1. What is a data model in DBMS?
   1. A graphical representation of data
   2. **A set of rules to organize and represent data**
   3. A collection of database tables
   4. A method to retrieve data from a database
2. Which of the following is a key feature of the relational data model?
   1. Hierarchy
   2. Network connections
   3. **Tables with rows and columns**
   4. Inheritance
3. What is the purpose of an ER diagram?
   1. **To visualize the structure of a database**
   2. To perform complex queries
   3. To define database transactions
   4. To manage database connections
4. In the relational model, what is a primary key?
   1. **A unique identifier for a table**
   2. A foreign key in another table
   3. An attribute that allows null values
   4. A data type for numeric values
5. Which of the following is an example of a one-to-many relationship in an ER diagram?
   1. One student attending multiple courses
   2. One course taught by multiple instructors
   3. One student managing multiple departments
   4. **One instructor teaching multiple courses**
6. What does ACID stand for in the context of database transactions?
   1. **Atomicity, Consistency, Integrity, Durability**
   2. Authorization, Caching, Isolation, Debugging
   3. Analysis, Compression, Indexing, Decomposition
   4. Association, Composition, Inheritance, Delegation
7. Which of the following is not a type of data model?
   1. Relational model
   2. Hierarchical model
   3. Network model
   4. **Sequential model**
8. In an ER diagram, what does a diamond shape represent?
   1. Entity set
   2. Attribute
   3. **Relationship set**
   4. Primary key
9. Which of the following is true about a weak entity in an ER diagram?
   1. It does not have a primary key
   2. **It depends on another entity for its existence**
   3. It cannot participate in relationships
   4. It represents an attribute
10. What is normalization in the context of database design?
    1. **Breaking down data into smaller units**
    2. Combining multiple tables into one
    3. Adding redundancy to improve performance
    4. Generating random data for testing purposes
11. Which normal form eliminates transitive dependencies?
    1. First normal form (1NF)
    2. Second normal form (2NF)
    3. **Third normal form (3NF)**
    4. Boyce-Codd normal form (BCNF)
12. What is the cardinality of a relationship in an ER diagram?
    1. The number of attributes in an entity
    2. **The number of entities participating in the relationship**
    3. The number of instances of an entity
    4. The number of relationships in a database
13. Which of the following is not a property of a relational database?
    1. Data independence
    2. **Data redundancy**
    3. Data integrity
    4. Data consistency
14. What is an entity in an ER diagram?
    1. A relationship between two entities
    2. **A table in a database**
    3. A column in a table
    4. An attribute of an entity
15. Which of the following is a disadvantage of the hierarchical data model?
    1. **Data redundancy**
    2. Flexibility in querying
    3. Efficient retrieval of hierarchical data
    4. Simplicity in data representation
16. In the relational model, what is a foreign key?
    1. A key that uniquely identifies a table
    2. **A key that references another table's primary key**
    3. A key that allows null values
    4. A key that determines the order of records
17. Which of the following is an example of a many-to-many relationship in an ER diagram?
    1. **One student attending multiple courses**
    2. One course taught by multiple instructors
    3. One student managing multiple departments
    4. One instructor teaching multiple courses
18. What is the purpose of cardinality constraints in an ER diagram?
    1. **To specify the maximum number of entities in a relationship**
    2. To specify the minimum number of entities in a relationship
    3. To specify the data type of an attribute
    4. To specify the primary key of an entity
19. Which of the following is a disadvantage of the network data model?
    1. **Data redundancy**
    2. Simplicity in data representation
    3. Efficient retrieval of hierarchical data
    4. Flexibility in querying
20. What is a surrogate key in the context of a database?
    1. **A primary key generated by the database system**
    2. A foreign key referencing another table
    3. A key used for encryption purposes
    4. A key used for sorting records
21. Which of the following is a characteristic of a well-designed ER diagram?
    1. Absence of relationships
    2. Absence of entities
    3. **Minimization of redundancy**
    4. Maximization of attributes
22. What is the purpose of a composite key in a database table?
    1. **To uniquely identify a record in the table**
    2. To reference another table's primary key
    3. To determine the order of records in the table
    4. To perform complex queries
23. Which of the following is a benefit of using a data model in database design?
    1. Increased data redundancy
    2. Decreased data integrity
    3. **Improved data organization**
    4. Reduced data consistency
24. What is the role of a relationship in an ER diagram?
    1. To represent an attribute of an entity
    2. **To connect two entities**
    3. To determine the order of records
    4. To uniquely identify a record
25. Which normal form ensures that25. Which normal form ensures that non-key attributes are functionally dependent on the primary key?
    1. First normal form (1NF)
    2. Second normal form (2NF)
    3. **Third normal form (3NF)**
    4. Boyce-Codd normal form (BCNF)
26. In the relational model, what is a composite key?
    1. **A key composed of multiple attributes**
    2. A key used for encryption purposes
    3. A key that uniquely identifies a table
    4. A key that references another table's primary key
27. Which of the following is not a type of relationship in an ER diagram?
    1. One-to-one
    2. Many-to-many
    3. One-to-many
    4. **One-to-some**
28. What is the purpose of referential integrity in a relational database?
    1. To ensure that data is stored efficiently
    2. **To enforce consistency and relationships between tables**
    3. To optimize query performance
    4. To prevent data redundancy
29. Which of the following is not a valid cardinality constraint in an ER diagram?
    1. One-to-one
    2. Zero-to-many
    3. **One-to-some**
    4. Many-to-many
30. What is the purpose of an ER diagram in database design?
    1. To perform complex queries
    2. **To visualize and represent the structure of a database**
    3. To optimize query performance
    4. To generate random data for testing purposes
31. Which of the following is a characteristic of a well-designed relational database?
    1. Data redundancy
    2. Data inconsistency
    3. **Normalized data**
    4. Lack of primary keys
32. In an ER diagram, what does a double line between entities represent?
    1. A one-to-many relationship
    2. A one-to-one relationship
    3. **A many-to-many relationship**
    4. A one-to-some relationship
33. What is the purpose of normalization in database design?
    1. To increase data redundancy
    2. To decrease data integrity
    3. **To organize data efficiently**
    4. To generate random data for testing purposes
34. Which of the following is not a component of the relational model?
    1. Tables
    2. Columns
    3. Relationships
    4. **Hierarchies**
35. What is the purpose of a foreign key in a relational database?
    1. To uniquely identify a record in a table
    2. **To reference another table's primary key**
    3. To determine the order of records in a table
    4. To perform complex queries