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## CS403 GRAND QUIZ

1. Which is not the function of Database Management System?
  - a. A user accessible Catalog
  - b. Concurrency Control Services
  - c. Failure Response Service**
  - d. Support for Data Communication
2. The conceptual database design can be transformed into any \_\_\_\_\_.
  - a. Data model**
  - b. Database design
  - c. E-R model
  - d. Entity set
3. Which is the second stage in the database development process?
  - a. Database design
  - b. Preliminary Study
  - c. Physical Design
  - d. Requirement Analysis**
4. Functional dependencies under interference rule reflexivity are called \_\_\_\_\_ dependencies.
  - a. Augmentation
  - b. Transitivity
  - c. Projectivity
  - d. Trivial**
5. If many instances of the "Book" entity are associated with the many instances of the "Student" entity, then the relationship between them is:
  - a. One to one
  - b. One to many
  - c. Many to many**
  - d. Many to one
6. Which of the following constraints enforces entity integrity?
  - a. PRIMARY KEY**
  - b. FOREIGN KEY
  - c. CHECK
  - d. NOT NULL
7. Unary operations involves
  - a. Only one relation**
  - b. Only two relations
  - c. More than two relations
  - d. Not more than five relations

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8. A \_\_\_\_ entity has a primary key that is partially or totally derived from the parent entity in the relationship.
- Strong
  - Weak
  - Business
  - Relationship
9. In \_\_\_\_\_ appropriate data model is chosen.
- ERD
  - Conceptual Database Design
  - Logical Database Design
  - DFA
10. Which of the following is drawback of standardization?
- Difficult to understand
  - Uniformity
  - Lack of uniqueness
  - Easy to develop applications
11. Recursive relationship is also called \_\_\_\_\_.
- Unary
  - Ternary
  - Primary
  - Secondary
12. The foreign key attribute, which is present as a primary key in another relation is called as \_\_\_\_\_ of the foreign key attribute.
- Binary relation
  - Composite relation
  - Home relation
  - Recursive relation
13. DFD does not provide us a way to represent \_\_\_\_\_
- Entities
  - Decisions
  - Date stores
  - Processes

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14. A \_\_\_\_\_ is used to maintain a connection between the users of the database system.

- a. Virtual server
- b. File server**
- c. Client server
- d. FTP server

15. Which of the following is an advantage of using the Traditional File Organization?

- a. Time consuming
- b. Data security
- c. Simplicity**
- d. Efficiency

16. Which of the following is the input to Analysis Phase?

- a. DFD**
- b. Logical database design
- c. Physical database design
- d. Data model

17. Name and \_\_\_\_\_ are part of the definitions of an attribute.

- a. Domain
- b. Symbol
- c. Property
- d. Entity instance

18. Which of the following most certainly implies the need for an entire table to implement?

- a. A ternary relationship**
- b. A recursive relationship
- c. An identify relationship
- d. A binary relationship

19. Core of the Database Architecture is \_\_\_\_\_

- a. Internal level**
- b. External level
- c. Conceptual level
- d. ANSI SPARK

20. \_\_\_\_\_ is same as equi-join with a slight difference.

- a. Natural join**

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- b. Semi join
  - c. Outer join
  - d. Theta join
21. Conceptual database design is implemented using a \_\_\_\_\_.
- a. Hierarchical data model
  - b. Semantic data model**
  - c. Relational data model
  - d. Network data model
22. Which constraint is generally used for efficiency purposes in the data entry process?
- a. Null value
  - b. Integer value
  - c. Default value**
  - d. String value
23. A 3 NF relation is converted to BCNF by
- a. Removing composite keys
  - b. Removing multivalued dependencies
  - c. Dependent attributes of overlapping composite keys are put in a separate relation**
  - d. Dependent non-key attributes are put in a separate table
24. Each \_\_\_\_\_ of a table contains atomic/single value.
- a. Cell**
  - b. Row
  - c. Column
  - d. Record
25. A relation is said to be in BCNF when
- a. It has overlapping composite keys
  - b. It has no composite keys
  - c. It has no multivalued dependencies
  - d. It has no overlapping composite keys which have related attributes**
26. Which one of the following is not a part of three-level architecture?
- a. External level

