Moderate REF: p.176
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: The Extended Entity Relationship Model

36. Nonoverlapping subtypes are subtypes that contain a(n)_____subset of the supertype entity set.

a. entity b. subtypes

c. unique d. nonunique

ANSWER: c
PTS: 1 DIF: Difficulty: Easy REF: p.174
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

37. Overlapping subtypes are subtypes that contain_____subsets of the supertype entity set.
a. null b. exclusive
c. solitary d. nonunique

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.174
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

38. A total completeness constraint is represented by_____.
a. a smaller circle inside a bigger circle
b. a rhombus inside a circle
c. a double horizontal line under a circle
d. a single horizontal line above a circle

ANSWER: c
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

39. A partial completeness constraint is represented by_____.
a. a dotted line b. two dashed lines
c. a single horizontal line under a circle d. a double horizontal line over a circle

ANSWER: c
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

40. In the context of total completeness, in a(n)_____, every supertype occurrence is a member of only one subtype.
a. Foreign key constraint b. nonunique constraint
c. overlapping constraint d. disjoint constraint

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

41. In the context of total completeness, in a(n)_____, every supertype occurrence is a member of at least one subtype.
a. Unique constraint b. disjoint constraint
c. overlapping constraint d. foreign key constraint

ANSWER: c
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

42. _____is the bottom-up process of identifying a higher-level, more generic entity supertype from lower-level entity subtypes.
a. Specialization b. Generalization
c. Normalization d. Total completeness

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

43. The purpose of a(n)_____is to simplify an entity-relationship diagram (ERD) and thus enhance its readability.
a. Entity constraint b. entity cluster
c. entity interface d. entity discriminator

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Clustering

44. An entity cluster is formed by combining multiple interrelated entities into_____.
a. a single abstract entity object b. multiple abstract entity objects
c. a single entity object d. multiple entity objects

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Clustering

45. The most important characteristic of an entity is its_____key, used to uniquely identify each entity instance.
a. primary b. natural
c. foreign d. surrogate

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.177
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

46. A_____key is a real-world, generally accepted identifier used to uniquely identify real-world objects.
a. primary b. natural
c. foreign d. surrogate

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.178
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

47. If one exists, a data modeler uses a_____as the primary key of the entity being modeled.
a. foreign key b. combination key
c. surrogate key d. natural identifier

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.178
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

48. A_____is a primary key created by a database designer to simplify the identification of entity instances.
a. Composite key b. compound key
c. natural key d. surrogate key

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.180
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

49. A primary key's main function is to uniquely identify a(n)_____within a table.
a. attribute b. entity instance or row
c. entity subtype d. natural key or identifier

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.178
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

50. Composite primary keys are particularly useful as identifiers of composite entities, where each primary key combination is allowed only once in the_____relationship.
a. 0:1 b. 1:1
c. 1:M d. M:N

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

51. The "_____" characteristic of a primary key states that the primary key must uniquely identify each entity instance, must be able to guarantee unique values, and must not contain nulls.
a. unique values b. nonintelligent
c. preferably single-attribute d. security-complaint

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

52. The "_____" characteristic of a primary key states that the selected primary key must not be composed of any attribute(s) that might be considered a violation.
a. unique values b. nonintelligent
c. preferably single-attribute d. security-compliant

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

53. According to the "preferably single-attribute" characteristic of a primary key, the primary key:
a. must be able to guarantee unique attribute values.
b. should have the minimum number of attributes possible.
c. should have embedded semantic meaning associated with each attribute.
d. must be composed of attributes that are free from security risks or violations.

