

MScIT-07

Fundamentals of Database Management Systems

UNIT 1 : File Structure and Organization

Data and information, Concept of field, key field; Records and its types, fixed length records and variable length records; Files, operation on files, Primary file organization

UNIT 2 : Database Management System

Definition of DBMS, file processing system Vs DBMS, Advantages and Disadvantages of DBMS, Users of DBMS : Database Designers, Application programmer, Sophisticated Users, End Users, Capabilities of good DBMS, Overall System structure

UNIT 3 : Data Models

Data Models : Object Based Logical Model, Record Base Logical Model, Relational Model, Network Model, Hierarchical Model, Entity Relationship Model : Entity Set, Attribute, Relationship Set, Entity Relationship Diagram (ERD), Extended features of ERD

UNIT 4 : Relational Databases

Relational data model concept, Terms :Relation, Tuple, Attribute, Cardinality, Degree, Domain; Keys : Super Key, Candidate Key, Primary Key, Foreign Key; Relational Algebra – Operations: Select, Project, Union, Difference, Intersection, Cartesian Product, Natural join

UNIT 5 : SQL (Part I)

Introduction of SQL, characteristics of SQL, Basic Structure, DDL Commands, DML, DQL, SELECT Statement, WHERE Clause, Useful Relational Operators, Aggregate Functions, SUM Function, AVG Function

UNIT 6 : SQL (Part II)

Compound Conditions and Logical Operators, AND Operator, OR Operator, Combining AND and OR Operators, IN Operator, BETWEEN Operator, NOT Operator, Order of Precedence for Logical Operators, LIKE Operator, Concatenation Operator, Alias Column

Names, ORDER BY Clause, Handling NULL Values, DISTINCT
Clause

UNIT 7 : Relational Database Design

Introduction to Normalization, Anomalies of unnormalized database, Normal Form :
1NF, 2NF, 3 NF