

**CA9113 RELATIONAL DATABASE MANAGEMENT SYSTEMS**

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**UNIT I INTRODUCTION 9**

An Overview of Database Management –Database System Architecture – Data Dictionary - An Introduction of Relational Databases – Relational Model - Relations – Relational Algebra – Relational Calculus – Integrity – Keys – SQL: Set Operations – Aggregate Functions – Null Values - Nested Sub Queries – Complex Queries - Views – Modification of the Database - Embedded SQL – Dynamic SQL– Triggers – Security.

**UNIT II DATABASE DESIGN 9**

Functional Dependencies- Normalization: 1NF, 2NF, 3NF, BCNF - Higher Normal Forms - Semantic Modeling: The E/R Model – Database design with the E/R Model.

**UNIT III DATA STORAGE AND QUERYING 9**

Physical Storage Media– File Organization – Indexing: Ordered Indices – B tree Indexing – B<sup>+</sup> tree Indexing – Static Hashing – Dynamic Hashing - Query Processing – Query Optimization.

**UNIT IV TRANSACTION MANAGEMENT 9**

Transactions - Recovery – Two- Phase Commit- Concurrency Control – Three Concurrency Problems- Locking Protocols– Deadlock Handling – Serializability – Multi Granularity Locking – Dropping ACID.

**UNIT V FURTHER TOPICS 9**

Distributed Databases - Case Studies: DB2 - Oracle – Microsoft SQL Server – Database Connectivity: ODBC - JDBC.

**TOTAL = 45**

**REFERENCES**

1. C.J.Date, A.Kannan and S.Swamynathan,"An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.
2. Henry F Korth, Abraham Silberschatz, S. Sudharshan, "Database System Concepts", Fifth Edition, McGraw Hill, 2006.
3. Raghu Ramakrishnan, Johannes Gehrke, "Database Management Systems", McGraw Hill, Third Edition 2004.
4. R. Elmasri, S.B. Navathe, "Fundamentals of Database Systems", Fifth Edition, Pearson Education/Addison Wesley, 2007.
5. Thomas Cannolly and Carolyn Begg, " Database Systems, A Practical Approach to Design, Implementation and Management", Third Edition, Pearson Education, 2007.