ANSWER: b
PTS: 1 DIF: Difficulty: Moderate REF: p.179
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: Entity Integrity: Selecting Primary Keys

54. The "_____" characteristic of a primary key states that the primary key should not have embedded semantic meaning.
a. unique values b. nonintelligent
c. preferably single-attribute d. security-compliant

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

55. Surrogate primary keys are especially helpful when there is no_____key.
a. primary b. natural
c. foreign d. composite

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.181
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

56. _____keys work with primary keys to properly implement relationships in the relational model.
a. Foreign b. Composite
c. Natural d. Surrogate

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.182
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

57. The preferred placement for a foreign key when working with a 1:1 relationship is to_____.
a. use the same primary key for both entities b. create a bridge entity
c. place the foreign key in one for the entities d. place the surrogate key in both entities

ANSWER: c
PTS: 1 DIF: Difficulty: Moderate REF: p.182
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: Design Cases: Learning Flexible Database Design

58. When selecting a foreign key placement for a 1:1 relationship, place the PK of the entity on the mandatory side in the entity on the optional side as a FK, and make the FK mandatory when_____.
a. one side is mandatory and the other sides is optional b. one side participates in another relationship
c. both sides are optional d. both sides are mandatory

ANSWER: a
PTS: 1 DIF: Difficulty: Moderate REF: p.183
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: Design Cases: Learning Flexible Database Design

59. _____data refer to data whose values change over time and for which one must keep a history of the data changes.
a. Time-sensitive b. Time-variant
c. Historical d. Change-based

ANSWER: b
PTS: 1 DIF: Difficulty: Easy REF: p.183
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

60. A_____occurs when there is one entity in two 1:M relationships to other entities, thus producing an association among the other entities that is not expressed in the model.
a. surrogate primary key b. time-variant data
c. design trap d. fan trap

ANSWER: d
PTS: 1 DIF: Difficulty: Easy REF: p.186
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

61. _____relationships occur when there are multiple relationship paths between related entities.
a. Redundant b. Duplicated
c. Time-variant d. Supertype

ANSWER: a
PTS: 1 DIF: Difficulty: Easy REF: p.187
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

62. The_____is the result of adding more semantic constructs to the original entity relationship (ER) model.

ANSWER: extended entity relationship model (EERM)
EERM (extended entity relationship model)
extended entity relationship model
EERM
PTS: 1 DIF: Difficulty: Easy REF: p.170
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

63. Disjoint subtypes are also known as_____subtypes.

ANSWER: non-overlapping
Nonoverlapping
PTS: 1 DIF: Difficulty: Easy REF: p.174
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

64. Subtypes that contain nonunique subsets of the supertype entity set are known as_____subtypes.

ANSWER: overlapping
PTS: 1 DIF: Difficulty: Easy REF: p.174
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

65. The_____specifies whether each entity supertype occurrence must also be a member of at least one subtype.

ANSWER: completeness constraint
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

66. _____completeness means that not every supertype occurrence is a member of a subtype.

ANSWER: Partial
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

67. _____completeness means that every supertype occurrence must be a member of at least one subtype.

ANSWER: Total
PTS: 1 DIF: Difficulty: Easy REF: p.175
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

68. Specialization is based on grouping_____characteristics and relationships of the subtypes.

ANSWER: unique
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: The Extended Entity Relationship Model

69. An entity cluster is considered "virtual" or "_____" in the sense that it is not actually an entity in the final ERD.

ANSWER: abstract
PTS: 1 DIF: Difficulty: Easy REF: p.176
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Clustering

70. Usually, a data modeler uses a natural identifier as the_____of the entity being modeled, assuming that the entity has a natural identifier.

ANSWER: primary key
PTS: 1 DIF: Difficulty: Easy REF: p.178
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

71. Unique values can be better managed when they are_____, because the database can use internal routines to implement a counter-style attribute that automatically increments values with the addition of each new row.

ANSWER: numeric
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

72. Composite primary keys are particularly useful as identifiers of composite entities, where each primary key combination is allowed_____in the M:N relationship.

ANSWER: only once
once
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

73. Composite keys are useful as identifiers of weak entities, where the weak entity has a strong_____relationship with the parent entity.

ANSWER: identifying
PTS: 1 DIF: Difficulty: Easy REF: p.179
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

74. A weak-entity in a strong identifying relationship with a parent entity is normally used to represent a(n)____ that is represented in the data model as two separate entities.

