Modern Database Management, 11e **(Hoffer et al.)**
Chapter 3 The Enhanced E-R Model and Business Rules

1) Which of the following is a generic entity type that has a relationship with one or more subtypes?
A) Megatype
B) Supertype
C) Subgroup
D) Class
Answer: B
Diff: 1 Page Ref: 113
Topic: Representing Supertypes and Subtypes
AACSB: Use of Information Technology

2) Given the following entities, which of the choices below would be the most complicated?

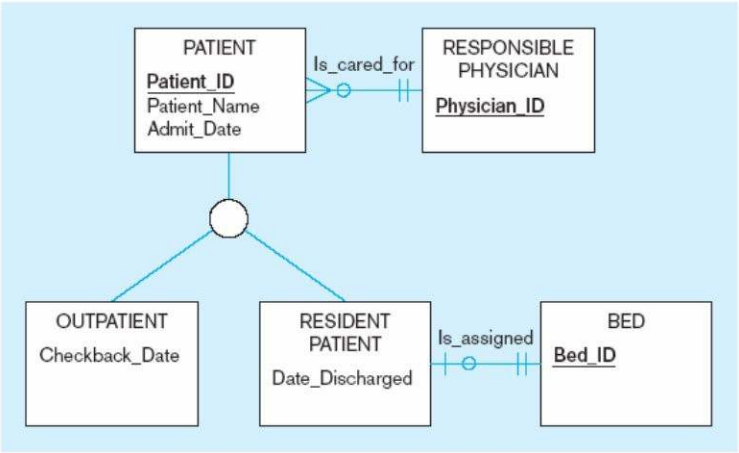
Automobile: VIN, EngineSize, NumberOfDoors, NumberOfPassengers, FuelType, Transmission
SUV: VIN, EngineSize, NumberOfPassengers, NoWheelDrive, FuelType, Transmission
Truck: VIN, EngineSize, NoWheelDrive, FuelType, Transmission, Payload

A) Define one vehicle entity type to hold all entities.
B) Define a separate entity type for each entity.
C) Define a supertype called vehicle and make each of the entities subtypes.
D) Keep only the Truck entity type.
Answer: A
Diff: 1 Page Ref: 115
Topic: Representing Specialization and Generalization
AACSB: Use of Information Technology

3) The property by which subtype entities possess the values of all attributes of a supertype is called:
A) hierarchy reception.
B) class management.
C) attribute inheritance.
D) generalization.
Answer: C
Diff: 2 Page Ref: 115
Topic: Representing Supertypes and Subtypes
AACSB: Use of Information Technology
Subtopic: Attribute Inheritance

4) Subtypes should be used when:
A) there are attributes that apply to some but not all instances of an entity type.
B) supertypes relate to objects outside the business.
C) the instances of a subtype do not participate in a relationship that is unique to that subtype.
D) none of the above.
Answer: A
Diff: 1 Page Ref: 116
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: When to Use Supertype/Subtype Relationships

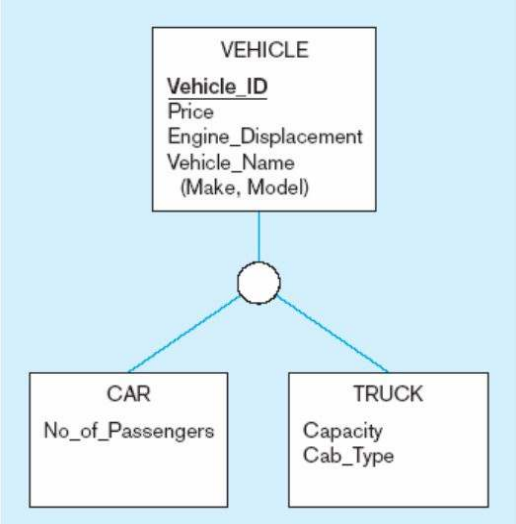
5) In the figure below, which of the following are subtypes of patient?



A) Outpatient
B) Physician
C) Bed
D) All of the above
Answer: A
Diff: 2 Page Ref: 117
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology

6) The process of defining one or more subtypes of a supertype and forming relationships is called:
A) specialization.
B) generalization.
C) creating discord.
D) selecting classes.
Answer: A
Diff: 1 Page Ref: 119
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Representing Specialization and Generalization

7) In the figure below, to which of the following entities are the entities "CAR" and "TRUCK" generalized?

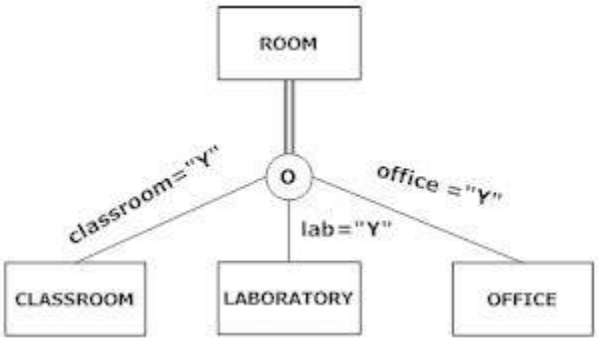


A) Make
B) Vehicle
C) Model
D) Price
Answer: B
Diff: 2 Page Ref: 118
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Representing Specialization and Generalization

8) The process of defining a more general entity type from a set of more specialized entity types is called:
A) generalization.
B) specialization.
C) normalization.
D) none of the above.
Answer: A
Diff: 2 Page Ref: 117
Topic: Representing Specialization and Generalization
AACSB: Reflective Thinking
Subtopic: Generalization

9) Which of the following is a completeness constraint?
A) Total specialization
B) Partial generalization
C) Total recall
D) Partial hybridization
Answer: A
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Completeness Constraints

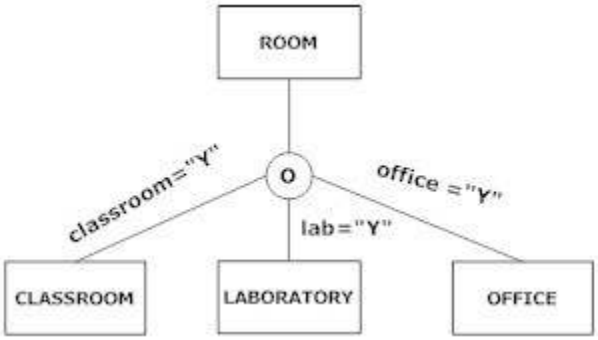
10) The following figure is an example of:



A) partial specialization.
B) completeness.
C) total specialization.
D) disjointness.
Answer: C
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking
Subtopic: Specifying Completeness Constraints

11) The _____ rule specifies that an entity instance of a supertype is allowed not to belong to any subtype.
A) semi-specialization
B) total specialization
C) partial specialization
D) disjointedness
Answer: C
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Completeness Constraints

12) The following figure is an example of:

