**Question 1**

1. The entity relationship diagram is used to graphically represent   
   the \_\_\_\_\_\_\_\_ database.

|  |  |  |
| --- | --- | --- |
|  |  | physical |
|  |  | condensed |
|  |  | conceptual |
|  |  | logical |

2 points

**Question 2**

1. The set of possible values for an attribute is a \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | key |
|  |  | range |
|  |  | set |
|  |  | domain |

2 points

**Question 3**

1. In an ER diagram identifiers are indicated by \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | italics |
|  |  | special font |
|  |  | underlining |
|  |  | bolding |

2 points

**Question 4**

1. Which attribute(s) make up the primary key in the table  
   definition CLASS CRS\_CODE, CLASS\_SECTION, CLASS\_TIME,   
   CLASS\_ROOM, PROF\_NUM)?

|  |  |  |
| --- | --- | --- |
|  |  | CRS\_CODE and CLASS\_SECTION |
|  |  | CLASS\_SECTION |
|  |  | CRS\_CODE |
|  |  | there is no primary key |

2 points

**Question 5**

1. What is the ideal number of attributes used to make up  
   a primary key?

|  |  |  |
| --- | --- | --- |
|  |  | 0 |
|  |  | 1 |
|  |  | 2 |
|  |  | 6 |

2 points

**Question 6**

1. A \_\_\_\_\_\_\_\_ identifier is a key that is composed of more than one attribute.

|  |  |  |
| --- | --- | --- |
|  |  | primary |
|  |  | composite |
|  |  | domain |
|  |  | foreign |

2 points

**Question 7**

1. A \_\_\_\_\_\_\_\_ attribute is an attribute that cannot be subdivided.

|  |  |  |
| --- | --- | --- |
|  |  | complex |
|  |  | grouped |
|  |  | simple |
|  |  | defined |

2 points

**Question 8**

1. A \_\_\_\_\_\_\_\_ attribute is an attribute that can have only one value.

|  |  |  |
| --- | --- | --- |
|  |  | composite |
|  |  | single-valued |
|  |  | multivalued |
|  |  | simple |

2 points

**Question 9**

1. \_\_\_\_\_\_\_\_ attributes are attributes that can have several values.

|  |  |  |
| --- | --- | --- |
|  |  | Multivalued |
|  |  | Single-valued |
|  |  | Simple |
|  |  | Composite |

2 points

**Question 10**

1. Which of the following might be represented with a multivalued attribute?

|  |  |  |
| --- | --- | --- |
|  |  | person's educational background |
|  |  | bank account balance |
|  |  | person's name |
|  |  | book title |

2 points

**Question 11**

1. Which of the following might be represented with a single-valued attribute?

|  |  |  |
| --- | --- | --- |
|  |  | person's phone number(s) |
|  |  | employee's educational background |
|  |  | car's color |
|  |  | a serial number |

2 points

**Question 12**

1. What type of attribute should not be implemented in a RDBMS?

|  |  |  |
| --- | --- | --- |
|  |  | multivalued |
|  |  | composite |
|  |  | simple |
|  |  | derived |

2 points

**Question 13**

1. The preferred way to represent multivalued attributes in a DBMS is to  
   create a new entity composed of the original multivalued attribute's  
   components in a(n) \_\_\_\_\_\_\_\_ relationship with the original entity.

|  |  |  |
| --- | --- | --- |
|  |  | 1:1 |
|  |  | 1:M |
|  |  | M:N |
|  |  | weak |

2 points

**Question 14**

1. A derived attribute \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | must be stored physically within the database |
|  |  | must be based on the value of three or more attributes |
|  |  | has many values |
|  |  | need not be physically stored within the database |

2 points

**Question 15**

1. Which of the following should be a derived attribute?

|  |  |  |
| --- | --- | --- |
|  |  | person's name |
|  |  | person's social security number |
|  |  | person's age |
|  |  | person's phone number |

2 points

**Question 16**

1. How is a derived attribute indicated in the Chen model?

|  |  |  |
| --- | --- | --- |
|  |  | dashed line |
|  |  | circle |
|  |  | single line |
|  |  | double line |

2 points

**Question 17**

1. A relationship is an association between \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | fields |
|  |  | entities |
|  |  | databases |
|  |  | objects |

2 points

**Question 18**

1. In the ERD, cardinality is indicated using the \_\_\_\_\_\_\_\_ format.

|  |  |  |
| --- | --- | --- |
|  |  | {min|max} |
|  |  | [min ... max] |
|  |  | (max, min) |
|  |  | (min, max) |