ANSWER: real-world object
PTS: 1 DIF: Difficulty: Easy REF: p.180
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

75. One practical advantage of a(n)_____key is that because it has no intrinsic meaning, values for it can be generated by the DBMS to ensure that unique values are always provided.

ANSWER: surrogate
PTS: 1 DIF: Difficulty: Easy REF: p.180
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

76. While using a surrogate key, one must ensure that the candidate key of the entity in question performs properly through the use of the "_____" and "not null" constraints.

ANSWER: unique index
PTS: 1 DIF: Difficulty: Easy REF: p.181
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Entity Integrity: Selecting Primary Keys

77. From a data modeling point of view,_____data refer to data whose values change over time and for which one must keep a history of the data changes.

ANSWER: time-variant
PTS: 1 DIF: Difficulty: Easy REF: p.183
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

78. A(n) _____occurs when a relationship is improperly or incompletely identified and is therefore represented in a way that is not consistent with the real world.

ANSWER: design trap
PTS: 1 DIF: Difficulty: Easy REF: p.186
NAT: BUSPROG: Technology STATE: DISC: Information Technology
KEY: Bloom's: Knowledge TOP: Design Cases: Learning Flexible Database Design

79. The main concern with redundant relationships is that they remain_____across the model.

ANSWER: consistent
PTS: 1 DIF: Difficulty: Moderate REF: p.187
NAT: BUSPROG: Analytic STATE: DISC: Information Technology
KEY: Bloom's: Comprehension TOP: Design Cases: Learning Flexible Database Design

80. What do specialization hierarchies do?

ANSWER: Entity supertypes and subtypes are organized in a specialization hierarchy, which depicts the arrangement of higher-level entity supertypes (parent entities) and lower-level entity subtypes (child entities). Specialization hierarchies enable the data model to capture additional semantic content (meaning) into the ERD. A specialization hierarchy provides the means to:
• Support attribute inheritance.
• Define a special supertype attribute known as the subtype discriminator.
• Define disjoint/overlapping constraints and complete/partial constraints.

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81. Differentiate between specialization and generalization.

ANSWER: Specialization is the top-down process of identifying lower-level, more specific entity subtypes from a higher-level entity supertype. Specialization is based on grouping the unique characteristics and relationships of the subtypes. On the other hand, generalization is the bottom-up process of identifying a higher-level, more generic entity supertype from lower-level entity subtypes. Generalization is based on grouping the common characteristics and relationships of the subtypes.

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82. Explain the two criteria that help a designer in determining when to use subtypes and supertypes.

ANSWER: Two criteria help a designer determine when to use subtypes and supertypes:

1. There must be different, identifiable kinds or types of an entity in the user's environment.

2. The different kinds or types of instances should each have one or more attributes that are unique to that kind or type of instance.

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83. Describe an entity cluster.

ANSWER: An entity cluster is a "virtual" entity type used to represent multiple entities and relationships in the ERD. An entity cluster is formed by combining multiple interrelated entities into a single, abstract entity object. An entity cluster is considered "virtual" or "abstract" in the sense that it is not actually an entity in the final ERD. Instead, it is a temporary entity used to represent multiple entities and relationships, with the purpose of simplifying the ERD and thus enhancing its readability.

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KEY: Bloom's: Comprehension TOP: Entity Clustering

84. Explain the "no change over time" characteristic of a primary key.

ANSWER: If an attribute has semantic meaning, it might be subject to updates, which is why names do not make good primary keys. If a primary key is subject to change, the foreign key values must be updated, thus adding to the database work load. Furthermore, changing a primary key value means that one is basically changing the identity of an entity. In short, the PK should be permanent and unchangeable.

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KEY: Bloom's: Comprehension TOP: Entity Integrity: Selecting Primary Keys

85. In which two cases are composite primary keys particularly useful?

ANSWER: Composite primary keys are particularly useful in two cases:

1. As identifiers of composite entities, in which each primary key combination is allowed only once in the M:N relationship.

2. As identifiers of weak entities, in which the weak entity has a strong identifying relationship with the parent entity

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KEY: Bloom's: Comprehension TOP: Entity Integrity: Selecting Primary Keys