	Final Exam	جامعة دمياط Damietta University
Department: Mathematics **Date:26/1/2022**	**Program Name:** Computer Science/ Physics and Computer Sciences **Level: 2**	**Course Title:** Database Systems **Code No.: 204 س**

ANSWER ALL THE FOLLOWING QUESTIONS:

Question 1: Define the following terms **(20 Marks)**

A. Database
B. DBMS
C. Referential integrity constraint
D. SQL

Question 2: State true or false and correct the wrong statement **(20 Marks)**

1. An SQL query can't contain a HAVING clause even if it does not have a GROUP BY clause.
2. SQL includes both data definition language and data ~~maintenance~~ manipulation language.
3. Leaf node is a class that has no subclasses of its own.
4. Backup and recovery services are improved using the database approach.
5. Integrity system is the one responsible for restoring the database to a previous consistent state following a hardware or software failure. recovery
6. Atomicity of updates is one of the relational database advantages.
7. In the ERD; the oval represent relationship between two entities. diamond
8. The attributes in FK may not have values other than the domain(s) of the primary key attributes PK.
9. The data administrator is responsible for the physical realization of the database, including physical database design and implementation. base
10. In the relational database the order of attributes has no significance.

Question 3: Choose the correct answers: **(40 Marks)**

1. A subclass can be a subclass in more than one class/subclass relationship; this is referred to as .....

A. specialization lattice
B. strict hierarchy
C. generalization
D. specialization hierarchy

2. ..... schemas correspond to different views of the data.

A. Conceptual
B. External
C. Internal
D. Physical

3. Aggregate functions can be used only in the SELECT list and in the .....clause.

A. Where
B. Having
C. Order by
D. Group by

4. **What is the purpose of the AS clause in SQL?**
   A. used to change the name of a column in the result set or to assign a name to a derived column
   B. used with the ORDER BY clause only
   C. defines a search condition
   D. All of the mentioned

5. **An entity that is a member of a ..... inherits all the attributes and relationships of the entity as a member of the .....**
   A. Superclass / subclass
   B. Subclass / Superclass
   C. Subclass / Subclass
   D. Superclass / Superclass

6. **..... system prevents unauthorized users accessing the database.**
   A. Integrity
   B. Security
   C. Concurrency control
   D. Recovery

7. **Which of The SQL Statements Is Correct?**
   A. SELECT Username, Password WHERE Username = 'user1'
   B. SELECT Username AND Password FROM Users
   C. SELECT Username, Password FROM Users
   D. None of These

8. **Which of the following are the five aggregate functions provided by SQL?**
   A. SUM, AVG, MIN, MAX, MULT
   B. COUNT, SUM, AVG, MAX, MIN
   C. SUM, AVG, MULT, DIV, MIN
   D. SUM, AVG, MIN, MAX, NAME

9. **The GROUP BY is use with the .....statement only.**
   A. SELECT
   B. CREATE
   C. UPDATE
   D. INSERT

10. **In SQL; the ORDER BY clause is used to order the ..... of the resulted table.**
    A. attributes
    B. tuples
    C. relationships
    D. names

11. **.....is an entity type that is a distinct subgrouping of occurrences of an entity type, which require to be represented in a data model.**
    A. Subclass
    B. Member
    C. Superclass
    D. Regular

12. **The .....of a relation is the number of tuples it contains.**
    A. Degree
    B. Cardinality
    C. electivity factor
    D. tuples

13. **..... is the set of allowable values for one or more attributes.**
    A. Null
    B. Key
    C. Domain
    D. Constraint

14. **In relational database the PK must has two properties .....**
    A. Minimal & Unique
    B. Irreducible & Composite
    C. Derived & Minimal
    D. Composite & Minimal

15. **..... is the process of minimizing the differences between entities by identifying their common characteristics.**
    A. Generalization
    B. Union
    C. Inheritance
    D. Specialization

16. **.....is an entity type that includes one or more distinct subgroupings of its occurrences, which require to be represented in a data model.**

A. Subclass B. Member C. Superclass D. Regular

17. **Which one of the following SQL statements is correct?**

A. UPDATE table_name SET attribute1 = 'new_value1', attribute2= 'new_value2' WHERE attribute1 = 'old_value1';

B. UPDATE table_name SET attribute1= 'new_value1' AND attribute2= 'new_value2' WHERE attribute1 = 'old_value1';

C. UPDATE attribute1, attribute2 SET 'new_value1', 'new_value2' WHERE attribute 1 = 'old_value1';

D. UPDATE attribute1, attribute2 SET 'new_value1' AND 'new_value2' WHERE attribute 1 = 'old_value1';

18. **A..... attribute represents a value that is computed from the value of a related attribute or set of attributes, not necessarily in the same entity.**

A. Composite B. derived C. simple D. single

19. **..... is a complete definition or description of the database structure and constraints stored in the catalog.**

A. DBMS B. Database Application C. Meta-data D. Program

20. **.....schemas correspond to different views of the data.**

A. Conceptual B. External C. Internal D. Physical

Question 4: Complete the following sentences: (20 Marks)

1. The same data may be stored in multiple files; this causes the data .... **(1)** .... problem.
2. The .... **(2)** .... of a relation is the number of tuples it contains, while .... **(3)** .... of a relation is the number of attributes it contains.
3. .... **(4)** ... is a complete definition or description of the database structure stored in the catalog.
4. The .... **(5)** .... is responsible for data resources management; he plans, organizes, and controls data resources, while .... **(6)** .... identifies the entities, attributes, and the relationships between the data, that is to be stored in the database.
5. . .... (7) .... is unaware of the DBMS. He accesses the database through specially written application programs that attempt to make the operations as simple as possible
6. If there are multiple values at the intersection of certain rows and columns in a relation; this relation is in the .... **(8)** .... normal form.
7. DML includes .... **(9)** .... and .... **(10)** .... SQL statements.

Question 5: **(20 Marks):**

A. What is the difference between 1NF and UNF relations?

B. Discuss the limitations of the file based approach.

C. List three functions of the DBMS

D. What is the difference between Data Administrator and Database Administrator?

End of Exam

Best wishes. *Dr. Amira El-Zeiny*