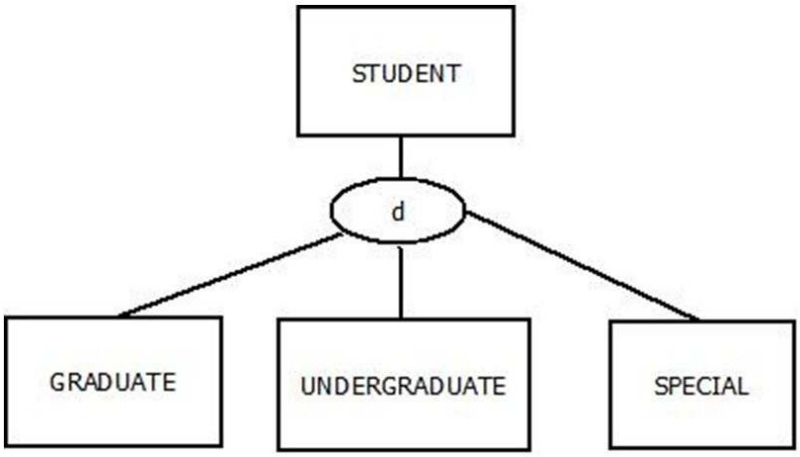


A) partial specialization.
B) disjoint completeness.
C) total specialization.
D) transunion constraint.
Answer: A
Diff: 1 Page Ref: 120
Topic: Some Characteristics of Data Warehouse Data
AACSB: Reflective Thinking
Subtopic: Specifying Completeness Constraints

13) The _____ rule specifies that each entity instance of the supertype must be a member of some subtype in the relationship.
A) semi-specialization
B) total specialization
C) partial specialization
D) total convergence
Answer: B
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Completeness Constraints

14) A _____ constraint is a type of constraint that addresses whether an instance of a supertype must also be an instance of at least one subtype.
A) disjoint
B) overlap
C) completeness
D) weak
Answer: C
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Completeness Constraints

15) In the figure below, a student:

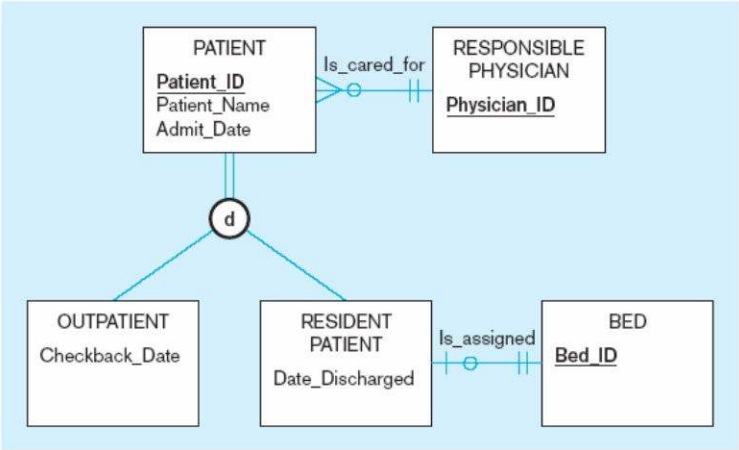


A) must be a graduate student, an undergraduate, a special student or some other type of student.
B) must be a graduate student or an undergraduate student.
C) must be at least a special student.
D) none of the above.
Answer: A
Diff: 3 Page Ref: 120, 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Completeness Constraints

16) The _____ rule specifies that an entity can be a member of only one subtype at a time.
A) exclusion
B) disjoint
C) removal
D) inclusion
Answer: B
Diff: 1 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

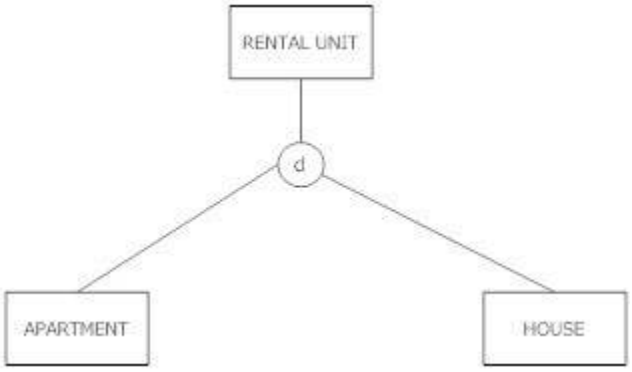
17) A _____ addresses whether an instance of a supertype may simultaneously be a member of two or more subtypes.
A) disjointedness constraint
B) disjoint rule
C) partial specialization
D) total specialization
Answer: A
Diff: 1 Page Ref: 121
Topic: Specifying Disjointedness Constraints
AACSB: Reflective Thinking

18) In the figure below, the patient must be either an outpatient or a resident patient. This is an example of the _____ rule.



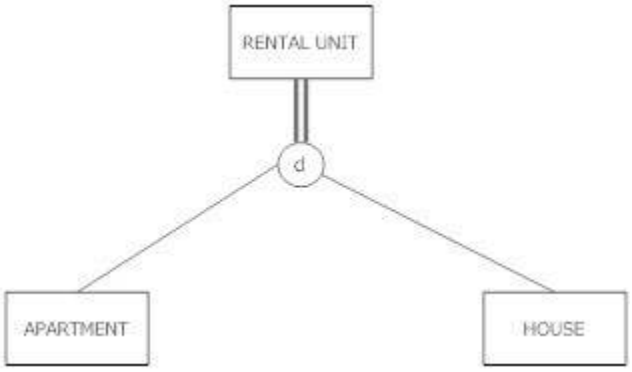
A) disjoint
B) specialization
C) generalization
D) overlap
Answer: A
Diff: 2 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

19) Which of the following statements is true about the figure shown below?



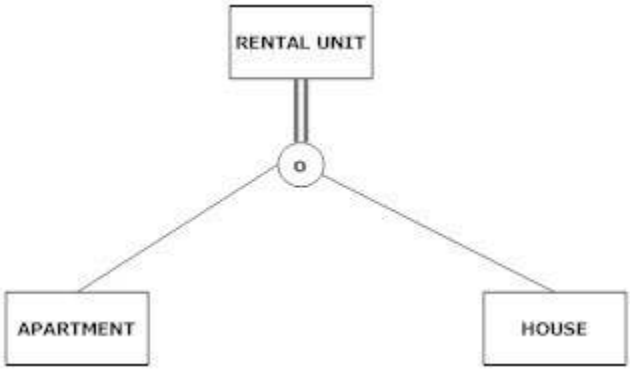
A) A rental unit must be either an apartment or a house, and cannot be both at the same time.
B) A rental unit can be an apartment, house or just a rental unit; it may not be more than one at the same time.
C) A rental unit must be either an apartment or a house, and could be both.
D) A rental unit can be an apartment, a house or just a rental unit. It could be both an apartment and a house at the same time.
Answer: B
Diff: 2 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

20) Which of the following statements is true about the figure shown below?



