Important Questions(DBE)

Module-1

1. Define Instances and schemas of database?

2. List the disadvantages of file processing system?

3. List the advantages of DBMS?

4. Discuss Data Independence?

5. What is the difference between a strong entity and a weak entity?

6. What are the different types of relationships in an ER diagram?

7. What is an attribute in an ER diagram, and what are its types?

8. How do you represent a Many-to-Many (M) relationship in an ER diagram?

9. List the main characteristics of the relational data model.

10. Explain the three-schema architecture in database systems.

11. How data abstraction and independence is achieved in database system .

12. Discuss the different types of integrity constraints in DBMS. Also specify their roles in maintaining the consistency of a database system.

13. Explain specialization and generalization concepts with an E-R diagram.

14. Questions on E-R diagram design.

Module -II

15. Define SELECT operation in Relational algebra?

16. What is the use of group by clause?

17. List the aggregate functions supported by SQL?

18. Discuss the basic form of SQL query?

19. Define CROSS PRODUCT operation in Relational algebra?

20. Explain different types of JOIN operation in Relational algebra?

21. Differentiate between relational algebra and relational calculus.

22. Explain about Aggregate operators in sql with examples?

23. Explain Set operations of Relational Algebra with examples?

24. What are the three different types of outer join? Demonstrate with suitable example.

25. Explain about Selection, Projection, Rename, and Natural Join operations in relational algebra?

26. Explain different SQL clauses.

27. Questions on SQl queries and Relational Algebra expressions

Module III

28. What is meant by functional dependencies? Discuss about Third Normal From?

29. Define Armstrong axioms for FD's?

30. What is meant by closure of F? Where F is the set of functional dependencies. Explain computing F+ with suitable examples.

31. What is normalization? What are the conditions are required for a relation to be in 2NF, 3NF and BCNF explain with examples.

32. Explain about Loss less-join dependency with examples?

33. Go through different examples of all normalization.

Module-IV

34. What is query processing?

35. Explain the basic steps in query processing with neat labelled diagram.

36. State the equivalence rules used for transformation of relational algebra expressions.

37. What is query optimization?

38. Explain the process of query optimization in a Database Management System (DBMS).

39. What is the role of equivalence rules in the process of query optimization?

40. What are the catalog information used for cost estimation?

41. Define the following terms: Blocking Factor, Selectivity of Attribute.

42. What are the two main techniques for query optimization?

43. Discuss the different types of query optimizations and their impact on query execution. Include examples to illustrate your points.

44. Discuss various algorithms for implementing join operation in query processing along with their cost expressions

Module-V

45. Specify the differences between deferred update and immediate update techniques.

46. What is meant by log-based recovery in DBMS?

47. What do you understand by the term "TRANSACTION" in a database? Discuss the properties of the transactions with example.

48. Explain different states of transaction.

49. What is concurrency control in transaction? What are the problems encountered with concurrent transactions ? Explain through examples

50. What is serializability in transaction processing? Explain conflict serializability and view serializability with suitable examples.

51. Explain Deadlock and its prevention in database system.

52. Discuss the multiversion technique for concurrency control.

53. Discuss about time stamp protocol.

54. Database recovery protocols implement two actions: **undo** and **redo**. Briefly explain how to undo and redo respectively.

55. Explain 2-phase locking protocol.