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- b. Conceptual level
  - c. Internal level
  - d. Physical level**
27. Which of the following is INCORRECT about naming entities?
- a. Singular nouns are used
  - b. Write in capitals
  - c. Organization specific names can be used
  - d. Always use abbreviations as they are convenient**
28. An instance is
- a. A particular occurrence of an entity
  - b. A special type of relation
  - c. An attribute of an entity
  - d. Any particular entity**
29. \_\_\_\_\_ is an example of metadata
- a. Ali
  - b. Address
  - c. Person
  - d. Student**
30. Level of data at which entities or objects exist in reality is called
- a. Real world data**
  - b. Schema for real world data
  - c. Meta data
  - d. Data about data
31. There are \_\_\_\_\_ basic properties of the database relations.
- a. Four
  - b. Three
  - c. Six**
  - d. Two
32. How many types of dependencies are?
- a. One
  - b. Two

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- c. Three  
d. Four
33. In \_\_\_\_\_ join, only selected rows of a relation are made cross product with second relation.  
a. Normal  
b. Theta  
c. Outer  
d. Semi
34. Which of the following is not a key?  
a. Super key  
b. Alternate key  
c. Integrity constraint key  
d. Primary key
35. A collection of concepts that can be used to describe the structure of a database  
a. Database  
b. DBMS  
c. Data model  
d. Data
36. Any combination of attributes with super key is \_\_\_\_\_  
a. Primary key  
b. Foreign key  
c. Super key  
d. Candidate key
37. Binary relationships are those, which are established between  
a. One entity type  
b. Two entity type  
c. Three entity type  
d. Unlimited entities
38. \_\_\_\_\_ are called participants, when enrolled in a relationship.  
a. Attributes  
b. Relations  
c. Entities  
d. Keys

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39. In case of Context-level Diagram, the system is represented by
- One process atleast
  - Two processes atleast
  - One process only**
  - Any number of processes
40. Collection of raw facts is called \_\_\_\_\_.
- Information
  - Object
  - Output
  - Data**
41. A software package designed to store and manage database
- Database
  - DBMS**
  - Data model
  - Data
42. In \_\_\_\_\_ join common attributes appear twice in the output with selected rows.
- Normal join
  - Semi join
  - Natural join
  - Equi join**
43. Within a table, each primary key value \_\_\_\_\_.
- Is a minimal super key
  - Is always the first field in each table
  - Must be numeric
  - Must be unique**
44. \_\_\_\_\_ is not an operation of relational algebra.
- Addition**
  - Union
  - Cartesian product
  - Set difference
45. Candidate keys which are not selected as primary key are called \_\_\_\_\_
- Secondary keys



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- b. Foreign keys
  - c. Alternate keys**
  - d. Composite keys
46. Major benefits of data sharing is:
- a. Data of same applications placed at same place.
  - b. Data of same applications placed at different places
  - c. Data of different application places at same place**
  - d. Data of different applications stored at placed place
47. Functional dependency between two attributes or sets of attributes i.e. Q and P is represented as \_\_\_\_\_.
- a.  $Q \rightarrow P$**
  - b.  $Q \ P$
  - c.  $Q * P$
  - d.  $Q + P$
48. Which of the following is not the component of Relational Data Model?
- a. Integrity Constraint
  - b. Manipulation Language**
  - c. Relation / Table
  - d. Domain Constraint
49. The attribute that is calculated from other attribute is called \_\_\_\_\_.
- a. Derived attribute**
  - b. Multi-valued attribute
  - c. Composite attribute
  - d. Simple attribute
50. Consider the two attributes "CNIC\_NO" and "Registration\_NO". Both the attributes can be used for the unique identification. Now if the user selects the "CNIC\_NO" as primary key, then "Registration\_NO" is a \_\_\_\_ key.
- a. Foreign
  - b. Secondary
  - c. Primary
  - d. Alternative**

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51. Which of the following constraint is included in the definition of the table?

