CHAPTER 4: ENTITY RELATIONSHIP (ER) MODELING

1. The entity relationship model (ERM) is dependent on the database type.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The Crow’s Foot notation is less implementation­oriented than the Chen notation.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. An entity in the entity relationship model corresponds to a table in the relational environment.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In the entity relationship model, a table row corresponds to an entity instance.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In the Chen and Crow’s Foot notations, an entity is represented with a rectangle containing the entity’s name.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In the original Chen notation, each attribute is represented by an oval with the attribute name connected to an entity rectangle with a line.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Software vendors have adopted the Chen representation because of its compact representation.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Moderate REF: p.119

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. A composite identifier is a primary key composed of more than one attribute.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.120

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The Crow’s Foot notation easily identifies multivalued attributes.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.121

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Composite attributes make it easier to facilitate detailed queries.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.121

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Connectivities and cardinalities are established by concise statements known as business rules.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.126

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In Chen notation, there is no way to represent cardinality.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.126

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In implementation terms, an entity is existence-dependent if it has a mandatory primary key.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.126

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A weak relationship exists if the primary key of the related entity contains at least one primary key component of the parent entity.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.127

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A weak entity has a primary key that is partially or totally derived from the parent entity in the relationship.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.129

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In a 1:M relationship, to avoid the possibility of referential integrity errors, the data of the “1” side must be loaded first.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Moderate REF: p.129

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. Relationships between entities always operate in one direction.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.131

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The existence of a mandatory relationship indicates that the minimum cardinality is 0 or 1 for the mandatory entity.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.131

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Unary relationships are common in manufacturing industries.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Easy REF: p.136

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Referential integrity and participation are both bidirectional, meaning that they must be addressed in both directions along a relationship.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.137

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. To implement a small database, a database designer must know the “1” and the “M” sides of each relationship and whether the relationships are mandatory or optional.
   1. True
   2. False

*ANSWER:* True

PTS: 1 DIF: Difficulty: Moderate REF: p.139

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. The process of database design is a sequential process.
   1. True
   2. False

*ANSWER:* False

PTS: 1 DIF: Difficulty: Easy REF: p.140

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. The entity relationship diagram (ERD) represents the database as viewed by the end user.
   1. condensed b. physical

c. logical d. conceptual

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The notation of entity-relationship modelling can be used for both conceptual and implementation modelling.
   1. Bachman b. UML

c. Chen d. Crow’s Foot

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A(n) is the set of possible values for a given attribute.
   1. domain b. range

c. identifier d. key

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.119

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Ideally, an entity identifier is composed of attribute(s).
   1. three b. one

c. two d. six

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.120

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A attribute can be further subdivided to yield additional attributes.
   1. composite b. simple

c. single-valued d. multivalued

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.120

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A attribute is one that cannot be subdivided.
   1. composite b. simple

c. single-valued d. multivalued

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.121

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The conceptual model can handle relationships and multivalued attributes.
   1. 1:1 b. M:N

c. 1:M d. 1:N

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.122

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A derived attribute is indicated in the Chen notation by a that connects the attribute and an entity.
   1. single line b. dashed line

c. double dashed line d. double line

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.123

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The decision to store attributes in database tables depends on the processing requirements and the constraintsplaced on a particular application.
   1. multivalued b. derived

c. single-valued d. composite

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.123-124

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A relationship is an association between .
   1. objects b. entities

c. databases d. fields

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.124

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. expresses the minimum and maximum number of entity occurrences associated with one occurrence of therelated entity.
   1. Connectivity b. Relationship

c. Dependence d. Cardinality

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.125

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In the entity relationship diagram (ERD), cardinality is indicated using the notation, where max is themaximum number of associated entities and min represents the minimum number of associated entities.
   1. (max, min) b. (min, max)

c. [min ... max] d. {min|max}

*ANSWER:* b

PTS: 1 DIF: Difficulty: Moderate REF: p.125

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. When the specific cardinalities are not included on the diagram in Crow’s Foot notation, cardinality is implied by theuse of \_\_\_\_\_.
   1. symbols b. attributes

c. images d. tables

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.125

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Knowing the minimum and maximum number of occurrences is very helpful at the application software level.
   1. object b. attribute

c. data d. entity

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.125

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. An entity is said to be -dependent if it can exist in the database only when it is associated with another relatedentity occurrence.
   1. existence b. relationship

c. business d. data

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.126

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. If an entity can exist apart from all of its related entities, then it is existence-independent, and it is referred to as a(n) entity.
   1. weak b. alone

c. unary d. strong

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.126

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A entity has a primary key that is partially or totally derived from the parent entity in the relationship.
   1. strong b. weak

c. business d. child

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.129

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: knowledge TOP: The Entity Relationship Model (ERM)

