Krantiguru Shyamji Krishna Verma Kachchh University, Bhuj
Master of Science (Computer Applications & Information Technology)
Semester: IV

Paper Code: CCCS414	Total Credit : 4
Title of Paper: Database Management Systems – II	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	**PL/SQL** Introduction, Block Structure, Data Types, Operators Control Structures: Loops, Conditional Statements, Procedures, Functions, Cursors, Triggers	20%
II	**Distributed and Parallel Databases** Reliability and Commit protocols, Fragmentation and Distribution, View Integration, Distributed database design, Distributed algorithms for data management, Heterogeneous and Federated Database Systems. Parallel database Architectures and their merits and demerits.	20%
III	**Database Transactions and Recovery Procedures** Transaction Processing Concepts, Transaction and System Concepts, Desirable Properties of a Transaction, Schedules and Recoverability, Serializability of Schedules, Transaction Support in SQL, Recovery Techniques, Database Backup, Concurrency control, locking techniques for Concurrency Control, Concurrency Control Techniques, Granularity of Data Items	20%
IV	**Emerging Databases** Multimedia database: Definition, need of Multimedia databases, MDBMS, Multimedia database components and structure, Multimedia database queries and applications; Mobile database: definition, their need, Characteristics, architecture, uses and limitations of mobile databases; Digital libraries: Introduction, Objectives, types, components, myths, services, advantages, limitations, and comparison with traditional libraries; Spatial databases: Basic concepts, need, types and relationships, architecture, queries, indexing techniques, advantages and disadvantages of spatial databases; Temporal database: basic concepts, characteristics, components, merits and demerits.	20%
V	**Introduction to NoSQL and In-memory Databases** **NoSQL** Introduction to NoSQL, Advantages and Disadvantages of NoSQL, CAP Theorem, Types of NoSQL, Key - Value Based, Columnar Based, Graph Based, Document Based, Difference between RDBMS and NoSQL with Use cases, Popular Industry Standard NoSQL, Choose Best NoSQL according to requirement, Generate Data Model with NoSQL, Ways to access NoSQL (Shell, API, Connector, Client), Assignment: *Performance Benchmarks* **In Memory Databases** Introduction to In-memory DB / NoSQL, Requirements of In-memory Databases with Use cases, Advantages and Disadvantages of In memory DB / NoSQL, Scalability, Reliability, Availability, Clustering & replication., Block Architecture of In- memory DB	20%
Basic Text & Reference Books :-		
1.	Fundamentals of Database Systems (3 edition), Elmasri R. and Navathe S.B., 2000, Addison Wesley, Low Priced Edition	
2.	An Introduction to Database System by Bipin Desai	
3.	Oracle Database 10g PL/SQL Programming, Scott Urman, Oracle Press	

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Unit	Description		Total Marks
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.2 (B) Medium / Long Questions. (With Internal Option)	08	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.3 (B) Medium / Long Questions. (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions. (With Internal Option)	08	