- a. Default value
- b. Foreign key
- c. Null
- d. Domain

52. The database deals with large amount of data. This property is called

- a. Database design
- b. Scalability
- c. Concurrency
- d. Robustness

53. Which one of the following is NOT a characteristic of meta data?

- a. Data about data
- b. Describes a data dictionary
- c. Self-describing
- d. Includes user data

54. Theta join is denoted mathematically as \_\_\_\_\_.

- a.  $R \times S$
- b.  $R \bowtie X$
- c.  $R \bowtie \emptyset S$
- d.  $R \bowtie RS$

55. In cross reference matrix transitions are specified on \_\_\_\_\_ and database objects are specified on \_\_\_\_\_.

- a. Y axis, X axis
- b. X axis, Y axis
- c. X axis, X axis
- d. Y axis, Y axis

56. Each component of DBMS performs \_\_\_\_\_ functions.

- a. Similar
- b. Different
- c. Identical
- d. Computational

57. Which of the following data model is not record based?

- a. Hierarchical Data Model
- b. Network Data model
- c. Semantic Data model
- d. Relational Data model

58. The basic purpose of diamond in ER diagram is to show the \_\_\_\_\_.

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- a. Attributes
  - b. Relationships**
  - c. Composite attribute
  - d. Entity set
59. Which of the following tool is used to design conceptual database design?
- a. SQL
  - b. MS Access
  - c. Oracle
  - d. This model is independent of any tool**
60. In “one to many” cardinality one instance of a relation is mapped with \_\_\_\_\_.
- a. Many instances of second entity type**
  - b. One instance of second entity type
  - c. Primary key of second relation
  - d. Foreign key of second relation
61. Cross reference matrix is developed at the \_\_\_\_\_ stage of the database.
- a. Analysis
  - b. Designing**
  - c. Implementation
  - d. Application
62. The population of the data of the organization for which the database is created is called the \_\_\_\_\_ of the database.
- a. Extension**
  - b. Intension
  - c. Model
  - d. Schema
63. User rights information is stored in
- a. Physical database
  - b. Catalog**
  - c. Logical database
  - d. Buffer
64. Logical data independency provides independency to change \_\_\_\_\_ model.
- a. External
  - b. Logical
  - c. Conceptual**
  - d. Internal

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65. In natural join the common attribute in the output table appears \_\_\_\_\_.  
a. Twice  
b. Three times  
c. Four times  
d. Once
66. Which levels are mostly used for detailed DFD?  
a. Level-0, Level-1  
b. Level-1, Level-2  
c. Level-2, Level-3  
d. Level-3, Level-4
67. By default, a non-key attribute in a relation can have \_\_\_\_\_ value.  
a. Binary  
b. Null  
c. Character  
d. Integer
68. The three levels architecture is useful for \_\_\_\_\_.  
a. Arranging the data in an organized manner  
b. Hiding the details of internal systems  
c. Breaking the data access restriction  
d. Storing definitions of the structures
69. With the help of \_\_\_\_\_ technique data values with the smaller sized codes can further reduce the space needed by the data for storage in the database.  
a. Compression  
b. Expansions  
c. Negation  
d. Extension
70. If an entity is linked with itself, than it is called \_\_\_\_\_ relationship.  
a. Binary  
b. Ternary  
c. Nary  
d. Recursive
71. Duplication of data in controlled redundancy is controlled and \_\_\_\_\_.

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- a. **Deliberate**
  - b. Necessary
  - c. Precise
  - d. Unintentional
72. Teleprocessing is a sub-type of \_\_\_\_\_.
- a. Single user database
  - b. **Multi-user database**
  - c. File server
  - d. Client server
73. In an ERD, the focus is on the \_\_\_\_\_ and the relationships between them.
- a. Attributes
  - b. **Entities**
  - c. Keys
  - d. Indexes
74. The most widely used conceptual model is the \_\_\_\_\_ model.
- a. Implementation
  - b. **ER**
  - c. Object oriented
  - d. Internal
75. Student and book are two entities, what is the cardinality between the two?
- a. Many to one
  - b. One to many
  - c. **Many to many**
  - d. One to one
76. RDM is a simple there is just one structure and that is \_\_\_\_\_.
- a. **A relation or a table**
  - b. E-R model
  - c. Attributes
  - d. Data model
77. A description on a particular collection of data using the given data model.
- a. **Database**
  - b. Relation

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**c. Schema**

d. None

78. Consider thy key “CNIC, Name” and choose the best option that describes the key most effectively.

a. The given key is a super key and alternate key.

b. The given key is not a super key but a candidate key.

**c. The given key is a super key and candidate key as well.**

d. The given key is a super key but not a candidate key.