1. The existence of a(n) entity indicates that its minimum cardinality is zero.
   1. ternary b. optional

c. strong d. weak

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.131

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A relationship exists when an association is maintained within a single entity.
   1. unary b. ternary

c. strong d. weak

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.134

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A relationship exists when three entities are associated.
   1. unary b. ternary

c. strong d. weak

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.134

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. If an employee within an EMPLOYEE entity has a relationship with itself, that relationship is known as a   
   relationship.
   1. self b. self-referring

c. looping d. recursive

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.135

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. To simplify the conceptual design, most higher-order relationships are decomposed into appropriate equivalent  
    relationships whenever possible.
   1. unary b. binary

c. strong d. weak

*ANSWER:* b

PTS: 1 DIF: Difficulty: Easy REF: p.135

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The entity relationship model uses the associative entity to represent a(n) relationship between two or moreentities.
   1. M:N b. 1:M

c. N:1 d. M:1

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.139

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. When using the Crow’s Foot notation, the associative entity is indicated by relationship lines between theparents and the associative entity.
   1. dotted b. double

c. triple d. solid

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.139

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The first step in building an entity-relationship diagram (ERD) is .
   1. developing the initial ERD
   2. creating a detailed narrative of the organization’s description of operations
   3. identifying the attributes and primary keys that adequately describe the entities
   4. identifying the business rules based on the description of operations

*ANSWER:* b

PTS: 1 DIF: Difficulty: Moderate REF: p.140

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: Developing an ER Diagram

1. The Crow’s foot symbol with two vertical parallel lines indicates cardinality.

a. (0,N) b. (1,N)

c. (1,1) d. (0,1)

*ANSWER:* c

PTS: 1 DIF: Difficulty: Easy REF: p.141

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. If Tiny College has some departments that are classified as “research only” and do not offer courses, the COURSEentity of the college database would be the DEPARTMENT entity.
   1. existence-dependent on b. independent of

c. mandatory for d. optional to

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.142

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. In organizations that generate large number of transactions, are often a top priority in database design.
   1. relationships among entities b. logical design standards

c. naming conventions d. high processing speeds

*ANSWER:* d

PTS: 1 DIF: Difficulty: Easy REF: p.148

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. Complex requirements may dictate data transformations, and they may expand the number of entities andattributes within the design.
   1. information b. entity

c. design d. processing

*ANSWER:* a

PTS: 1 DIF: Difficulty: Easy REF: p.149

NAT: BUSPROG: technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. are characteristics of entities.

*ANSWER:* Attributes

PTS: 1 DIF: Difficulty: Easy REF: p.118

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A(n) attribute is an attribute that must have a value.

*ANSWER:* required

PTS: 1 DIF: Difficulty: Easy REF: p.119

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM

1. are underlined in an ER diagram.

*ANSWER:* Identifiers

PTS: 1 DIF: Difficulty: Easy REF: p.119

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A person’s Social Security number would be an example of a(n) attribute.

*ANSWER:* single-valued

PTS: 1 DIF: Difficulty: Easy REF: p.121

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM

1. A(n) attribute need not be physically stored within the database.

*ANSWER:* derived

PTS: 1 DIF: Difficulty: Easy REF: p.123

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A relationship is difficult to establish if only one side of the relationship is known.

*ANSWER:* classification

PTS: 1 DIF: Difficulty: Easy REF: p.124

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. When indicating cardinality, the first value represents the number of associated entities.

*ANSWER:* minimum

PTS: 1 DIF: Difficulty: Easy REF: p.125

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM

1. The concept of relationship strength is based on how the of a related entity is defined.

*ANSWER:* primary key

PTS: 1 DIF: Difficulty: Easy REF: p.126

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM

1. A(n) relationship is also known as an identifying relationship.

*ANSWER:* strong

PTS: 1 DIF: Difficulty: Easy REF: p.128

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM

1. The Crow’s Foot notation depicts the strong relationship with a(n) line between the entities.

*ANSWER:* solid

PTS: 1 DIF: Difficulty: Easy REF: p.128

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A weak entity must be -dependent.

*ANSWER:* existence

PTS: 1 DIF: Difficulty: Easy REF: p.129

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. The Chen notation identifies a weak entity by using a double-walled entity .

*ANSWER:* rectangle

PTS: 1 DIF: Difficulty: Easy REF: p.130

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Participation is if one entity occurrence does not require a corresponding entity occurrence in a particularrelationship.

*ANSWER:* optional

PTS: 1 DIF: Difficulty: Easy REF: p.131

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. In Crow’s Foot notation, an optional relationship between entities is shown by drawing a(n) on the side of theoptional entity.

