TIME: 2 HOUR   **FM: 70**

SUB: DATABASE MANAGEMENT SYSTEMS   **PAPER: CCMCA104**

SECTION A

Direction: ALL QUESTIONS ARE COMPULSARY: **20X1=20**

(THERE ARE 35 QUESTIONS IN MODEL QP BUT IN EXAM ONLY 20 QUESTIONS WILL BE THERE)

1. The third stage of designing a database is when we create_____ between tables
   A. Relationship
   B. Join
   C. Query
   D. None of These

2. Which database object is ideal to view, change, analyze and obtain different ways ?
   A. Table
   B. Form
   C. Query
   D. Report

3. What does Rollback do?
   A. Undoes the transactions before commit
   B. Clears all transactions
   C. Redoes the transactions before commit
   D. No action

4. Which of the following makes the transaction permanent in the database?
   A. View
   B. Commit
   C. Rollback
   D. Flashback

5. Using the _____ clause retains only one copy of such identical tuples.
   A. Null
   B. Unique

C. Not Null

D. Distinct

6. Domain constraints, functional dependency and referential integrity are special forms of _____

   A. Foreign key

   B. Primary key

   C. Assertion

   D. Referential constraint

7. To include integrity constraint in an existing relation use :

   A. Create table

   B. Modify table

   C. Alter table

   D. Drop table

8. Which of the following is not an integrity constraint?

   A. Not null

   B. Positive

   C. Unique

   D. Check 'predicate'

9. The CREATE TRIGGER statement is used to create the trigger. THE _____ clause specifies the table name on which the trigger is to be attached. The _____ specifies that this is an AFTER INSERT trigger.

   A. for insert, on

   B. On, for insert

   C. For, insert

   D. None of the mentioned

10. A _____ is a special kind of a store procedure that executes in response to certain action on the table like insertion, deletion or updation of data.

   A. Procedures

   B. Triggers

   C. Functions

   D. None of the mentioned

11. Which of the following is used to denote the selection operation in relational algebra?

   A. Pi (Greek)

   B. Sigma (Greek)

C. Lambda (Greek)

D. Omega (Greek)

12. For select operation the _____ appear in the subscript and the _____ argument appears in the paranthesis after the sigma.

   A. Predicates, relation

   B. Relation, Predicates

   C. Operation, Predicates

   D. Relation, Operation

13. Which of the following is a fundamental operation in relational algebra?

   A. Set intersection

   B. Natural join

   C. Assignment

   D. None of the mentioned

14. _____ express the number of entities to which another entity can be associated via a relationship set.

   A. Mapping Cardinality

   B. Relational Cardinality

   C. Participation Constraints

   D. None of the mentioned

15. An entity in A is associated with at most one entity in B, and an entity in B is associated with at most one entity in A. This is called as

   A. One-to-many

   B. One-to-one

   C. Many-to-many

   D. Many-to-one

16. Data integrity constraints are used to:

   A. Control who is allowed access to the data

   B. Ensure that duplicate records are not entered into the table

   C. Improve the quality of data entered for a specific property

   D. Prevent users from changing the values stored in the table

17. Establishing limits on allowable property values, and specifying a set of acceptable, predefined options that can be assigned to a property are examples of:

   A. Attributes

   B. Data integrity constraints

C. Method constraints

D. Referential integrity constraints

18. Drop Table cannot be used to drop a table referenced by a _____ constraint.

    A. Local Key

    B. Primary Key

    C. Composite Key

    D. Foreign Key

19. Entity is a _____

    A. Object of relation

    B. Present working model

    C. Thing in real world

    D. Model of relation

20. The function that an entity plays in a relationship is called that entity's

    _____

    A. Participation

    B. Position

    C. Role

    D. Instance

21. Not applicable condition can be represented in relation entry as

    A. NA

    B. 0

    C. NULL

    D. Blank Space

22. Which of the following can be a multivalued attribute?

    A. Phone_number

    B. Name

    C. Date_of_birth

    D. All of the mentioned

23. Which of the following symbol is used in the place of except?

    A. ^

    B. V

    C. ¬

    D. ~

24. Which of the following is the comparison operator in tuple relational calculus
    A. ⇒
    B. =
    C. ε
    D. All of the mentioned
25. Which of the following is a fundamental operation in relational algebra?
    A. Set intersection
    B. Natural join
    C. Assignment
    D. None of the mentioned
26. Create index studentID_index on student(ID);
     Here which one denotes the relation for which index is created?
       A. StudentID_index
       B. ID
       C. StudentID
       D.Student
27. To include integrity constraint in an existing relation use :
    A. Create table
    B. Modify table
    C. Alter table
    D. Drop table
28. Which of the following is not an integrity constraint?
    A. Not null
    B. Positive
    C. Unique
    D. Check 'predicate'
29. Data integrity constraints are used to:
    A. Control who is allowed access to the data
    B. Ensure that duplicate records are not entered into the table
    C. Improve the quality of data entered for a specific property (i.e., table column)
    D. Prevent users from changing the values stored in the table
30. A _____ consists of a sequence of query and/or update statements.
    A. Transaction
    B. Commit
    C.Rollback
    D. Flashback

31. Aggregate functions can be used in the select list or the_____clause of a select statement or subquery. They cannot be used in a _____ clause.
A. Where, having
B. Having , Where
C. Group by, Having
D. Group by, Where

32. The _____ keyword is used to access attributes of preceding tables or subqueries in the from clause.
   A. In
   B. Lateral
   C. Having
   D. With

33. The primary key must be
   A. Unique
   B. Not Null
   C. Both Unique and Not null
   D. None

34. If we want to retain all duplicates, we must write _____ in place of union.
   A. Union all
   B. Union some
   C. Intersect all
   D. Intersect some

35. Two tables can be linked with relationship to
   A. Ensure data entry
   B. Ensure Data entry
   C. Create Primary Key
   D. Ensure Foreign Key

SECTION B

1. What do you understand by Functional dependency? Explain Armstrong Axiom in functional dependency
2. If R={ A,B,C,D,E } and FD"s F={ A→ C, AC→ D, E→ AD, E→H} List all the candidate keys.
3. Explain lossy decomposition in detail.
4. Explain DDL, DML queries with an example.
5. What do you understand by primary key? Explain its features with an example.
6. Define the concept of aggregation. Give two examples of where this concept is useful.
7. Explain the advantages of DBMS.
8. Define Entity, Attributes, Entity set, relationship with appropriate notations?
9. Differentiate between Database Management System and file based system
10. Differentiate between DBMS and RDBMS.

SECTION C

1. A company needs to store information about employees (identified by ssn, with salary and phone as attributes), departments (identified by dno, with dname and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments, each department is managed by an employee; a child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known. We are not interested in information about a child once the parent leaves the company. Design an E-R diagram indicating all entities with generalization and specialization, attributes with key and cardinality ratio?
2. Consider the following relation Project (proj#, proj_name, chief_architect) Employee (emp#, emp_name) AS Signed (proj#, emp_name)

Use relational algebra to express following queries.
a. Get details of employee working on project?
b. Get the employee number of employees who work on all projects.
c. Get details of project on which employee with name "AAA" is working.

3. Explain codd's rules for relational database management system in detail.
4. Explain 1st Normal Form, 2nd Normal form and 3rd Normal Form with suitable example.
5. What is deadlock? Discuss various protocols for deadlock prevention.
6. Explain ACID properties of transaction management.

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