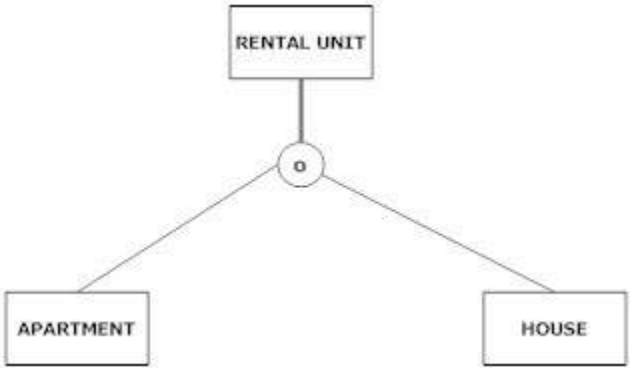
A) A rental unit must be either an apartment or a house, and cannot be both at the same time.
B) A rental unit can be an apartment, house or just a rental unit; it may not be more than one at the same time.
C) A rental unit must be either an apartment or a house, and could be both.
D) A rental unit can be an apartment, a house or just a rental unit. It could be both an apartment and a house at the same time.
Answer: A
Diff: 2 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

21) Which of the following statements is true about the figure shown below?



A) A rental unit must be either an apartment or a house, and cannot be both at the same time.
B) A rental unit can be an apartment, house or just a rental unit; it may not be more than one at the same time.
C) A rental unit must be either an apartment or a house, and could be both.
D) A rental unit can be an apartment, a house or just a rental unit. It could be both an apartment and a house at the same time.
Answer: C
Diff: 2 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

22) Which of the following statements is true about the figure shown below?

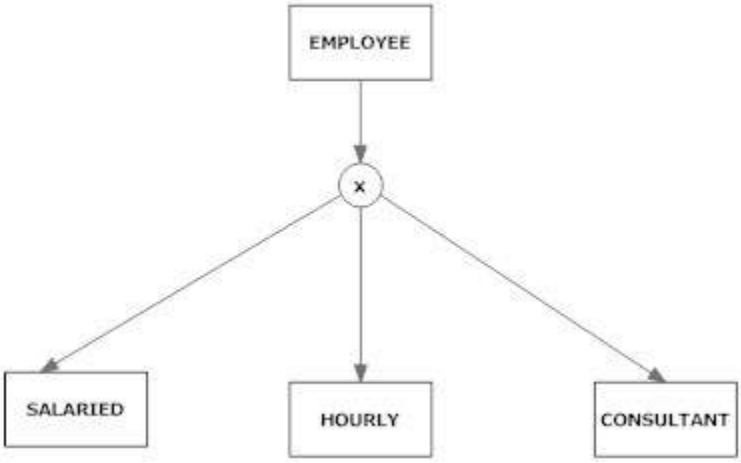


A) A rental unit must be either an apartment or a house, and cannot be both at the same time.
B) A rental unit can be an apartment, house or just a rental unit; it may not be more than one at the same time.
C) A rental unit must be either an apartment or a house, and could be both.
D) A rental unit can be an apartment, a house or just a rental unit. It could be both an apartment and a house at the same time.
Answer: D
Diff: 2 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

23) An attribute of the supertype that determines the target subtype(s) is called the:
A) determinant.
B) subtype decision.
C) disjoint indicator.
D) none of the above.
Answer: D
Diff: 2 Page Ref: 122, 123
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: Defining Subtype Discriminators

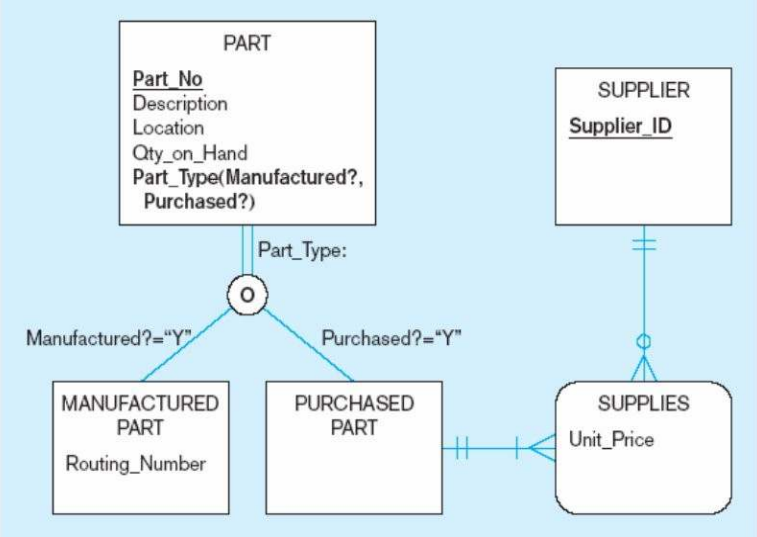
24) The _____ rule states that an entity instance can simultaneously be a member of two (or more) subtypes.
A) disjoint
B) overlap
C) partial specialization
D) total specialization
Answer: B
Diff: 1 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

25) The following diagram shows:



A) total specialization.
B) partial specialization.
C) the overlap rule.
D) none of the above.
Answer: D
Diff: 1 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Use of Information Technology
Subtopic: Specifying Completeness Constraints

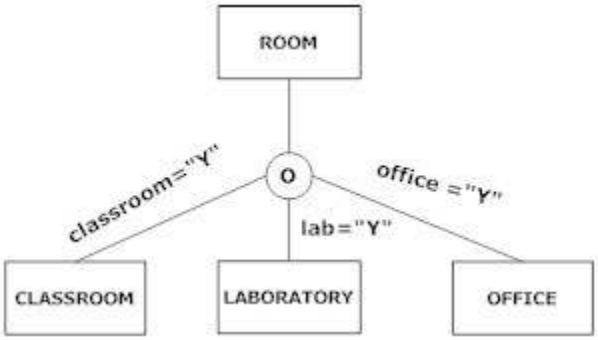
26) The subtype discriminator in the figure below is:



A) Part_Type.
B) Part_No.
C) Manufactured Part.
D) Location.
Answer: A
Diff: 2 Page Ref: 122, 123
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Defining Subtype Discriminators

27) The subtype discriminator is a composite attribute when there is a(n):
A) overlap rule.
B) disjoint rule.
C) partial specialization.
D) full specialization.
Answer: A
Diff: 2 Page Ref: 123
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Defining Subtype/Supertype Hierarchies

28) The following figure shows an example of:

