## SARDAR PATEL UNIVERSITY Programme: B.Sc (Information Technology) Semester: V Syllabus with effect from: June - 2013

## Paper Code: US05CINT01 Total Credit: 3 Title of Paper: Relational Database Management Systems - I Total Credit: 3

Unit	Description in detail	Weightage (%)
Ι	Relational Database Theory and Data Modeling Entity-relationship modeling (different types of entities, attributes) Relationships and relationship types The relational data model: concepts and terminology Relationships and their representation in the E-R diagram). Operations on data (DDL,DML) Difference between DBMS and RDBMS. Dr. E. F. Codd rules. Normalization :1st Normal Form, 2nd Normal Form, 3rd Normal Form.	25%
Π	Introduction to SQL SQL - introduction, advantages and disadvantages Data types – built-in (number, char, varchar2, date). Types of SQL Statements DDL (Data Definition Language) DML (Data Manipulation Language) DCL (Data Control Language) TCL (Transaction Control Language) Working with SQL*Plus – overview and basic commands like ed, start, get, save, exit, connect, set line size, set page size Creating table and inserting data CREATE TABLE, INSERT data in table Retrieving data using query – SELECT manipulating data – DELETE and UPDATE Modifying and removing table – ALTER TABLE And DROP TABLE. Order By. Pseudo columns – ROWID, ROWNUM, SYSDATE Null values, TAB table, DUAL table Operators – arithmetic, relational, logical, range searching, Pattern matching and Set.	25%
III	Data Constraints and SQL Functions Data constraints – Introduction, advantages and disadvantages. Type of data constraints – NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY and CHECK. Modifying constraints, working with data dictionary and use of USER_CONSTRAINTS Functions – introduction, merits and demerits Types of functions (scalar and aggregate). - Scalar : Numeric functions (ABS, FLOOR, MOD, POWER, ROUND, SIGN, SQRT, GREATEST, LIST and TRUNC), String functions (CHR, ASCII, CONCAT, INITCAP LOWER, SUBSTR, TRIM, UPPER, INSTR, LENGTH), Date functions (ADD_MONTHS, LAST_DAY, NEXT_DAY, MONTHS_BETWEEN),	25%



	Conversion functions (TO_NUMBER, TO_CHAR and TO_DATE).	
	Miscellaneous functions – NVL, DECODE, COALESCE	
	Aggregate fun: AVG, COUNT, MAX, MIN, SUM.	
IV	Query, Subquery, Joins and Transaction Management and Objects	
	Group By, Having	
	Query and subquery, types of subquery.	
	Joining tables, types of joins (cross join, natural join, inner join, equijoin,	
	outer joins, and self join).	25%
	Creation and manipulation of database objects	
	indexes, views, sequences and Synonym	
	Data control language statements GRANT and REVOKE privileges.	
	Transaction control language statements	
	COMMIT ROLLBACK and SAVEPOINT.	

## **Basic Text & Reference Books:**

- An introduction to Database Systems: Bipin C. Desai, Galgotia Publications Pvt. Ltd.
   Ivan Bayross: SQL, PL/SQL The programming language of Oracle, 3<sup>rd</sup> revised edition, BPB Publications.
- ➤ Kevin Loney, George Koch, Orale9i The Complete Reference, Oracle Press.
- > Understanding Database Management Systesm : S. Parthsarthy and B.W.Khalkar, First edition 2007, Master Academy.
- > P. S. Deshpande : SQL/PLSQL for Oracle9i, dreamtech press, reprint edition 2009.

