

Major Paper III – Relational Database Management Systems

Unit I

The Evolution of Database systems – Architecture of a DBMS – the Future of Database Systems.

Unit II

Database Models – The Relational Data Model – Basics of the Relational model – E-R- Diagrams to Relational designs Functional Dependencies – Definition of Functional Dependency – Keys of Relations – Relations – Super Keys – Discovering keys for Relations – Rules about Functional Dependencies.

Unit III

Design of Relational Database – anomalies – Decomposing Relations – Boyce-Codd Normal Form – Decomposition into BCNF – projecting Functional Dependencies – Third Normal Form – Multi valued Dependencies – Definition of Multi valued Dependencies – Fourth Normal Form – Decomposition into Fourth Normal Form – Relationship Among Normal Forms.

Unit IV

Operations in the Relational Model – Set Operations of Relations – Projection – Selection – Cartesian Product – Natural joins – Intersection – Union – Differences – Product – Joins. Constraints on Relational – Referential Integrity Constraints – Other Extension to the Relations Model.

Unit V

Database Language SQL – Simple Queries in SQL – Queries involving more than one Relation – Sub Queries – Duplicates – aggregation – Database modification – Defining a Relation Scheme in SQL – View Definition – Constraints in SQL – Keys in SQL – Referential Integrity and Foreign Keys. Systems Aspects of SQL – SQL in Programming Environment – Security and User Authorization in SQL2.

Text Book :

A First course in Database Systems – Jeffrey D. Ullman and Jennifer Widom – Addison Wesley Longman Pte. Ltd., Delhi – 2001.

Reference Books :

1. Fundamentals of Database Systems – Thrid Edition – Ramez Elmasri – Shamkant B. Navathe – Addison Wesley Longman Pte. Ltc – Delhi 2001.
2. Database Management Systems – Alexis leon and Mathews Leon – Vikas Publishing House Pvt. Ltd – New Delhi – 2002.