Course Code: 19MC9114 **R19**

SIDDHARTH GROUP OF INSTITUTIONS:: PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Database Management Systems (19MC9114) **Course & Branch**: MCA
Year & Sem: II-MCA & I-Sem **Regulation:** R19

UNIT –I
DBMS INTRODUCTION, ER MODEL

1	**a)**	Define Data, Database and DBMS.	[L1][CO1]	**[6M]**
	b)	Explain the advantages of DBMS.	[L2][CO1]	**[6M]**
2	**a)**	What are the problems in file system data management?	[L1][CO1]	**[6M]**
	b)	Explain various applications of DBMS.	[L2][CO1]	**[6M]**
3	**a)**	Define Data Model.	[L1][CO2]	**[3M]**
	b)	What are the different types of data model? Explain each briefly.	[L1][CO2]	**[9M]**
4		Discuss about Three Schema Architecture of a database with neat diagram.	[L6][CO1]	**[12M]**
5		Illustrate and explain the components of a DBMS.	[L2][CO1]	**[12M]**
6	**a)**	List out various Levels of Abstraction.	[L4][CO1]	**[6M]**
	b)	Write short notes on Hierarchical Model and Network Model.	[L1][CO2]	**[6M]**
7	**a)**	Define E/R Model.	[L1][CO2]	**[6M]**
	b)	Explain Entities and Relationships in detail.	[L2][CO2]	**[6M]**
8		Define attribute. Explain different types of attributes in details with example.	[L5][CO2]	**[12M]**
9		List various notations of E/R diagram with example.	[L4][CO2]	**[12M]**
10		Explain the following attributes with ER Notations **a)** Simple **b)** Multi-Valued **c)** Composite **d)** Derived	[L2][CO2]	**[12M]**

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UNIT –II

RELATIONAL DATA MODEL

1	**a)**	Define Relational Data model and its concepts.	[L1][CO2]	**[6M]**
	b)	What are the different types of keys in Relational data model?	[L1][CO2]	**[6M]**
2		Explain in detail about Entity and Referential Integrity.	[L2][CO2]	**[12M]**
3		Discuss various Relation Algebra Operators in detail.	[L6][CO2]	**[12M]**
4		Compare and explain Cross Product and Join Operations with example.	[L4][CO2]	**[12M]**
5		Explain in detail about Relational Calculus and with their types	[L2][CO2]	**[12M]**
6		Design an ER diagram for relations Employee and Department with relationships.	[L6][CO2]	**[12M]**
7		Build a relational schema for banking application by converting the ER diagram.	[L3][CO2]	**[12M]**
8		Explain Select, Project and Union Operations with example.	[L2][CO2]	**[12M]**
9	**a)**	Explain Division and Assignment Operation with example.	[L2][CO2]	**[6M]**
	b)	Explain Set intersection and Natural – Join Operations.	[L2][CO2]	**[6M]**
10		Identify the steps for converting the E R Diagram to Relational Schema.	[L3][CO2]	**[12M]**

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UNIT –III

SQL, QUERYING IN SQL

1	**a)**	List out various Data Definition Language commands with Syntax & examples.	[L1][CO3]	**[6M]**
	b)	List out various Data Manipulation Language commands with Syntax & examples.	[L1][CO3]	**[6M]**
2		Explain about Keys and Constraints in SQL with example.	[L2][CO3]	**[12M]**
3		Explain basic SQL Query Structure Block with examples.	[L5][CO3]	**[12M]**
4		Explain advanced SELECT Queries with examples.	[L5][CO3]	**[12M]**
5	**a)**	Illustrate Nested Queries with an example.	[L2][CO3]	**[6M]**
	b)	Demonstrate various Aggregate Functions with example.	[L2][CO3]	**[6M]**
6		Explain the following with examples **a)** HAVING **b)** GROUP BY **c)** Sub – Queries	[L2][CO3]	**[12M]**
7		What you meant by Nested, Correlated & Uncorrelated queries?	[L1][CO3]	**[12M]**
8		Write queries using Relational Set operators and SQL Join operators.	[L1][CO3]	**[12M]**
9		Classify SQL Functions. Explain numeric functions with explanations.	[L4][CO3]	**[12M]**
10	**a)**	Explain in detail about Embedded SQL.	[L5][CO3]	**[6M]**
	b)	List and explain various SQL Join Operations.	[L4][CO3]	**[6M]**

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UNIT –IV

DEPENDENCIES AND NORMAL FORMS

1	**a)**	Write some importance of a good schema design.	[L1][CO4]	**[6M]**
	b)	Explain Armstrong's axioms in functional dependencies.	[L2][CO4]	**[6M]**
2	**a)**	What are the problems caused by Redundancy?	[L1][CO4]	**[6M]**
	b)	Explain about Normalization and need for normalization.	[L2][CO4]	**[6M]**
3	**a)**	Define Functional Dependencies.	[L1][CO4]	**[3M]**
	b)	Discuss about different functional dependencies with examples.	[L6][CO4]	**[9M]**
4	**a)**	Define Normalization.	[L1][CO4]	**[3M]**
	b)	Compare and explain about 1NF, 2NF with relevant examples.	[L4][CO4]	**[9M]**
5		Explain about 3NF and BCNF with relevant table structure.	[L5][CO4]	**[12M]**
6		Explain the Multi-valued dependencies and fourth normal forms.	[L2][CO4]	**[12M]**
7		List and explain various normal forms with example.	[L4][CO4]	**[12M]**
8		Discuss about higher level normal forms with suitable table.	[L6][CO4]	**[12M]**
9		Explain the following terms **a)** Fully functional Dependencies **b)** Transitive Dependencies	[L2][CO4]	**[12M]**
10		Explain the steps to improving the design of a Database.	[L5][CO4]	**[12M]**

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UNIT –V

DATA STORAGE & INDEXES, TRANSACTION PROCESSING & ERROR RECOVERY

1	**a)**	What is meant by File Organization?	[L1][CO5]	**[4M]**
	b)	Briefly discuss different types of file organization.	[L6][CO5]	**[8M]**
2	**a)**	Write about Index file organization.	[L1][CO5]	**[6M]**
	b)	List various index structures.	[L4][CO5]	**[6M]**
3		Discuss about Hashing in detail with merits and demerits.	[L6][CO5]	**[12M]**
4	**a)**	What is a transaction in database system?	[L1][CO5]	**[3M]**
	b)	List and explain the ACID Properties with neat diagram.	[L4][CO5]	**[9M]**
5		List and explain different concurrency control.	[L4][CO5]	**[12M]**
6		Explain lock-based concurrency control mechanisms with diagram in detail.	[L5][CO5]	**[12M]**
7		Explain about concurrency control based on time-stamp ordering.	[L2][CO5]	**[12M]**
8		Explain the following concepts **a)** Transaction States **b)** Concurrent Executions	[L2][CO5]	**[12M]**
9		Explain the following in transaction failures **a)** Failure Classification **b)** undo and redo	[L2][CO5]	**[12M]**
10		Explain log-Based Recovery in detail.	[L5][CO5]	**[12M]**

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