79. Normalization is a process of restricting a relation to

**a. Minimize duplication of data in a database**

b. Maximize duplication of data to ensure reliability

c. Make if of uniform size

d. Allow addition of data

80. Unary relationship involves a single entity it is also called \_\_\_\_\_.

a. One to one relationship

b. One to many relationship

c. Many to many relationship

**d. Recursive relationship**

81. Which of the following is a part of a DFD but not included in the ERD?

a. The attribute having a single instance

**b. The external entity having a single instance**

c. The relationship having a single instance

d. The role having a single instance

82. The database management system (DBMS) is used to

a. Store the data

b. Access the data

c. Manage its users

**d. All of above**

83. In cross reference matrix attributes are mention on \_\_\_\_\_ and reports are mention on \_\_\_\_\_.

e. Y axis, X axis

f. Y axis, Z axis

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- g. X axis, Y axis**
  - h. X axis, Z axis
84. A table can be logically connected to another table by defining a \_\_\_\_\_.
- a. Hyper link
  - b. Common attribute
  - c. Primary key**
  - d. Super key
85. Data Redundancy means
- a. Security of data
  - b. Duplication of data**
  - c. Management of data
  - d. Recovery of data
86. Which of the following is a type of dependency?
- a. DBMS
  - b. ERD
  - c. DFD
  - d. Referential**
87. In your opinion, why relational database is widely acceptable?
- a. Due to its complexity
  - b. Due to its approach
  - c. Due to its dependencies**
  - d. Due to its strength
88. \_\_\_\_\_ is the first comprehensive complete database design.
- a. Logical database design
  - b. Relational database design
  - c. Conceptual database design**
  - d. Hierarchical database design
89. How data security can be assured in the database?
- a. By hiding data from all
  - b. Through concurrent access of users
  - c. By asking users not to share things

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## **d. Implementing encryption algorithms**

90. The attributes whose value is not stored in a database is known as \_\_\_\_\_ attribute.

- a. Stored
- b. Single value
- c. Multi value

## **d. Derived**

91. Logical database design, like conceptual database design is our \_\_\_\_\_

- a. Data model
- b. Weak entity set
- c. Strong entity set

## **d. Database design**

92. If a single instance of “student” is associated with the many instances of the “subjects” entity, then the relationship between them is:

- a. One to one
- b. One to many**
- c. Many to many
- d. Many to one

93. The conceptual database design is drawn through \_\_\_\_\_.

- a. Data model
- b. ER model**
- c. Database design
- d. Entity set

94. A relational database is

- a. One that consist of two or more tables
- b. A database that is able to process tables, queries, forms, reports and macros
- c. One that consists of two or more tables that are joined in some way
- d. The same as a flat file database

95. Database is a computerized representation of any organization’s flow of \_\_\_\_\_ and storage of \_\_\_\_\_.

- a. Data, information
- b. Details, data
- c. Data, details
- d. Information, data**

96. In which stage of the database development process logical design is created?

- a. Requirement analysis
- b. Database design
- c. Physical design
- d. Implementation**

97. Which of the following is NOT an entity?

- a. Employee



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- b. Hobby
  - c. Student
  - d. Playground**
98. After moving the determined columns from the original table to the new table while converting to 2NF, the determinate becomes the \_\_\_\_\_ of the new table.
- a. Primary key**
  - b. Foreign key
  - c. Secondary key
  - d. Composite key
99. The select operation works horizontally on the table, on the other hand the \_\_\_\_\_ operates on a single table vertically.
- a. Binary operator
  - b. Project operator**
  - c. Join operator
  - d. Select operator
100. Free standing data dictionary is created by
- a. DFD
  - b. Database
  - c. CASE tools**
  - d. Cross reference matrix
101. A patient can be an outdoor or indoor. Analyze this statement and tell what type of constraint will be applied on patient?
- a) Total completeness**
  - b) Partial completeness
  - c) Total disjoint
  - d) Partial disjoint
102. If  $A \rightarrow B$  and  $A \rightarrow C$ , then  $A \rightarrow BC$ . The inference Rule applies is:
- a) Union**
  - b) Decomposition
  - c) Augmentation
  - d) Reflexivity
103. Which of the following is the correct abbreviation of ERD?
- a) Entity relationship diagram**
  - b) Entity relation diagram
  - c) Entity reality diagram
  - d) Entity real distance
104. Database relation is also represented in a two dimensional structure called \_\_\_\_\_
- a) Row
  - b) Table**
  - c) Entity

