Section 1 :- Introduction to Database

1. **What is Database?**

- A Database is an organized collection of structured data stored electronically in a computer system.
- It is usually managed by a Database Management System(DBMS).
- Databases are allowed to be retrieved, manipulated and efficiently stored using languages like SQL.

2. **What is data in the context of databases?**

- Data refers to raw, unprocessed facts and figures such as name, age, marks, etc.
- In computer systems, data is processed into information and stored in databases for future use.

3. **Why is Database important in daily life?**

- Databases are essential to store large amounts of information in an organized way.
- We encounter them in banks, schools, grocery stores, and railway systems to manage accounts, transactions, inventories and more.

Section 2 :- Types of Databases

4. **Name different types of databases.**

Relational Databases

Object-Oriented Databases

Distributed Databases

Data Warehouses

NoSQL Databases

Graph Databases

OLTP Databases

Cloud Databases

Open Source Databases

5. **What is a Relational Database?**

- A relational database stores data in tables made up of rows and columns. It uses structured schemas and SQL for data manipulation.
- Example: MySQL, PostgreSQL.

6. **What is NoSQL Database?**

- A NoSQL (non-relational) database stores unstructured or semi structured data and is useful for large-scale, high-speed applications like big data and real time web apps.
- Example: MongoDB

7. **What is a Distributed Database?**

- Distributed Database stores data across multiple physical locations and allows processing to be distributed or replicated among different systems on the network.

8. **What is Cloud Database?**

- A cloud database hosted on a cloud computing platform and can be accessed online.
- It comes in two models.
  - Traditional
  - Database as a Service(DBaaS)

Section 3 :- DBMS Concepts

9. **What is DBMS?**

- A Database Management System (DBMS) is software that allows users to create, access, update and manage databases.
- Example: MySQL, Oracle and SQL Server.

10. **What are the main features of a DBMS?**

- Data Storage and retrieval
- Data manipulation and modification
- Security and authorization
- Transaction support
- Data Integrity and backup

11. **What are the types of languages used in DBMS/**

- DDL (Data Definition Language)

- DML (Data Manipulation Language)
- DCL (Data Control Language)
- TCL (Transaction Control Language)

Section 4 :- Evolution of Databases

12. What is the evolution of databases?

- 1960's: File based and navigational databases(Hierarchical and Network models)
- 1980's: Relational databases became popular
- 1990's: Object oriented databases
- 2000's: NoSQL databases
- Present: Cloud and self-driving databases

13. What is a File - Based Database system?

- It is an early form of database where data is stored in flat files without any interrelation .
- It requires third - generation programming languages and has limitations like redundancy and lack of security.

Section 5 :- Practical Applications

14. Where are databases used in real life?

- Databases are used in banking, healthcare, education, retail, telecom, manufacturing and finance for sorting and retrieving customer data, transaction history, employee records etc.

15. What is the importance of databases in analytics and decision-making?

- Databases store historical and current data, which can be analyzed to make informed decisions, detect fraud, conduct research and improves business efficiency.

Section 6 :- Challenges and Future

16. What are the major challenges faced in managing databases?

- Handling massive data growth
- Ensuring security and privacy
- Providing real-time access
- Infrastructure access
- Scalability and latency issues

17. What is the future in databases?

- The future includes more autonomous databases, enhanced cloud storage solutions, advanced NoSQL systems, AI-powered management , and greater focus on security and real - time processing.

Section 7 :- FAQS & Practical

18. Why do we use databases instead of flat files?

- Databases offer structured storage, reduced redundancy, better querying capability, security, backup, and support for concurrent access compared to flat files.

19. Where is the master database stored in SQL Server?

- It is stored in the directory.
  Program Files \ Microsoft SQL Server \ MSSQL\ Data\msdb.mdf
  with its log in msdb.ldf.

20. What is MYSQL?

- MYSQL is an open source relational database management system based on SQL.
- It is widely used for web applications due to its performance, scalability and cross-platform support.