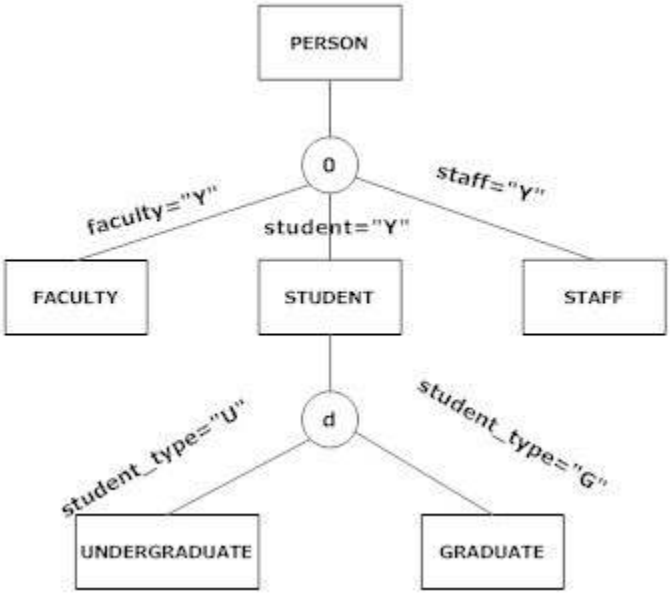


A) the disjoint rule.
B) the completeness rule.
C) the underdog rule.
D) the overlap rule.
Answer: D
Diff: 2 Page Ref: 123
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking
Subtopic: Overlapping Subtypes

29) In a supertype/subtype hierarchy, each subtype has:
A) only one supertype.
B) many supertypes.
C) at most two supertypes.
D) at least one subtype.
Answer: A
Diff: 1 Page Ref: 124, 125
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Defining Subtype/Supertype Hierarchies

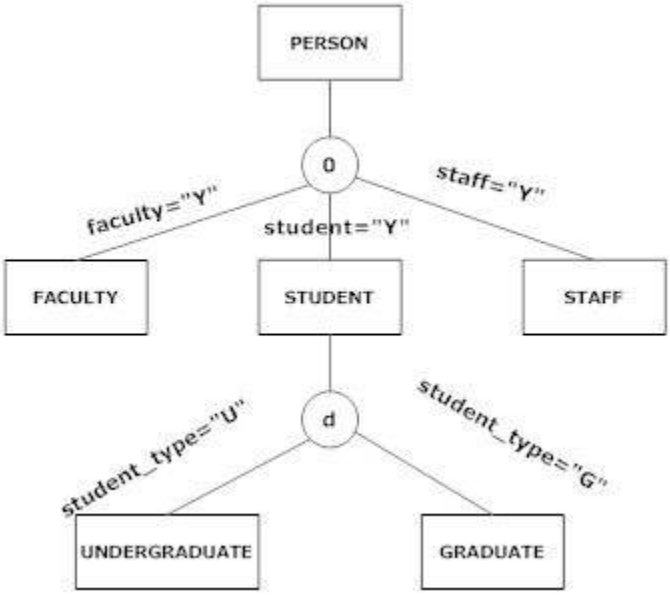
30) In a supertype/subtype hierarchy, subtypes that are lower in the hierarchy inherit attributes from not only their immediate supertype but from all _____ in the hierarchy.
A) subtypes
B) supertypes
C) constraints
D) dimensions
Answer: B
Diff: 2 Page Ref: 125, 126
Topic: Supertype/Subtype Hierarchies
AACSB: Reflective Thinking
Subtopic: Summary of Supertype/Subtype Hierarchies

31) The following figure shows a(n):



A) disjoint constraint.
B) completeness constraint.
C) supertype/subtype hierarchy.
D) spindle constraint.
Answer: C
Diff: 2 Page Ref: 125, 126
Topic: Supertype/Subtype Hierarchies
AACSB: Reflective Thinking
Subtopic: Summary of Supertype/Subtype Hierarchies

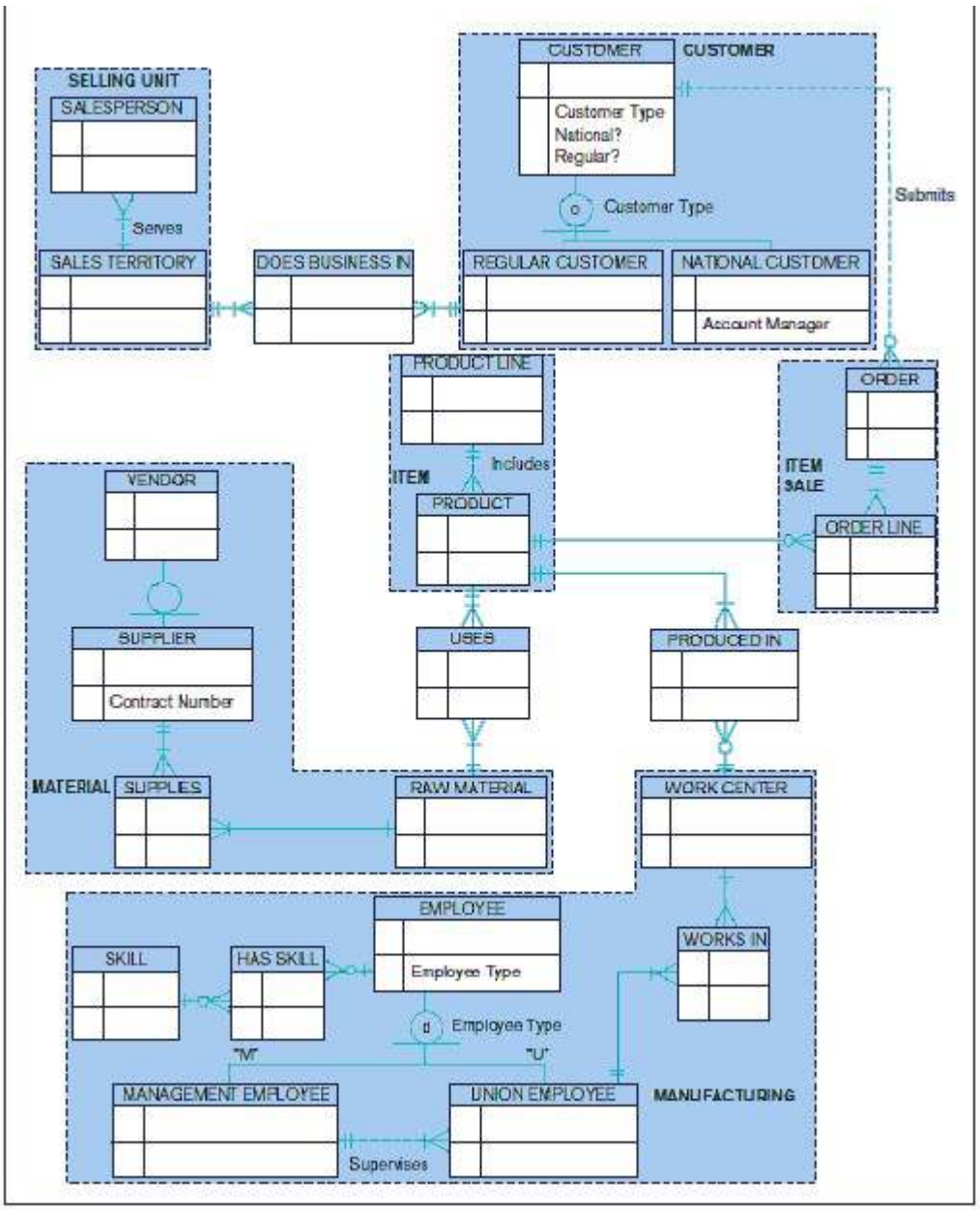
32) Which statement is true about the following diagram?



