Code No. MCA 108 **L T C**
Paper: Data Base Management Systems **3 1 4**

INSTRUCTIONS TO PAPER SETTERS:

1. Question No. 1 should be compulsory and cover the entire syllabus. There should be 10 questions of short answer type of 2 marks each, having at least 2 questions from each unit.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions to evaluate analytical/technical skills of candidate. However, student may be asked to attempt only 1 question from each unit. Each question should be 10 marks including subparts, if any.

OBJECTIVES: *The purpose of this course is to enable the students know about the fundamental concepts necessary for designing, using and implementing database systems and applications. It also covers advanced techniques and technologies.*

PRE-REQUISITE:

- Elementary Maths (Sets, Relations)
- Basic Data Structure Concepts

UNIT - I

Basic concepts: database & database users, characteristics of the database, database systems, concepts and architecture, date models, schemas & instances, DBMS architecture & data independence, database languages & interfaces, data modeling using the entity-relationship approach. Overview of hierarchical, Network & Relational Data Base Management Systems.

[No. of Hrs. 9]

UNIT - II

Relational model, languages & systems: relational data model & relational algebra: relational model concepts, relational model constraints, relational algebra, SQL- a relational database language: date definition in SQL, view and queries in SQL, specifying constraints and indexes in sql.

[No. of Hrs. 12]

UNIT - III

Oracle Architecture, Logical Data Structures Physical Data Structure, Instances, Table Spaces, Types of Tablespaces, Internal Memory Structure, Background Processes, Data Types, Roles & Privileges, Stored Procedures, User Defined Functions, Cursors, Error Handling, Triggers.

[No. of Hrs. 10]

UNIT - IV

Relational data base design: function dependencies & normalization for relational databases: functional dependencies, normal forms based on primary keys, (1NF, 2NF, 3NF & BCNF), lossless join and dependency preserving decomposition. Concurrency control & recovery techniques: concurrency control techniques, locking techniques, time stamp ordering, granularity of data items, recovery techniques: recovery concepts, database backup and recovery from catastrophic failures. Concepts of object oriented database management systems, Distributed Data Base Management Systems. **[No. of Hrs. 11]**

TEXT BOOKS:

1. Elmsari and Navathe, "Fundamentals of Database Systems", Pearson Education, 5th Ed., 2006.
2. Korth, Silberschatz, "Fundamentals of Database System Concepts", TMH, 6th Ed., 2010.
3. Desai, B., "An Introduction to Database Concepts", Galgotia.
4. Sham Tickoo and Sunil Raina, "Oracle 11g with PL/SQL Approach", Pearson, 2010.