Examination – III

*Answer any **15** questions from **Section-A** and any **10** questions from **Section-B***

Section-A [15 x 2 = 30]

1. Match the following:
   1. **Composite Attribute** – (i) Attribute whose value is calculated from other attributes
   2. **Multivalued Attribute** – (ii) Attribute that can be further subdivided to yield additional attributes
   3. **Derived Attribute** – (iii) Attribute that can have multiple values

2. An attribute or combination of attributes in one table whose values must either match the *primary key* in another table or be *null* is called:
   1. Secondary Key
   2. Super Key
   3. Candidate Key
   4. Foreign Key

3. A *transaction* state changes from *active* to _____, after the transaction has been rolled back and the database restored to its state prior to the start of the transaction.
   1. Partially committed
   2. Committed
   3. Aborted
   4. Failed

4. What is *Degree of Relationships*?
   1. Number of participating Entity types
   2. Number of participating relations
   3. Number of participating attribute types
   4. Number of participating constraints

5. Which of the following language is used to define the *integrity constraints*?
   1. DCL
   2. DML
   3. DDL
   4. None of these

6. What is a *Schedule* for a set of transactions?
    1. It consists of all instructions of those transactions
    2. It preserves the order in which the instructions appear in each individual transaction
    3. Both (1) and (2)
    4. None of these

7. What is the correct SQL syntax from the following to create a PRIMARY KEY constraint on existing table EMPLOYEE on EMPID column and currently the column does not contain any value?
    1. Alter table EMPLOYEE Add Constraint PK - EMPID Primary Key, EMPID;
    2. Update table EMPLOYEE Add Constraint PK - EMPID Primary Key (EMPID);
    3. Alter table EMPLOYEE Add Constraint PK - EMPID Primary Key (EMPID);
    4. Alter table EMPLOYEE Add Constraint PK - EMPID Primary Key, (EMPID);

8. What is the generalization of functional dependencies?
    1. Database dependencies
    2. Key dependencies
    3. Relation dependencies
    4. None of these

9. What is the maximum length of a *field name*?
    1. 10 characters
    2. 30 characters
    3. 50 characters
    4. 20 characters

10. What is a *Trigger*?
    1. It is a procedural code which is executed automatically in response to certain events on a particular table or view.
    2. Statement that enables to start any DBMS.
    3. Condition the system tests for the validity of the database user.
    4. Statement that is executed by the user when debugging an application program.

11. What are the properties of Relational Database model?
    1. Data is presented as a collection of relations.
    2. Each relation is depicted as a table.
    3. Each row (“ tuple ”) represents as a single entity.
    4. All of the above.

12. Which command allows the user to change multiple fields?
    1. Modify
    2. Lookup
    3. Update
    4. Change

13. Under which category do the commands CREATE and ALTER belong to?
    1. DML
    2. DDL
    3. UML
    4. None of the above

14. Attribute B has a functional dependency on attribute A if, for each value of attribute A, there is exactly one value of attribute B.
    1. True
    2. False

15. Which of the following has a relationship between / among themselves as a functional dependency?
    1. Rows
    2. Relations
    3. Attributes
    4. Tables

16. What is 5NF?
    1. The database should be in 3NF and all tables can have only one primary key.
    2. There should be no cyclic dependencies in a composite key.
    3. All attributes within the entity should depend solely on the entity's unique identifier.
    4. Tables cannot have multi - valued dependencies on a Primary Key.

17. What is *Durability*?
    1. When an update occurs to a database, either all or none of the update becomes available to anyone.
    2. The transactions have been committed and will survive permanently.
    3. It determines how the transaction integrity will be visible to the other users and systems.
    4. None of the above.

18. Which of the following may lead to an irrecoverable error in a database system?
    1. A transaction reads a data item after it is written by an uncommitted transaction.
    2. A transaction reads a data item after it is written by a committed transaction.
    3. A transaction reads a data item after it is read by an uncommitted transaction.
    4. A transaction writes a data item after it is read by an uncommitted transaction.

19. Which of the following statement is / are not true about normal forms?
    1. Any relation with two attributes is in BCNF.
    2. BCNF is stricter than 3NF.
    3. Lossless, dependency - preserving decomposition into 3NF is always possible.
    4. Lossless, dependency - preserving decomposition into BCNF is always possible.

20. Which one of the following statements is / are true about SQL?
    1. SQL permits attribute names to be repeated in the same relation.
    2. If there are no indexes on the relations then an SQL query will not work.
    3. Duplicates are automatically eliminated by an SQL query.
    4. None of these.

Section-B [10 x 2 = 20]

21. What are the main differences between a *primary key* and an *unique key* ?
22. State the major differences between DROP, DELETE and TRUNCATE commands.

23. Explain the concept of ACID properties in DBMS.
24. What are the different levels of *abstraction* in DBMS? Explain them.
25. What do you mean by *functional dependency* in DBMS? How many types of functional dependencies are there? Name and explain them.

26. Name and explain the different types of *joins* in SQL.
27. Explain the concepts of a *primary key* and *foreign key* with an example.
28. Why *normalization* is done in DBMS?
29. State the advantages of DBMS.

30. What is an E-R Model? Explain it with the help of a diagram and clearly stating its constituents.

31. State and explain the *integrity rules* in DBMS.
32. What is a *Transaction*? How is it different from a *Schedule*?
33. Differentiate between *Lossless* and *Lossy* join in DBMS.
34. Describe the different types of *keys* used in DBMS.
35. What is the difference between *having* and *where* clause in SQL?

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