A) A person can only be a faculty, student or staff.
B) A student can be both an undergraduate and a graduate student at the same time.
C) All attributes of person and student are inherited by undergraduate.
D) All attributes of graduate are inherited by person.
Answer: C
Diff: 2 Page Ref: 125, 126
Topic: Supertype/Subtype Hierarchies
AACSB: Reflective Thinking
Subtopic: Summary of Supertype/Subtype Hierarchies

33) An entity cluster is:
A) a formal method for specifying attributes of related entities.
B) a set of one or more entity types and associated relationships grouped into a single abstract entity type.
C) a useful way to present data for a small and fairly simple organization.
D) a way of developing more granular views of the data model.
Answer: B
Diff: 2 Page Ref: 129
Topic: Entity Clustering
AACSB: Use of Information Technology

34) The figure below is an example of a(n):



A) supertype/subtype hierarchy.
B) hierarchical data model.
C) entity cluster.
D) none of the above.
Answer: C
Diff: 2 Page Ref: 130
Topic: Entity Clustering
AACSB: Use of Information Technology

35) An entity cluster can be formed by:
A) abstracting a supertype and its subtype.
B) combining directly related entity types and their relationships.
C) combining a strong entity and its weak entities.
D) all of the above.
Answer: D
Diff: 2 Page Ref: 132
Topic: Entity Clustering
AACSB: Use of Information Technology

36) Packaged data models:
A) are ready to use right out of the box.
B) require customization.
C) allow partial specialization.
D) cannot be used for most applications.
Answer: B
Diff: 2 Page Ref: 132, 133
Topic: Packaged Data Models
AACSB: Use of Information Technology

37) Which of the following is NOT true of packaged data models?
A) Relationships are connected to the highest-level entity type in an order that makes sense.
B) All subtype/supertype relationships follow the total specialization and disjoint rules.
C) No entities on the many side of a relationship can be weak.
D) Both B and C.
Answer: D
Diff: 3 Page Ref: 133, 134
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

38) A generic or template data model that can be reused as a starting point for a data modeling project is called a(n):
A) packaged data model.
B) universal data model.
C) enterprise data model.
D) none of the above.
Answer: B
Diff: 3 Page Ref: 133
Topic: Packaged Data Models
AACSB: Use of Information Technology

39) Using a packaged data model, projects take less time and cost because:
A) less personnel are required.
B) essential components and structures are already defined.
C) there is more time taken to model the enterprise.
D) none of the above.
Answer: B
Diff: 2 Page Ref: 133
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

40) All of the following are advantages of packaged data models EXCEPT:
A) packaged data models can be built using proven components evolved from cumulative experiences.
B) projects take less time and cost less.
C) the data model is easier to evolve.
D) more one-to-one relationships give the data model more flexibility.
Answer: D
Diff: 1 Page Ref: 133, 134
Topic: Packaged Data Models
AACSB: Reflective Thinking

41) All of the following are steps to using a packaged data model EXCEPT:
A) identify the parts of the data model that apply to your data modeling situation.
B) utilize all business rules that come with the packaged data model.
C) rename the identified data elements.
D) map data to be used in packages with existing data in the current databases.
Answer: B
Diff: 3 Page Ref: 134, 135
Topic: Packaged Data Models
AACSB: Reflective Thinking
Subtopic: A Revised Data Modeling Process with Packaged Data Models

42) When identifying with the parts of the packaged data model that apply to your organization, one should first start with:
A) entities.
B) attributes.
C) primary keys.
D) relationships.
Answer: A
Diff: 2 Page Ref: 134
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

43) The third step in the data modeling process with a packaged data model is:
A) rename identified data elements.
B) rename relationships.
C) map data to be used from package to data in current databases.
D) interview users.
Answer: C
Diff: 2 Page Ref: 134
Topic: Overview of Tuning the Database for Performance
AACSB: Analytic Skills, Reflective Thinking

44) A good method for identifying inconsistencies and finding hidden meaning in the customized purchased data model is:
A) data analysis.
B) data volume usage analysis.
C) user interviews.
D) data profiling.
Answer: D
Diff: 2 Page Ref: 136
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

45) The most important challenge of customizing a purchased data model is:
A) getting user buy-in.
B) determining the business rules that will be established through the data model.
C) implementation.
D) user training.
Answer: B
Diff: 2 Page Ref: 136
Topic: Packaged Data Models
AACSB: Use of Information Technology

46) In packaged data models, strong entities always have _____ between them.
A) weak entities
B) 1:1 relationships
C) 1:M relationships
D) M:N relationships
Answer: D
Diff: 3 Page Ref: 141
Topic: Packaged Data Models
AACSB: Analytic Skills
Subtopic: Packaged Data Model Examples

47) In packaged data models, all subtype/supertype relationships follow the _____ and _____ rules.
A) partial specialization; disjoint
B) total specialization; disjoint
C) total specialization; overlap
D) partial specialization; overlap
Answer: C
Diff: 3 Page Ref: 141
Topic: Overview of Tuning the Database for Performance
AACSB: Reflective Thinking
Subtopic: Packaged Data Model Examples

48) A subtype is a generic entity that has a relationship with one or more entities at a lower level.
Answer: FALSE
Diff: 1 Page Ref: 113
Topic: Representing Supertypes and Subtypes
AACSB: Use of Information Technology

49) One of the major challenges in data modeling is to recognize and clearly represent entities that are almost the same.
Answer: TRUE
Diff: 3 Page Ref: 113
Topic: Representing Supertypes and Subtypes
AACSB: Use of Information Technology

50) An entity instance of a subtype represents the same entity instance of the supertype.
Answer: TRUE
Diff: 2 Page Ref: 116
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Attribute Inheritance

51) A member of a subtype does NOT necessarily have to be a member of the supertype.
Answer: FALSE
Diff: 2 Page Ref: 116
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Attribute Inheritance

52) Supertype/subtype relationships should be used when the instances of a subtype participate in no relationships which are unique to that subtype.
Answer: FALSE
Diff: 2 Page Ref: 116
Topic: Supertype/Subtype Relationships
AACSB: Reflective Thinking
Subtopic: When to Use Supertype/Subtype Relationships

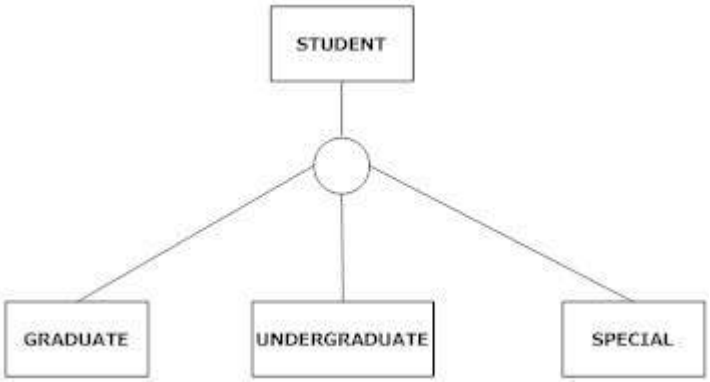
53) Specialization is the reverse of generalization.
Answer: TRUE
Diff: 2 Page Ref: 118, 119
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Representing Specialization and Generalization