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- d) Column
105. Data about data is metadata
- a) True
- b) False
106. Which of the following describes the job of a database administrator?
- a) Development, implementation operation of the physical database
- b) Creation of the system catalog
- c) Monitoring and controlling database security and authorization: setting up controls to ensure the quality and integrity of data
- d) All of the above
107. Each table must have a \_\_\_\_\_ key.
- a) Primary
- b) Secondary
- c) Logical
- d) Foreign
108. A relational database system is based on the concept(s) of:
- a) A network of data records
- b) Nested tables
- c) Tables, row and columns
- d) A tree-like structure of data
109.  $A \rightarrow BC$  and  $A \rightarrow B$ , then  $A \rightarrow C$  follow \_\_\_\_\_ inference rule.
- a) Augmentation
- b) Transitivity
- c) Projectivity
- d) Additivity
110. Suppose, we have two entities "shape" and "triangle", then which of the following is a correct statement?
- a) Shape is a super type entity and triangle is a sub type entity
- b) Shape is a sub type entity and triangle is a super type entity
- c) Shape and triangle both are super type entities
- d) Shape and triangle both are sub type entities
111. The entity that is NOT dependent on any other entity for its existence is known as \_\_\_\_\_ entity.
- a) Weak
- b) Strong
- c) Derived
- d) Dependent
112. In cross reference matrix attributes are specified on \_\_\_\_\_
- a) X axis
- b) Y axis

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- c) Z axis  
d) None of the above
113. Which of the following clarify the semantics of a relationship?  
a) Entity  
**b) Roles**  
c) Relationship set  
d) Participants
114. How many types of cardinality is specified about relationship?  
a) Two  
b) One  
c) Three  
**d) Four**
115. Which of the following is NOT a component of a DFD?  
a) Dataflow  
b) Datastore  
c) External entities  
**d) Relationship between external entities**
116. Which of the following provides us the facility to add properties of one entity to another entity automatically?  
a) Abstraction  
b) Encapsulation  
**c) Inheritance**  
d) Dependencies
117. If there is more than one relationship between two entities and we mentioned role on the relationship link, then it is called:  
a) Unary relationship  
b) Binary relationships  
c) Ternary relationships  
**d) Multiple relationships**
118. Which one of the following is not an advantage of DBMS  
a) Data consistency  
**b) Recovery procedure is difficult**  
c) Faster development of new applications  
d) Better backup and recovery procedures
119. In many to many relationship a third table is created for the relationship, which is also called as \_\_\_\_\_  
a) Binary relation  
**b) Associative entity type**  
c) Unary relationship  
d) Composite attributes

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120. When one entity instance of another entity for its existence, then it is called \_\_\_\_
- a) Existence dependency
  - b) Identifier dependency
  - c) Referential dependency
  - d) Acceptance dependency
121. Relational data model is widely accepted due to its mathematically proven foundation and its \_\_\_\_
- a) Complexity
  - b) Simplicity
  - c) Hierarchical structure
  - d) Traditional structure
122. If an entity "motor cycle" is associated with at most one "driver", then the relationship between these two entities is:
- a) One to one
  - b) One to many
  - c) Many to many
  - d) Many to one
123. Database application is a program which is used for performing certain operations such as
- a) Insertion of data
  - b) Extraction of data
  - c) Updating the data
  - d) All of above
124. Creating the relationships between new tables and their predecessors through the use of foreign keys is general requirements of \_\_\_\_
- a) First normal form
  - b) Second normal form
  - c) Third normal form
  - d) Fourth normal form
125. In \_\_\_\_ the domains of attributes of a relation are atomic, that is they consist of single units that cannot be broken down further.
- a) First normal form
  - b) Second normal form
  - c) Third normal form
  - d) Augmentation
126. Atomicity is a feature of \_\_\_\_.
- a) 1NF
  - b) 2NF
  - c) 3NF