*ANSWER:* small circle (O)

PTS: 1 DIF: Difficulty: Easy REF: p.131

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. Failure to understand the distinction between mandatory and optional in relationships might yield designs inwhich awkward (and unnecessary) temporary rows (entity instances) must be created just to accommodate thecreation of required entities.

*ANSWER:* participation

PTS: 1 DIF: Difficulty: Easy REF: p.133

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A relationship indicates the number of entities or participants associated with a relationship.

*ANSWER:* degree

PTS: 1 DIF: Difficulty: Easy REF: p.134

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: The Entity Relationship Model (ERM)

1. A(n) process is based on repetition of processes and procedures.

*ANSWER:* iterative

PTS: 1 DIF: Difficulty: Easy REF: p.140

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. Identifying the attributes of entities helps in the better understanding of among entities.

*ANSWER:* relationships

PTS: 1 DIF: Difficulty: Easy REF: p.146

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. not only helps database designers to stay on track during the design process, it also enables them to pick upthe design thread when the time comes to modify the design.

*ANSWER:* Documentation

PTS: 1 DIF: Difficulty: Easy REF: p.152

NAT: BUSPROG: Technology STATE: DISC: Information Technology

KEY: Bloom’s: Knowledge TOP: Developing an ER Diagram

1. Explain multivalued attributes with the help of examples. How are multivalued attributes indicated in the Chen EntityRelationship model?

*ANSWER:* Multivalued attributes are attributes that can have many values. For instance, a person may have severalcollege degrees, and a household may have several different phones, each with its own number.

Similarly, a car’s color may be subdivided into many colors for the roof, body, and trim. In the ChenEntity Relationship model, multivalued attributes are shown by a double line connecting the attribute tothe entity.

PTS: 1 DIF: Difficulty: Moderate REF: p.121

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. What is a weak relationship? Provide an example.

*ANSWER:* A weak relationship, also known as a non-identifying relationship, exists if the primary key of the relatedentity does not contain a primary key component of the parent entity. By default, relationships areestablished by having the primary key of the parent entity appear as a foreign key (FK) on the relatedentity (also known as the child entity). For example, suppose the 1:M relationship between COURSE andCLASS is defined as:

COURSE (**CRS\_CODE**, DEPT\_CODE, CRS\_DESCRIPTION, CRS\_CREDIT)

CLASS (**CLASS\_CODE**, CRS\_CODE, CLASS\_SECTION, CLASS\_TIME, ROOM\_CODE,PROF\_NUM)

In this case, a weak relationship exists between COURSE and CLASS because CRS\_CODE (theprimary key of the parent entity) is only a foreign key in the CLASS entity. In this example, the CLASSprimary key did not inherit a primary key component from the COURSE entity.

PTS: 1 DIF: Difficulty: Moderate REF: p.127

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. Explain mandatory participation in an entity relationship.

*ANSWER:* Mandatory participation means that one entity occurrence requires a corresponding entity occurrence ina particular relationship. If no optionality symbol is depicted with the entity, the entity is assumed toexist in a mandatory relationship with the related entity. If the mandatory participation is depictedgraphically, it is typically shown as a small hash mark across the relationship line, similar to the Crow’sFoot depiction of a connectivity of 1. The existence of a mandatory relationship indicates that theminimum cardinality is at least 1 for the mandatory entity.

PTS: 1 DIF: Difficulty: Moderate REF: p.131

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. What is a ternary relationship? Provide some business rules examples that specify the need for a ternary or higher-order relationship.

*ANSWER:* A ternary relationship implies an association among three different entities. Although most relationshipsare binary, the use of ternary and higher-order relationships does allow the designer some latituderegarding the semantics of a problem. Some business rules examples that specify the need for a ternaryrelationship are:

* A DOCTOR writes one or more PRESCRIPTIONs.
* A PATIENT may receive one or more PRESCRIPTIONs.
* A DRUG may appear in one or more PRESCRIPTIONs. (Assume that the business rule states thateach prescription contains only one drug. In short, if a doctor prescribes more than one drug, a separateprescription must be written for each drug.)

PTS: 1 DIF: Difficulty: Moderate REF: p.135

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)

1. Explain recursive relationships with the help of an example.

*ANSWER:* A recursive relationship is one in which a relationship can exist between occurrences of the same entityset. Such a condition is found within a unary relationship. For example, a 1:M unary relationship can beexpressed by “an EMPLOYEE may manage many EMPLOYEEs, and each EMPLOYEE is managedby one EMPLOYEE.” Finally, the M:N unary relationship may be expressed by “a COURSE may be aprerequisite to many other COURSEs, and each COURSE may have many other COURSEs asprerequisites.”

PTS: 1 DIF: Difficulty: Moderate REF: p.136

NAT: BUSPROG: Analytic STATE: DISC: Information Technology

KEY: Bloom’s: Comprehension TOP: The Entity Relationship Model (ERM)