**INTRODUCTION**

1. Define the following terms:

a. DBMS b. Database c. Query

d. DDL e. DML

1. Give the Drawbacks of File Processing System
2. Differentiate between network model and relational models.
3. Give the advantages of DBMS over file processing system
4. Extrapolate the importance of data abstractions, List and explain in brief the three levels of data abstraction in databases
5. Explain database instance & database schema with suitable example
6. Explain various data models in DBMS
7. Describe Database System environment with a diagram

OR

Explain Database system architecture in details

1. Describe the role or functions of Database administrator
2. Describe various types of database users
3. Describe data independence in DBMS
4. Draw an ER diagram for the given scenario
5. A cricket association arranges the matches amongst various clubs recognized by it. A club has several players and a team is selected for each match. It is desired to keep track of the players participating in each match for each club, position they played in that match and the scores of the teams and individual players. Design an EER Diagram for this application stating any assumption you make. Note: Specify the entities and most probable attributes that they will be having; like Club, Team, Match, Batsman, Bowler can be entities and for the entity Match, attributes can be like date when the match is scheduled, the teams, the umpire, the ground etc.
6. Draw Entity Relationship diagram for Hospital Management system. List out entities and attributes.

**DATA DEFINATION AND MANIUPULATION LANGAUGE**

1. Define the terms tuple, entity, candidate key.
2. Define Primary key and foreign key with example.
3. Explain Super key, key in database.
4. State two example of TCL,DDL,DML and DCL.
5. Explain various types of constraints in DBMS with example (Primary key, Foreign Key, Not null, check, default etc..)
6. Describe various DDL and DML commands
7. Explain Generalization, Specialization and Aggregation with example.
8. Give example of following relationships (Mapping Cardinalities)
9. a. Many-to-One b. One-to-One
10. c. One-to-Many d. Many-to-Many
11. Compare DDL with DML(Any 3 points)
12. Write a DDL statement to Create a table with Primary key in SQL
13. Draw and Explain all symbols of ER diagram.
14. Illustrate the use of varchar and number datatype in SQL.
15. Write syntax for CHECK, unique, primary key and NOT NULL constraints in SQL
16. Consider the following tables:

Employee (Emp\_no, Name, Emp\_city)

Company (Emp\_no, Company\_name, Salary)

Write a SQL query to display Employee name and company name.

Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary >10000

Write a query to display all the employees working in ‘XYZ’ company.

1. Describe aggregate functions with example(SUM COUNT, MIN, MAX, AVG)
2. Explain Primary key and foreign key concepts in DBMS with example
3. Explain SET operators in DBMS with example(UNION, UNION ALL, MINUS, INTERSECT)
4. Discuss the various type of join operations in DBMS with example(INNER JOIN, LEFT JOIN, RIGHT JOIN, OUTER JOIN)
5. Explain different Data types in SQL.(CHAR, VARCHAR, VARCHAR2, NUMBER, DATE etc..)
6. Explain the concepts of sub queries with example
7. Explain GROUP BY clause and HAVING clause with example
8. Explain DCL and TCL commands
9. Difference between delete, drop and trunk command.
10. Explain various constraint in DBMS
11. Differentiate between WHERE clause and HAVING clause(3 points)
12. Explain union, minus and intersect set operator with example
13. Write syntax for sql command.

**STORAGE ORGANIZATION FOR RELATION**

1. Differentiate between(two points )Clustering and sequential file organization
2. Give classification of physical storage media
3. Explain various physical storage media with its hierarchy
4. Draw and explain the mechanism of magnetic HDD
5. Describe various performance measures of disks

OR

Define the following terms

1. a. Access Time b. Seek Time c. Rotational Latency
2. d. MTTF e. Data Transfer Rate f. Throughput
3. Describe various RAID levels in detail
4. Discuss fixed length records with suitable example.
5. Discuss variable length records with suitable example.
6. Draw and Explain slotted page structure of file organization
7. Describe Sequential File organization.

**RELATIONAL DATABASE DESIGN**

1. Explain 1NF and 2NF with example.
2. State significance of normalization.
3. Describe Functional dependency in DBMS
4. Explain 3NFand 3.5NF(BCNF) with example
5. What is decomposition and what are the properties of decomposition
6. List the pitfalls in Relational Database Design. (anamolies)
7. Write statement in relational algebra form. (refer videos)
8. Explain anomalies in DBMS with example. (refer videos)
9. Explain relational algebra with fundamental operations.

OR

1. Define the following Operations w.r.t relational algebra

a. Select b. Project

c. Set Difference d. Union

e. Cartesian Product

**QUERY PROCESSOR, OPTIMIZER AND TRANSACTION**

1. Explain ACID properties of transaction
2. Draw and explain state diagram of transactions (Phase of transaction)
3. Define Transaction with an example.
4. Explain the steps involved in query processing and optimization.
5. Explain the concept of conflict serializability.
6. Describe the recoverability of a schedule in transaction.
7. Explain views in database with its advantages.
8. Give compatibility function.
9. Numerical on timestamp and serializability.
10. Define serializable schedule with example.

**CONCURRENCY CONTROL, RECOVERY SYSTEM**

1. Explain the concepts of LOCK in concurrency control
2. Give the advantages of concurrency in DBMS.
3. Explain starvation of transaction. Also state steps to avoid starvation
4. Describe two-phase locking protocol
5. Explain concept of deadlock with the help of an example
6. Describe the following deadlock prevention techniques

i) wait-die scheme ii) wound-wait scheme

iii) Timeout Based scheme

1. Explain wait-for graph for deadlock detection
2. Explain steps in deadlock recovery system
3. Explain Timestamp Based Protocols with example.
4. Explain Validation based protocol with example.
5. Classify database system failure
6. Cascadeing and cascade less schedule.
7. Explain the concept of shadow paging recovery of database.

\*\*\*\*\* ALL THE BEST\*\*\*\*\*