CS - 502
DATABASE MANAGEMENT CONCEPTS

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Unit-I **08**

Introduction: An overview of database management system, database system vs file system, database system concept and architecture, data model schema and instances, data independence, database language and interfaces, and overall database structure.

Data Modeling using the Entity Relationship Model: ER model concepts, notation for ER diagram, mapping constraints, keys, concepts of super key, candidate key, primary key, generalization, aggregation, reduction of an ER diagrams to tables, extended ER model, and relationship of higher degree.

Unit-II **08**

Relational data Model and Language: Relational data model concepts, integrity constraints, entity integrity, referential integrity, keys constraints, domain constraints, relational algebra, relational calculus, tuple calculus, and domain calculus.

Introduction to SQL Statements: Data retrieval, DDL, DML, TCL, DCL, characteristics of SQL, advantage of SQL, SQL data type and literals, types of SQL commands, SQL operators and their procedure, tables, views and indexes, queries and sub queries, aggregate functions, joins, unions, intersection, minus, cursors, and triggers.

Unit-III **08**

Data Base Design & Normalization: Functional dependencies, normal forms, first, second, third normal forms, BCNF, inclusion dependence, lossless join decompositions, and normalization using FD, MVD and JDs.

Unit-IV **08**

Transaction Processing Concept: Transaction system, testing of serializability, serializability of schedules, conflict & view serializable schedule, recoverability, recovery from transaction failures, log based recovery, checkpoints, and deadlock handling.

Unit-V **08**

Concurrency Control Techniques: Concurrency control, locking techniques for concurrency control, time stamping protocols for concurrency control, and validation based protocol.

Text Book:

1. Korth, Silbertz, Sudarshan," Database Concepts", McGraw Hill.

Reference Books:

1. Date C J, " An Introduction to Database Systems", Addision Wesley.
2. Elmasri, Navathe, " Fudamentals of Database Systems", Addision Wesley.
3. O"Neil, Databases, Elsevier Pub.
4. Leon &Leon, "Database Management Systems", Vikas Publishing House.
5. Bipin C. Desai, " An Introduction to Database Systems", Gagotia Publications.
6. Majumdar & Bhattacharya, "Database Management System", TMH.
7. Ramkrishnan, Gehrke, " Database Management System", McGraw Hill.