2 points

**Question 19**

1. Cardinality expresses \_\_\_\_\_\_\_\_ number of entity occurrences  
   associated with one occurrence of the related entity.

|  |  |  |
| --- | --- | --- |
|  |  | an infinite |
|  |  | a programmed |
|  |  | the minimum and maximum |
|  |  | an undetermined |

2 points

**Question 20**

1. Knowing the \_\_\_\_\_\_\_\_ number of entity occurrences is very   
   useful at the application software level.

|  |  |  |
| --- | --- | --- |
|  |  | maximum |
|  |  | minimum |
|  |  | maximum and minimum |
|  |  | exact |

2 points

**Question 21**

1. If an entity's existence depends on the existence of one or  
   more other entities it is said to be \_\_\_\_\_\_\_\_-dependent.

|  |  |  |
| --- | --- | --- |
|  |  | weak |
|  |  | business |
|  |  | existence |
|  |  | relationship |

2 points

**Question 22**

1. If an entity can exist apart from one or more related entities,   
   it is said to be \_\_\_\_\_\_\_\_-independent.

|  |  |  |
| --- | --- | --- |
|  |  | existence |
|  |  | business |
|  |  | relationship |
|  |  | weak |

2 points

**Question 23**

1. Connectivities and cardinalities are established by very   
   concise statements known as \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | assertions |
|  |  | relationships |
|  |  | business rules |
|  |  | derived attributes |

2 points

**Question 24**

1. Another word for an existence-independent entity is a \_\_\_\_\_\_\_\_ entity.

|  |  |  |
| --- | --- | --- |
|  |  | weak |
|  |  | unary |
|  |  | strong |
|  |  | solitary |

2 points

**Question 25**

1. A(n) \_\_\_\_\_\_\_\_ relationship is also known as a non-identifying relationship.

|  |  |  |
| --- | --- | --- |
|  |  | direct |
|  |  | weak |
|  |  | strong |
|  |  | indirect |

2 points

**Question 26**

1. When the PK of a related entity does not contain a PK component   
   of the parent entity, the relationship is \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | neutral |
|  |  | strong |
|  |  | weak |
|  |  | missing |

2 points

**Question 27**

1. A \_\_\_\_\_\_\_\_ entity has a primary key that is partially or totally derived  
   from the parent entity in the relationship.

|  |  |  |
| --- | --- | --- |
|  |  | business |
|  |  | strong |
|  |  | weak |
|  |  | relationship |

2 points

**Question 28**

1. In an ERD, the focus is on the \_\_\_\_\_\_\_\_ and the relationships between them.

|  |  |  |
| --- | --- | --- |
|  |  | attributes |
|  |  | keys |
|  |  | indexes |
|  |  | entities |

2 points

**Question 29**

1. The Crow's Foot model depicts the strong (identifying) relationship  
   with a \_\_\_\_\_\_\_\_ line between the entities.

|  |  |  |
| --- | --- | --- |
|  |  | dotted |
|  |  | solid |
|  |  | dashed |
|  |  | bold |

2 points

**Question 30**

1. When loading data into two entities with a 1:M relationship,  
   how should the data be loaded?

|  |  |  |
| --- | --- | --- |
|  |  | The M side must be loaded first. |
|  |  | The order is irrelevant. |
|  |  | The 1 side must be loaded first. |
|  |  | If the relationship is strong the 1 side must be loaded first,  if the relationship is weak, the M side must be loaded first. |

2 points

**Question 31**

1. Remember that the nature of the relationship is often determined by  
   the \_\_\_\_\_\_\_\_, who must use professional judgment to determine which  
   relationship type and strength best suit the database transaction,  
   efficiency, and information requirements.

|  |  |  |
| --- | --- | --- |
|  |  | end user |
|  |  | ERD |
|  |  | RDBMS |
|  |  | database designer |

2 points

**Question 32**

1. A(n) \_\_\_\_\_\_\_\_ entity is existence-dependent.

|  |  |  |
| --- | --- | --- |
|  |  | undefined |
|  |  | weak |
|  |  | related |
|  |  | strong |

2 points

**Question 33**

1. The term \_\_\_\_\_\_\_\_ is used to label any condition in which one or more  
   optional relationships exist.

|  |  |  |
| --- | --- | --- |
|  |  | cardinality |
|  |  | participation |
|  |  | connectivity |
|  |  | optionality |

2 points

**Question 34**

1. \_\_\_\_\_\_\_\_ participation means that one entity occurrence does not require  
   a corresponding entity occurrence in a particular relationship.