54) Generalization is a top-down process.
Answer: FALSE
Diff: 1 Page Ref: 117
Topic: Representing Supertypes and Subtypes
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Representing Specialization and Generalization

55) A completeness constraint may specify that each entity of the supertype must be a member of some subtype in the relationship.
Answer: TRUE
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Use of Information Technology
Subtopic: Specifying Completeness Constraints

56) The total specialization rule states that an entity instance of a supertype is allowed not to belong to any subtype.
Answer: FALSE
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: Specifying Completeness Constraints

57) The following figure is an example of total specialization.



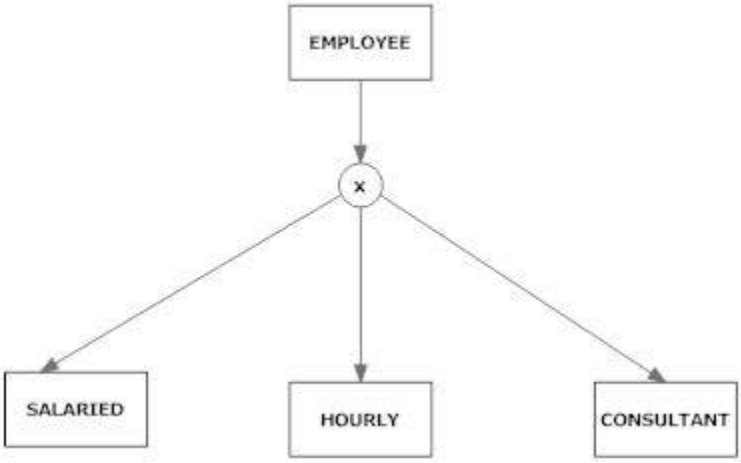
Answer: FALSE
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: Specifying Completeness Constraints

58) When the total specialization rule is set for a supertype/subtype relationship, one could roughly compare the supertype to an abstract class in object-oriented programming.
Answer: FALSE
Diff: 1 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Reflective Thinking
Subtopic: Specifying Completeness Constraints

59) The disjoint rule specifies that if an entity instance of the supertype is a member of one subtype, it MUST simultaneously be a member of another subtype.
Answer: FALSE
Diff: 2 Page Ref: 121
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills
Subtopic: Specifying Disjointness Constraints

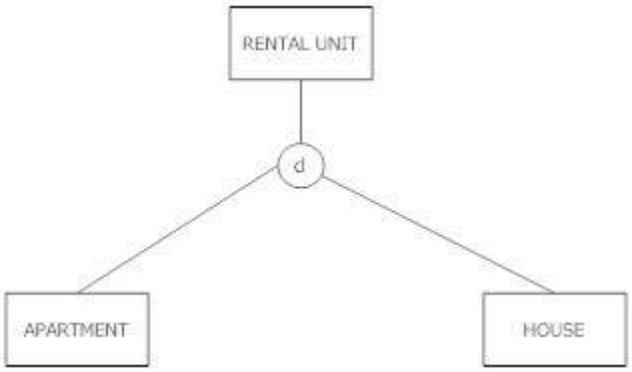
60) The overlap rule specifies that if an entity instance of the supertype is a member of one subtype, it can simultaneously be a member of two (or more) subtypes.
Answer: TRUE
Diff: 2 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

61) The following figure is an example of the overlap rule.



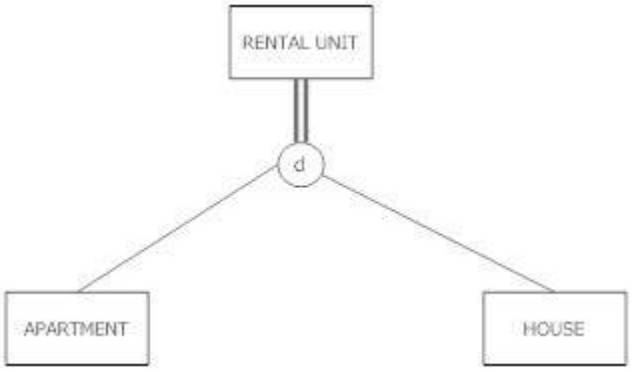
Answer: FALSE
Diff: 2 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

62) In the figure shown below, a rental unit can be both a house and an apartment.



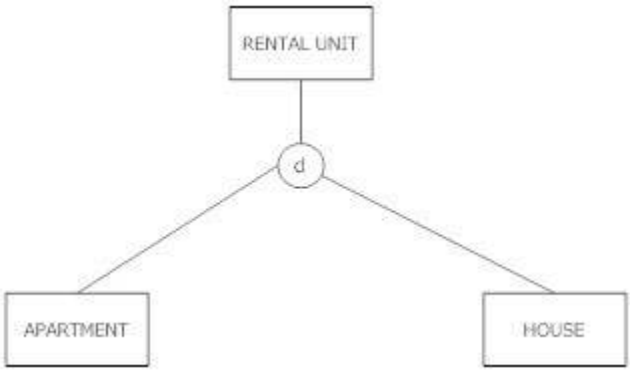
Answer: FALSE
Diff: 2 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

63) In the figure shown below, a rental unit has to be either a house or an apartment.



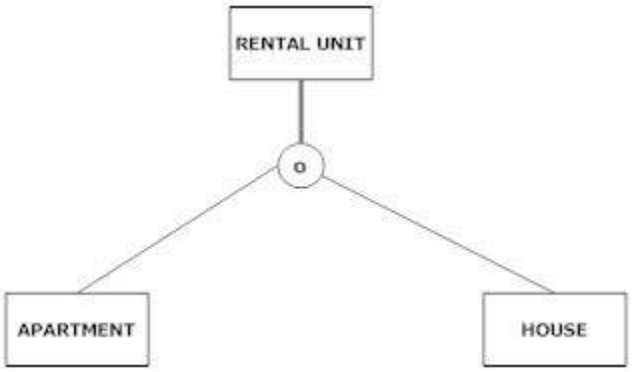
Answer: TRUE
Diff: 2 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

64) In the figure shown below, there could be an instance of a rental unit that is neither an apartment nor a house.



