**SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY**

DEPARTMENT OF MASTER OF COMPUTR APPLICATIONS

**III SEMESTER**

SUBJECT: Database Management Systems Subject Code: 16MC3T01

Regulation: R16

**UNIT-I**

1. Explain in detail about Database Management System advantages over file management system.
2. What is data abstraction? Describe various levels in it.
3. Describe the concept of Referential Integrity.
4. What is a data model? Describe various data models.
5. A university database contains information about professors (identified by social security number, or SSN) and courses (identified by courseid). Professors teach courses; each of the following situations concerns the Teaches relationship set. For each situation, draw an ER diagram that describes it (assuming no further constraints hold).
6. Professors can teach the same course in several semesters, and each offering must be recorded
7. Professors can teach the same course in several semesters, and only the most recent such offering needs to be recorded (Assume this condition applies in all subsequent questions)
8. Every professor must teach some course
9. Every professor teaches exactly one course (no more, no less)
10. Every professor teaches exactly one course (no more, no less), and every course must be taught by some professor
11. Explain the following:
12. Relationships & Relationship set
13. Ternary relationship
14. Weak entity set
15. Aggregation
16. Class

**UNIT-II**

1. Describe the operations on Views with examples
2. Illustrate the Relational Model
3. Describe Primary Key and Foreign Key with examples
4. Explain Weak entity and Participation Constraints with examples
5. Illustrate the additional features of the ER Model
6. Explain conceptual Design with the ER Model

**UNIT-III**

1. Explain about first normal form.
2. What is normalization? Define second normal form.
3. What is functional dependency? Explain briefly.
4. Describe multi-valued dependencies and 4NF.
5. Explain the BCNF and the properties of decompositions.
6. Explain in detail dependency preserving decomposition.

**UNIT-IV**

1. Describe the three phases of ARIES recovery model.
2. Explain lock-based concurrency control in detail.
3. Discriminate ACID properties of transaction.
4. Write a short notes on  
    a) Crash recovery b) Deadlock c) Lock management
5. Why we need concurrency execution of transactions?
6. Write a short notes on

a) WAL protocol & check pointing. b) Concurrency control without lockin

**UNIT V**

1. Briefly explain linear hashing and extendible hashing.
2. Distinguish between :
   1. Clustered Indexing (ii) Primary and Secondary Indexing
3. Define Indexing? Briefly Explain ISAM.
4. Explain B+ tree with suitable example
5. Demonstrate Two Phase locking-Strict 2PL
6. Describe Deadlock and explain dead lock characteristics
7. Discuss Concurrency control without locking
8. Describe the Log
9. Explain Recovery from a system crash