DBMS QUSTION BANK [AS PER LAST YEAR]

**BY Copilot **

Certainly, let's remove the similar questions and provide the unique ones with their corresponding answers:

Unique Questions:

1. **Explain Instance and Schema in detail.**

2. **Write the relational algebra expressions for the given queries based on the provided schema:**

   - **Schema:**

     - employee (person-name, street, city)

     - works (person-name, company-name, salary)

     - company (company-name, city)

     - manages (person-name, manager-name)

   - **Queries:**

     1. Find the names of all employees who work for First Bank Corporation.

     2. Find the names and cities of residence of all employees who work for First Bank Corporation.

     3. Find the names, street address, and cities of residence of all employees who work for First Bank Corporation and earn more than $10,000 per annum.

     4. Find the names of all employees in this database who do not work for First Bank Corporation.

3. **Consider schema R=(A, B, C, G, H, I) and the set F of functional dependencies {A -> B, A -> C, CG -> H, CG -> I, B -> H}. Prove that AG -> I Holds.**

4. **Compute the closure of the following set F of functional dependencies for relation schema R = (A, B, C, D, E).**

   - **Functional Dependencies:**

     - A -> BC

     - CD -> E

     - B -> D

- E -> A

- **List the candidate keys for R.**

5. **Consider the following schema and represent the given statements in relational algebra:**

- **Schema:**

  - Account (branch_name, acc_no, balance)

  - Depositor (customer_name, acc_no)

- **Queries:**

  1. Find out all customers who have an account in 'XYZ' city and balance is greater than 50,000.

  2. Find out list of customers who have account at 'ABC' branch.

6. **Consider a schedule S having three transactions T1, T2, and T3. Is "S" conflict serializable? Justify your answer.**

- **Schedule:**

  - T1: R(X)

  - T2: W(X)

  - T3: R(Y)

7. **Write a PL/SQL code block to find the factorial of a number.**

8. **Differentiate Specialization and Generalization using examples.**

9. **Draw an ER diagram for a ternary relationship set with a suitable example.**

10. **What is a weak and strong entity set? Explain with examples.**

11. **Explain the term aggregation with examples.**

12. **What is the need for 3NF? Explain with examples.**

13. **List the types of Join Operations. Explain any two joins with table examples.**

14. **Explain the system architecture of a Database Management System (DBMS).**

15. **Differentiate between file processing systems and DBMS.**

16. **What is shadow paging? List its advantages and disadvantages.**

17. **What is Data Abstraction? Explain different views of data.**

18. **What is Conflict Serializability? Explain with examples.**

19. **Draw and illustrate the stages of query processing with a diagram.**

20. **Draw an ER diagram of a student management system.**

21. **Explain the term Procedural and Non-Procedural query language with examples.**

22. **What is Mapping Cardinalities? List out different types with examples.**

23. **What are integrity constraints? Discuss various integrity constraints.**

24. **List and explain the ACID properties of transactions.**

25. **What is a Cursor? Explain types of cursors with examples.**

26. **Evaluate the importance of query optimization in a large-scale database system. Discuss the potential consequences of poor query performance on system efficiency and user experience.**

27. **Compare locking-based and timestamp-based schedulers for concurrency control in databases.**

28. **Differentiate between stored procedures and functions.**

29. **Explain 1NF, 2NF, and BCNF Normal forms.**

30. **Explain Armstrong's Axioms in detail.**

31. **Describe the Cartesian Product operation in relational algebra.**

32. **List and explain mapping cardinalities of an ER diagram with examples.**

33. **Describe various states of a transaction.**

34. **What are the importance of Primary key and Unique key in a database? Explain with examples.**

35. **Enlist and explain the advantages of DBMS over a traditional file system.**

By CHATgtp

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1. **Explain Specialization and Generalization using example.**
2. **Draw ER diagram for Ternary Relationship set with suitable example.**
3. **What is a weak and strong entity set? Explain with example.**
4. **Explain the term aggregation with example.**
5. **What is the need of 3NF? Explain with example.**
6. **List the types of Join Operation. Explain any two joins with table example.**
7. **Explain system architecture of Database Management System.**
8. **Differentiate file processing system and DBMS.**
9. **What is shadow paging? List out its advantages and disadvantages.**
10. **What is Data Abstraction? Explain about different views of data.**
11. **Explain Conflict Serializability with example.**
12. **Draw and illustrate stages of query processing with diagram.**
13. **Draw ER diagram of student management system.**
14. **Explain the term Procedural and Non-Procedural query language with examples.**
15. **What is Mapping Cardinalities? List out different types of it with example.**
16. **What is Integrity Constraints? Discuss various integrity constraints.**
17. **List and explain ACID property of transaction.**
18. **What is a Cursor? Explain types of cursors with example.**
19. **Evaluate the importance of query optimization in a large-scale database system. Discuss the potential consequences of poor query performance on system efficiency and user experience.**
20. **List and briefly explain the different stages involved in query processing within a database system.**
21. **Explain what serializability means in the context of transaction scheduling and concurrency control.**
22. **Compare locking-based and timestamp-based schedulers for concurrency control in databases.**
23. **List the four ACID properties that ensure the reliability of database transactions and briefly describe each one.**

24. **Compute the closure of the following set F of functional dependencies for relation schema R = (A, B, C, D, E). A → BC, CD → E.**
25. **List the candidate keys for relation R = (A, B, C, D, E) given the functional dependencies.**
26. **Differentiate between stored procedure and function.**
27. **Explain INF, 2NF, BCNF Normal forms.**
28. **Explain Armstrong's Axioms in detail.**
29. **Describe the Cartesian Product operation in relational algebra.**
30. **List and explain mapping cardinalities of E-R diagram with example.**
31. **Describe various states of a transaction.**
32. **What are the importance of Primary key and Unique key in database? Explain with example.**
33. **Enlist and explain the advantages of DBMS over traditional file system.**
34. **Explain Instance and Schema in detail.**
35. **The relational database schema is given below:**

- **employee (person-name, street, city)**
- **works (person-name, company-name, salary)**
- **company (company-name, city)**
- **manages (person-name, manager-name)**

Write the relational algebra expressions for the given queries:

- **1. Find the names of all employees who work for First Bank Corporation.**
- **2. Find the names and cities of residence of all employees who work for First Bank Corporation.**
- **3. Find the names, street address, and cities of residence of all employees who work for First Bank Corporation and earn more than $10,000 per annum.**
- **4. Find the names of all employees in this database who do not work for First Bank Corporation.**

36. **Explain specialization and generalization concepts in ER diagram with suitable example.**
37. **What do you mean by integrity constraints? Discuss various integrity constraints.**
38. **Consider schema R = (A, B, C, G, H, I) and the set F of functional dependencies {A → B, A → C, CG → H, CG → I, B → H}. Prove that AG → I holds.**