Answer: TRUE
Diff: 2 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

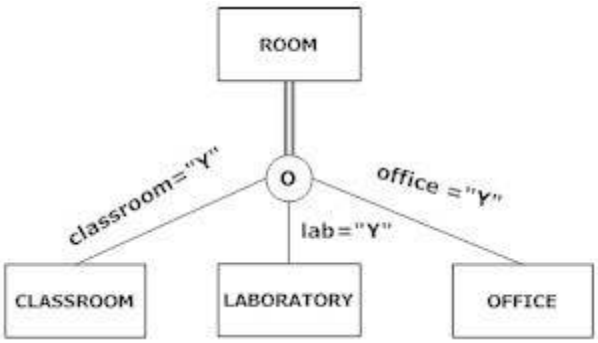
65) In the figure shown below, a rental unit can be both an apartment and a house but must be at least one.



Answer: FALSE
Diff: 2 Page Ref: 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Specifying Disjointness Constraints

66) When subtypes are overlapping, an additional field must be added to the supertype to act as a discriminator.
Answer: FALSE
Diff: 3 Page Ref: 123
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Defining Subtype Discriminators

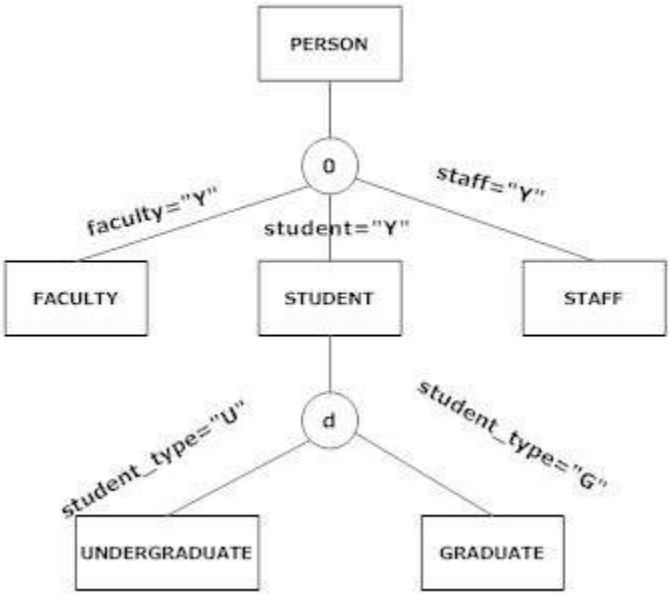
67) There are three separate discriminators in the following diagram because of the overlap rule.



Answer: TRUE
Diff: 3 Page Ref: 123
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Use of Information Technology
Subtopic: Defining Subtype Discriminators

68) A subtype can become a supertype if the subtype has other subtypes beneath it.
Answer: TRUE
Diff: 2 Page Ref: 124
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Use of Information Technology
Subtopic: Defining Subtype/Supertype Hierarchies

69) The following diagram is an example of a supertype/subtype hierarchy.



Answer: TRUE
Diff: 2 Page Ref: 124
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Use of Information Technology
Subtopic: Defining Subtype/Supertype Hierarchies

70) In a supertype/subtype hierarchy, attributes are assigned at the highest logical level that is possible in the hierarchy.
Answer: TRUE
Diff: 2 Page Ref: 125
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: Summary of Supertype/Subtype Hierarchies

71) Subtypes at the lowest level of a hierarchy do not inherit attributes from their ancestors.
Answer: FALSE
Diff: 3 Page Ref: 126
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: Summary of Supertype/Subtype Hierarchies

72) Entity clustering is a methodology for grouping one or more entity types and associated relationships into a single abstract entity type.
Answer: TRUE
Diff: 1 Page Ref: 129
Topic: Entity Clustering
AACSB: Use of Information Technology
Subtopic: Entity Clustering

73) An entity cluster should focus on some area of interest to some community of users, developers or managers.
Answer: TRUE
Diff: 2 Page Ref: 132
Topic: Entity Clustering
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: Entity Clustering

74) An entity cluster can have a relationship with another entity cluster much the same way that an entity can have a relationship with another entity.
Answer: TRUE
Diff: 2 Page Ref: 132
Topic: Entity Clustering
AACSB: Analytic Skills, Use of Information Technology

75) Packaged data models are meant to be customized.
Answer: TRUE
Diff: 1 Page Ref: 133
Topic: Packaged Data Models
AACSB: Use of Information Technology

76) Packaged data models use an entity type to store union data.
Answer: FALSE
Diff: 2 Page Ref: 133, 134
Topic: Packaged Data Models
AACSB: Use of Information Technology

77) A universal data model is a generic or template data model that can be reused as a starting point for a data modeling project.
Answer: TRUE
Diff: 2 Page Ref: 133
Topic: Overview of Tuning the Database for Performance
AACSB: Analytic Skills

78) Packaged data models cause projects to take more time to build.
Answer: FALSE
Diff: 2 Page Ref: 133
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

79) Packaged data models can be developed using proven components.
Answer: TRUE
Diff: 2 Page Ref: 133
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

80) Data models of an existing database are harder for data modelers to read.
Answer: FALSE
Diff: 2 Page Ref: 134
Topic: Overview of Tuning the Database for Performance
AACSB: Reflective Thinking

81) Packaged data models are as flexible as possible, because all supertype/subtype relationships allow the total specialization and overlap rules.
Answer: TRUE
Diff: 1 Page Ref: 141
Topic: Packaged Data Models
AACSB: Reflective Thinking, Use of Information Technology

82) Creating a data model from a packaged data model requires much more skill than creating one from scratch.
Answer: FALSE
Diff: 1 Page Ref: 134
Topic: Packaged Data Models
AACSB: Analytic Skills, Use of Information Technology

83) It is easier to share information across organizations if companies in the same industry use the same universal data model as the basis for their organizational databases.
Answer: TRUE
Diff: 2 Page Ref: 134
Topic: Packaged Data Models
AACSB: Use of Information Technology

84) Adapting a packaged data model from your DBMS vendor makes it difficult for the application to work with other applications from the same vendor.
Answer: FALSE
Diff: 2 Page Ref: 134
Topic: Packaged Data Models
AACSB: Use of Information Technology

85) Because a purchased data model is extensive, you begin by identifying the parts of the data model that apply to your data modeling situation.
Answer: TRUE
Diff: 2 Page Ref: 134
Topic: Packaged Data Models
AACSB: Use of Information Technology
Subtopic: A Revised Data Modeling Process with Packaged Data Models

86) You will never need to map data in current databases to data in a packaged data model.
Answer: FALSE
Diff: 2 Page Ref: 134
Topic: Packaged Data Models
AACSB: Use of Information Technology
Subtopic: A Revised Data Modeling Process with Packaged Data Models

87) Mapping existing data to new data in a packaged data model is useful for developing migration plans.
Answer: TRUE
Diff: 2 Page Ref: 135
Topic: Packaged Data Models
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: A Revised Data Modeling Process with Packaged Data Models

88) It is easy to miss the opportunity to visualize future requirements shown in the full data model when using a packaged data model.
Answer: TRUE
Diff: 2 Page Ref: 135
Topic: Packaged Data Models
AACSB: Reflective Thinking, Use of Information Technology
Subtopic: A Revised Data Modeling Process with Packaged Data Models

