

AMIT-11 DATABASE MANAGEMENT SYSTEMS

UNIT-1 INTRODUCTION

- 1.1 Characteristics of the Database approach,
- 1.2 Data models, schemas and instances
- 1.3 DBMS architecture, Data independence, Database languages and interfaces
- 1.4 Database administrator, Data modeling using Entity,
- 1.5 Relationship (ER), Entity sets, attributes and keys, Relationships,
- 1.6 Relationship types, roles and structural constraints
- 1.7 Weak Entity types, Enhanced Entity-Relationship (EER) and object modeling.
- 1.8 Sub classes, super classes and inheritance - Specialization and generalization.

UNIT-2 RECORD STORAGE AND FILE ORGANIZATIONS

- 2.1 Placing file records on disks, Fixed length and variable length records,
- 2.2 Spanned Vs Unspanned records, Allocating file records on disk,
- 2.3 Files of unordered records (Heap files), Files of ordered records (Sorted files).-
- 2.4 Hashing Techniques. Indexed structures for files
- 2.5 Types of single level ordered index, multi- level indexes.

UNIT-3 THE RELATIONAL MODEL:

- 3.1 Relational model concepts, Relational model constraints, The Relational Algebra,
- 3.2 Relational calculus, Tuple Relational calculus, and Domain Relational calculus, SQL.
- 3.3 Database Design: Functional dependencies, Basic definitions,
- 3.4 Trivial and non-trivial dependencies, Closure of a set of dependencies
- 3.5 Closure of a set of attributes, Irreducible sets of dependencies
- 3.6 Nonloss decomposition and Functional dependencies.
- 3.7 First, Second and Third normal forms, Boyce-codd normal form.

UNIT-4 TRANSACTION MANAGEMENT

- 4.1 Concurrency Control-Lost Update, Uncommitted Data-Inconsistent Retrievals,
- 4.2 The Scheduler, Concurrency Control with Locking Methods,
- 4.3 Concurrency Control with Time Stamping
- 4.4 Concurrency Control with Optimistic Methods
- 4.5 Database Recovery Management. Introduction to object oriented databases,
- 4.6 Active databases. Data warehouses, Data mining

References Books:

1. Elmasri and Navathe, "Fundamentals of Database Systems", 5/e, Addison - Wesley, 2011.
2. Peter Rob Carlos Coronel, "Database Systems , Design, Implementation & Management ", 5/e, Thomson Course Technology
3. A Silberschatz, H. F. Korth, and S Sudarshan, "Database System Concepts", 4/e, Tata McGraw Hill, 2002