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- d) BCNF
127. The \_\_\_\_\_ can see entire information structure of the database.
- a) **BA**
  - b) DBTG
  - c) Database user
  - d) External viewer
128. The attribute whose value is not stored in a database is known as \_\_\_\_\_ attribute.
- a) Stored
  - b) Single value
  - c) Multi value
  - d) **Derived**
129. \_\_\_\_\_ are the structure defined for placing data in the attributes while designing physical design of database.
- a) Objects
  - b) Variables
  - c) Attributes
  - d) **Data types**
130. Suppose a relation has five columns and ten rows, select the correct option to identify cardinality of relation.
- a) Five
  - b) **Ten**
  - c) Fifteen
  - d) Twenty
131. Which feature of database provides conversion from inconsistent state of DB to a consistent state ensuring minimum data loss?
- a) User accessible catalog
  - b) Data processing
  - c) **Recovery service**
  - d) Authorization service
132. The maximum PL/SQL size of data type "VARCHAR2" in DBMS is \_\_\_\_\_ bytes
- a) 42767
  - b) 52767
  - c) **32767**
  - d) 28767
133. \_\_\_\_\_ is state of database where a "course" cannot be inserted in the table, because this course has not been registered to any "student".
- a) **Insertion anomaly**
  - b) Deletion anomaly
  - c) Updation anomaly

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- d) Redundancy
134. The maximum PL/SQL size of data type "BLOB" in DBMS is \_\_\_\_\_
- a) 4 gigabytes
  - b) 8 gigabytes
  - c) 10 gigabytes
  - d) 12 gigabytes
135. \_\_\_\_\_ states that in a relation no attributes of a primary key (PK) can have a null value.
- a) Referential integrity constraint
  - b) Null constraint
  - c) Domain constraint
  - d) Entity integrity constraint
136. A database state where deletion of the information about the student record deletes the course information as well is called \_\_\_\_\_.
- a) Insertion anomaly
  - b) Updation anomaly
  - c) Redundancy
  - d) Deletion anomaly
137. An entity type is
- a) Defined when the database is actually constructed
  - b) A specific type such as an integer, text, date, logical etc.
  - c) A coherent set of similar objects that we want to store data on (e.g. STUDENTS, COURSE, CAR)
  - d) Defined by the database designer
138. "select" and "project" are the examples of \_\_\_\_\_
- a) Unary operation
  - b) Binary operation
  - c) Ternary operation
  - d) Nary operation
139. External scheme evolves as user needs are \_\_\_\_\_ over the time.
- a) Ends
  - b) Modified
  - c) Switch
  - d) Stable
140. An attribute that is the collection of some other attribute(s) is known as \_\_\_\_\_ attributes.
- a) Multi-valued
  - b) Single-valued
  - c) No-valued

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- d) **Composite**
141. Which of the following is correct regarding Dataflow diagram?  
a) Single DFD is required to represent a system  
b) The dataflow must be bidirectional  
c) **Created at increasing levels of detail**  
d) Used to represent the relationships among the external entities
142. \_\_\_\_\_ are those attributes that are a combination of two or more than two attributes.  
a) Default value  
b) Null value  
c) Primary key  
d) **Composite attributes**
143. Controlling redundancy in a database management system DOES NOT help to  
a) avoid duplication  
b) avoid unnecessary wastage of storage space  
c) **avoid unauthorized access to data**  
d) avoid inconsistency among data
144. Which of the following concepts is applicable with respect to 3NF?  
a) Full functional dependency  
b) Any kind of dependency  
c) **Transitive dependency**  
d) Partial functional dependency
145. Identify the operation which is NOT one of the parts of the five basic set operations in relational algebra?  
a) **Join**  
b) Union  
c) Cartesian Product  
d) Set Difference
146. Making a change to the conceptual schema of a database but not affecting the existing external schemas is an example of  
a) Physical data independence.  
b) Concurrency control.  
c) **Logical data independence.**  
d) Functional dependency
147. For a third normal form we concentrate on relations with one \_\_\_\_\_ key, and we eliminate transitive dependencies  
a) **Candidate**  
b) Composite  
c) Super key  
d) Primary key

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148. The entity relationship diagram is used to graphically represent the \_\_\_\_\_ database model.
- a) Condensed
  - b) Physical
  - c) Logical
  - d) **Conceptual**
149. The \_\_\_\_\_ determines that the link between two entities is optional or mandatory.
- a) Maximum cardinality
  - b) **Minimum cardinality**
  - c) Maximum degree
  - d) Minimum degree
150. Select the most appropriate statement. Which of the following data model is used to design logical database design?
- a) **Relational**
  - b) Hierarchal
  - c) Object oriented
  - d) Any model can be used