DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

U23CST33-DATABASE MANAGEMENT SYSTEMS

QUESTION BANK

(16 Marks Questions)

UNIT - I

1. Explain the Characteristics and Purpose of DBMS.
2. Explain the various views of Data with examples.
3. Discuss all the Data Models with examples.
4. Explain DBMS Architecture with an example.
5. What is Procedural Query Language? Explain the various operations performed using relational operators.
6. Explain Relational Databases with examples.
7. Draw a Schema and mention the various elements of the schema with examples
8. Explain the different types of keys used in DBMS.
9. Explain Embedded SQL with its applications.
10. Discuss the use of Dynamic SQL in DBMS in detail.
11. Explain the various types of SQL commands. Discuss the features of SQL.

UNIT – II

1. Draw an ER model by taking Hospital management/Banking System/University Database and explain all the relationship sets with cardinality.
2. Explain EER Model with a neat sketch for School Database.
3. Explain various functional dependencies of an ER model with an example
4. What is Normalization? Explain 1NF, 2NF, 3NF, BCNF, 4NF, 5NF with examples.
5. Explain the concept of Non-Loss Decomposition with an example
6. Discuss in detail the steps involved in the ER – to Relational mapping in the process of relational database design
7. Explain with suitable example, the constraints of specialization and generalization in ER data modeling.

UNIT – III

1. Discuss view Serializability and conflict Serializability.
2. Briefly describe two phase locking in concurrency control techniques.
3. Explain the concepts of concurrent execution in Transaction processing system.
4. Brief the ACID properties. Explain Transactions with SQL support for a banking application
5. What is concurrency control? How is it implemented in DBMS? Illustrate with a suitable example.

6. Briefly explain about Two phase commit and three phase commit protocols.

7. What is deadlock? How does it occur? How transactions be written to (i) Avoid deadlock (ii) Guarantee correct execution. Illustrate with suitable example.

8. (i) Narrate the actions that are considered for deadlock detection and the recovery from deadlock (ii) Discuss the properties of a transaction that ensure integrity of data in the database system.

9. Write Short notes on (i)Validation and Snapshot Isolation. (ii) Multiple Granularity locking. 10.What is Recovery? Explain various recovery techniques during transactions in detail

11.Write Short notes on (i) Shadow Paging. (ii) ARIES Algorithm.

UNIT – IV

1. Explain how the RAID systems improve performance and reliability.

2. What is RAID? List the different level in RAID technology and explain its Features with neat sketches.

3. Describe the structure of B+ tree and list the characteristics of a B+tree with indexing operation.

4. Explain the steps involved in Query Processing with a neat sketch.

5. Discuss static hashing and dynamic hashing with examples.

6. Discuss in detail about how records are represented in a file and how to organize them in a file.

7. Explain the cost estimation for query processing.

8. Discuss the selection, sorting and join operations using appropriate algorithms.

9. Explain the various heuristics involved in query optimization.

10.Explain B tree indexing with an example.

UNIT – V

1. Explain in detail about Distributed Databases with a neat sketch.

2. Discuss the query processing and optimization for a transaction in Distributed Databases.

3. Explain NOSQL databases with applications.

4. Explain about the various threats and risks in Database Management Systems.

5. Discuss about various Access Control Mechanisms and Efficient Methods to Secure the Databases.

6. Write Short notes on (i) CAP Theorem. (ii) Key Value Stores.

7. Write Short notes on (i) Column based systems (ii) Graph Databases

8. What is Statistical Database? Explain the security measures involved for having uniqueness of access.

9. Explain the encryption techniques used for securing a database system.

10.Explain Discretionary Access control based on Granting and Revoking Privileges.

11.Explain about the Federation of Distributed Database Systems

12.Explain SQL Injection Methods with an example.