|  |  |  |
| --- | --- | --- |
|  |  | Optional |
|  |  | Dependent |
|  |  | Indirect |
|  |  | Required |

2 points

**Question 35**

1. If no \_\_\_\_\_\_\_\_ symbol is depicted with an entity, the entity exists in a  
   mandatory relationship with the related entity.

|  |  |  |
| --- | --- | --- |
|  |  | directional |
|  |  | optionality |
|  |  | strength |
|  |  | cardinality |

2 points

**Question 36**

1. Suppose that Tiny College offers several courses; each course has several  
   classes. It is possible for the department to create the entity COURSE  
   first and then create the CLASS entity after making the teaching assignments.  
   In this case, what cardinality will appear for CLASS in the ERD?

|  |  |  |
| --- | --- | --- |
|  |  | (0,1) |
|  |  | (1,1) |
|  |  | (0,N) |
|  |  | (1,N) |

2 points

**Question 37**

1. What cardinality is indicated by the Crow's Foot symbol that contains a  
   line beside a crow's foot shape?

|  |  |  |
| --- | --- | --- |
|  |  | (0,1) |
|  |  | (1,1) |
|  |  | (0,N) |
|  |  | (1,N) |

2 points

**Question 38**

1. A \_\_\_\_\_\_\_\_ relationship exists when an association is maintained within a  
   single entity.

|  |  |  |
| --- | --- | --- |
|  |  | unary |
|  |  | weak |
|  |  | ternary |
|  |  | binary |

2 points

**Question 39**

1. A \_\_\_\_\_\_\_\_ relationship exists when two entities are associated.

|  |  |  |
| --- | --- | --- |
|  |  | ternary |
|  |  | weak |
|  |  | binary |
|  |  | unary |

2 points

**Question 40**

1. A \_\_\_\_\_\_\_\_ relationship exists when three entities are associated.

|  |  |  |
| --- | --- | --- |
|  |  | binary |
|  |  | ternary |
|  |  | unary |
|  |  | weak |

2 points

**Question 41**

1. A \_\_\_\_\_\_\_\_ relationship is one in which a relationship can exist between   
   occurrences of the same entity set.

|  |  |  |
| --- | --- | --- |
|  |  | recursive |
|  |  | dependent |
|  |  | strong |
|  |  | weak |

2 points

**Question 42**

1. A(n) \_\_\_\_\_\_\_\_ entity is composed of the primary keys of each of the  
   entities to be connected.

|  |  |  |
| --- | --- | --- |
|  |  | unary |
|  |  | composite |
|  |  | binary |
|  |  | associative |

2 points

**Question 43**

1. The bridge entity is also known as a \_\_\_\_\_\_\_\_ entity.

|  |  |  |
| --- | --- | --- |
|  |  | unary |
|  |  | composite |
|  |  | strong |
|  |  | weak |

2 points

**Question 44**

1. In the Crow's Foot model, the composite entity is identified by   
   the \_\_\_\_\_\_\_\_ relationship line between the parent and child entities.

|  |  |  |
| --- | --- | --- |
|  |  | solid |
|  |  | dotted |
|  |  | dashed |
|  |  | yellow |

2 points

**Question 45**

1. The process of database design is \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | optional |
|  |  | sequential |
|  |  | iterative |
|  |  | linear |

2 points

**Question 46**

1. Which ERD design activity comes first?

|  |  |  |
| --- | --- | --- |
|  |  | Identify the business rules based on the description of operations. |
|  |  | Develop the initial ERD. |
|  |  | Create a detailed narrative of the organization's description of operations. |
|  |  | Identify the attributes and primary keys that adequately describe the entities. |

2 points

**Question 47**

1. The existence of 1:1 relationships often indicates a misidentification of   
   attributes as \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | cardinalities |
|  |  | entities |
|  |  | relationships |
|  |  | optionalities |

2 points

**Question 48**

1. A \_\_\_\_\_\_\_\_ attribute is an attribute that can be further subdivided to yield   
   additional attributes.

|  |  |  |
| --- | --- | --- |
|  |  | single-valued |
|  |  | simple |
|  |  | multivalued |
|  |  | composite |

2 points

**Question 49**

1. A database design must conform to \_\_\_\_\_\_\_\_ standards.

|  |  |  |
| --- | --- | --- |
|  |  | design |
|  |  | notation |
|  |  | ERD |
|  |  | organizational |

2 points

**Question 50**

1. The database may have to sacrifice some of its "clean" design structures  
   and/or some of its high transaction speed to ensure \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | space requirements |
|  |  | maximum information generation |
|  |  | uniqueness |
|  |  | transaction requirements |