89) Explain why the E-R model needed to be expanded into the enhanced E-R model.
Answer: The business environment has drastically changed since the relational model was first introduced in the 1970s. Business relationships are more complex, and organizations must have ways to represent data to represent the complexity. Organizations must be prepared to segment their markets as well as customize their products. The enhanced E-R model has evolved to represent these changes and also is similar to the object-oriented data model.
Diff: 3 Page Ref: 112
Topic: Introduction
AACSB: Reflective Thinking

90) Explain the terms subtype and supertype. Discuss the differences between them.
Answer: A subtype is an entity which represents data meaningful to the organization. For example, an undergraduate student and a graduate student might be a subtype. A supertype is a generalization of various subtypes and contains attributes which are common to both. Supertypes and subtypes may have relationships with other entities. Also, a subtype inherits the attributes of its supertype.
Diff: 3 Page Ref: 113, 114
Topic: Representing Supertypes and Subtypes
AACSB: Reflective Thinking

91) Compare and contrast generalization and specialization.
Answer: Generalization is the process of defining a more general entity type from a set of more specialized entity types. For example, if we had undergraduate and graduate students with similar attributes, then we might create a student supertype. The student supertype would then contain the attributes that all subtypes have in common. Specialization, on the other hand, would occur when we discover that we have a student type but there are different attributes for different types of students. In this case, we would create subtypes which would contain unique attributes for that subtype.
Diff: 3 Page Ref: 117-120
Topic: Representing Specialization and Generalization
AACSB: Reflective Thinking

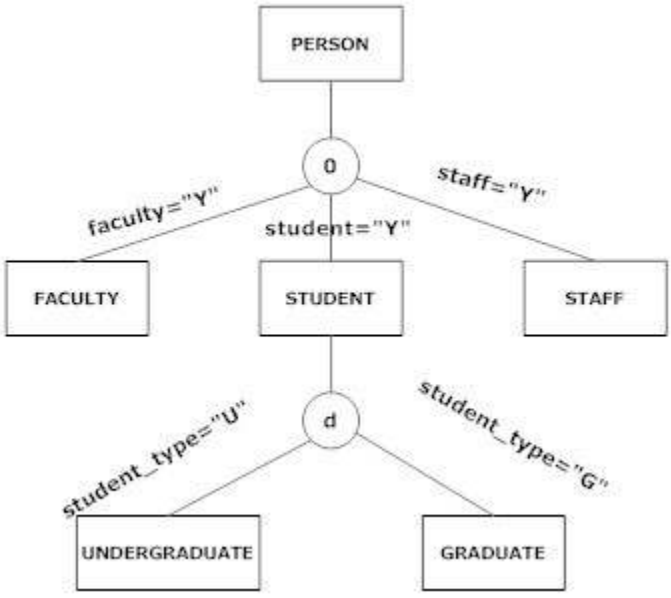
92) Discuss the reasoning behind using supertype/subtype relationships.
Answer: It is best to use a supertype/subtype hierarchy when there are attributes that apply to some but not all instances of an entity type. For example, if we have an employee entity type and there is an hourly wage attribute that only applies to hourly employees, it may be best to use a supertype/subtype relationship. Another reason for using supertype/subtype relationships is when you have instances of a subtype that participate in a relationship unique to that subtype. For example, if we have a contractor subtype of employee that has a relationship with staffing agency, then it would be best to use supertype/subtype relationship.
Diff: 3 Page Ref: 116
Topic: Supertype/Subtype Hierarchies
AACSB: Reflective Thinking

93) Discuss when one would use total specialization and when one would use partial specialization.
Answer: Total specialization would be used when you know that there are no other subtypes of a supertype other than those defined. For example, if we only had undergraduate and graduate students but no other types of students, then we would use total specialization. However, if there were students other than graduate and undergraduate, such as just a general student, then we would want to use partial specialization.
Diff: 3 Page Ref: 120
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Reflective Thinking

94) Contrast the overlap rule to the disjoint rule.
Answer: The disjoint rule is used when you wish to specify that an entity instance can only be one type of subtype. For example, if a student could only be a graduate or undergraduate student, but not both. The overlap rule specifies that an entity instance could be one or more subtypes. For example, if an instance of a person supertype could be a faculty member as well as a student subtype, then we would use the overlap rule.
Diff: 3 Page Ref: 121, 122
Topic: Specifying Constraints in Supertype/Subtype Relationships
AACSB: Analytic Skills, Reflective Thinking
Subtopic: Specifying Disjointness Constraints

95) Describe how subtype discriminators are used when we have overlapping subtypes.
Answer: When we have overlapping subtypes, we need to create a composite subtype discriminator with Boolean values.
Diff: 3 Page Ref: 123
Topic: Defining Subtype Discriminators
AACSB: Analytic Skills, Reflective Thinking
Subtopic: Overlapping Subtypes

96) Discuss how attributes are assigned in a supertype/subtype hierarchy.
Answer: Attributes are assigned at the highest logical level that is possible in the hierarchy. For example, in the following diagram, one would assign the name to the person supertype so that it could be shared by as many subtypes as possible.



Diff: 2 Page Ref: 125, 126
Topic: Supertype/Subtype Hierarchies
AACSB: Analytic Skills

97) Discuss how attribute inheritance works in a supertype/subtype hierarchy.
Answer: Subtypes that are lower in the hierarchy inherit attributes not only from their immediate supertype but also from all supertypes higher in the hierarchy all the way to the root.
Diff: 3 Page Ref: 126
Topic: Supertype/Subtype Hierarchies
AACSB: Analytic Skills, Reflective Thinking

98) Explain what entity clustering is.
Answer: An entity cluster is a group of entities and relationships which act as one entity. Entity clustering can be thought of as a way to decompose a data model hierarchically, gaining finer and finer views. Entity clusters can interact with other entity clusters just like entities can interact with each other.
Diff: 3 Page Ref: 129-131
Topic: Entity Clustering
AACSB: Reflective Thinking, Use of Information Technology

99) Why are packaged data models gaining popularity?
Answer: Most organizations can no longer afford to have data models developed in house, both in terms of labor costs as well as time. As such, the role of data modeler is evolving from artisan to that of engineer. A packaged data model allows one to customize an organization's database needs using a superset of the model needed by the organization.
Diff: 3 Page Ref: 132, 133
Topic: Packaged Data Models
AACSB: Reflective Thinking

100) How is the data modeling process different when starting with a purchased solution?
Answer: A packaged data model is quite extensive, so you would begin with the part of the data model that you will use for your situation. You would start first with entities, then attributes and then relationships. The next step is to rename the data elements to terms that are meaningful to your organization. Since the packaged data model may be used to replace an existing system, the next step is to map the packaged model to the current database. This mapping will be used later for data migration. Perhaps the most challenging step is to determine the business rules for the new system.
Diff: 3 Page Ref: 133, 134
Topic: Overview of Tuning the Database for Performance
AACSB: Reflective Thinking, Use of Information Technology