1. The entity set person is classified as student and employee. This process is called \_\_\_\_\_\_\_\_\_

a) Generalization  
b) Specialization  
c) Inheritance  
d) Constraint generalization

Answer: b  
Explanation: The process of designating subgroupings within an entity set is called specialization.

1. Which relationship is used to represent a specialization entity?  
   a) ISA  
   b) AIS  
   c) ONIS  
   d) WHOIS

Answer: a  
Explanation: In terms of an E-R diagram, specialization is depicted by a hollow arrow-head pointing from the specialized entity to the other entity.

1. The refinement from an initial entity set into successive levels of entity subgroupings represents a \_\_\_\_\_\_\_\_ design process in which distinctions are made explicit.  
   a) Hierarchy  
   b) Bottom-up  
   c) Top-down  
   d) Radical

Answer: c  
Explanation: The design process may also proceed in a bottom-up manner, in which multiple entity sets are synthesized into a higher-level entity set on the basis of common features.

1. There are similarities between the instructor entity set and the secretary entity set in the sense that they have several attributes that are conceptually the same across the two entity sets: namely, the identifier, name, and salary attributes. This process is called  
   a) Commonality  
   b) Specialization  
   c) Generalization  
   d) Similarity

Answer: c  
Explanation: Generalization is used to emphasize the similarities among lower-level entity sets and to hide the differences.

1. If an entity set is a lower-level entity set in more than one ISA relationship, then the entity set has  
   a) Hierarchy  
   b) Multilevel inheritance  
   c) Single inheritance  
   d) Multiple inheritance

Answer: d  
Explanation: The attributes of the higher-level entity sets are said to be inherited by the lower-level entity sets.

1. A \_\_\_\_\_\_\_\_\_\_\_\_\_ constraint requires that an entity belong to no more than one lower-level entity set.  
   a) Disjointness  
   b) Uniqueness  
   c) Special  
   d) Relational

Answer: a  
Explanation: For example, student entity can satisfy only one condition for the student type attribute; an entity can be either a graduate student or an undergraduate student, but cannot be both.

1. Consider the employee work-team example, and assume that certain employees participate in more than one work team. A given employee may therefore appear in more than one of the team entity sets that are lower level entity sets of employee. Thus, the generalization is \_\_\_\_\_\_\_\_\_\_\_\_\_  
   a) Overlapping  
   b) Disjointness  
   c) Uniqueness  
   d) Relational

Answer: a  
Explanation: In overlapping generalizations, the same entity may belong to more than one lower-level entity set within a single generalization.

1. The completeness constraint may be one of the following: Total generalization or specialization, Partial generalization or specialization. Which is the default?  
   a) Total  
   b) Partial  
   c) Should be specified  
   d) Cannot be determined

Answer: b  
Explanation: Partial generalization or specialization – Some higher-level entities may not belong to any lower-level entity set.

1. Functional dependencies are a generalization of  
   a) Key dependencies  
   b) Relation dependencies  
   c) Database dependencies  
   d) None of the mentioned

Answer: a  
Explanation: The subclasses are combined to form the superclass.

1. Which of the following is another name for a weak entity?  
   a) Child  
   b) Owner  
   c) Dominant  
   d) All of the mentioned

Answer: a  
Explanation: A parent may be called as a strong entity.