SIDDHARTH GROUP OF INSTITUTIONS: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583

Subject with Code: RDBMS (19CS0550) **Course & Branch**: B.Tech - CIVIL, EEE, MECH, AGRI

Year & Sem: II-B.Tech & I-Sem   **Regulation:** R19

UNIT –I
INTRODUCTION TO DATABASE

1	a)	Define Database. Discuss about applications of Database Systems.	[L1][CO1]	**[6M]**
	b)	Discuss about the purpose of Database Systems?	[L6][CO1]	**[6M]**
2	a)	Explain about Views of data	[L2][CO1]	**[6M]**
	b)	Explain about various data models.	[L2][CO1]	**[6M]**
3	a)	Draw the Architecture of Database.	[L1][CO1]	**[6M]**
	b)	Explain about Database users and Administrators.	[L2][CO1]	**[6M]**
4		Explain about Database languages with examples.	[L2][CO1]	**[12M]**
5	a)	Define i) Database ii) DBMS iii) List the database Applications	[L1][CO1]	**[6M]**
	b)	Define Data Abstraction and explain about levels of Abstraction.	[L2][CO1]	**[6M]**
6	a)	Explain about Data independence.	[L2][CO1]	**[6M]**
	b)	Implement the DML Commands – Insert, Select Commands, update & delete Commands.	[L1][CO1]	**[6M]**
7	a)	Write a short note on ER model with an example.	[L1][CO1]	**[6M]**
	b)	List out the Disadvantages of DBMS.	[L1][CO1]	**[6M]**
8	a)	Implement the DDL Commands – Table Creation, Altering the table structures, truncating a table and dropping a table.	[L1][CO1]	**[6M]**
	b)	Write a short note on relational model with an example.	[L1][CO1]	**[6M]**
9		Explain about the Architecture of Database system.	[L2][CO1]	**[12M]**
10	a)	Discuss about Query Processor of database system structure.	[L2][CO1]	**[6M]**
	b)	Discuss about Storage Processor of database system structure.	[L2][CO1]	**[6M]**

UNIT –II
INTRODUCTION TO DATABASE DESIGN AND RELATIONAL ALGEBRA AND CALCULUS

1		Explain different types of Attributes with an example.	[L2][CO2]	**[12M]**
2		Illustrate different set operations in Relational algebra with an example.	[L2][CO2]	**[12M]**
3		Write about relational algebra? Discuss about different operators used in algebra.	[L2][CO2]	**[12M]**
4		Explain about selection and projection in Relation Algebra.	[L2][CO2]	**[12M]**
5	a)	Discuss about the use of renaming operator.	[L6][CO2]	**[6M]**
	b)	Define Join. Explain different types of joins.	[L2][CO2]	**[6M]**
6		Explain about conditional join and natural join with syntax and example**.**	[L2][CO2]	**[12M]**
7		Construct the ER diagram for a company needs to store information about employees (identified by ssn, with salary and phone as attributes), departments (identified by dno, with dname and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments, each department is managed by an employee, a child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known. We are not interested in information about a child once the parent leaves the company.	[L6][CO2]	**[12M]**
8		Explain about Relational calculus and its types.	[L2][CO2]	**[12M]**
9		Draw the ER diagram for Banking Applications and explain it.	[L2][CO2]	**[12M]**
10	a)	Write a short note on Weak Entities and give suitable example.	[L2][CO2]	**[6M]**
	b)	Write about the different symbols used in ER diagrams.	[L2][CO2]	**[6M]**

UNIT –III
FORM OF BASIC SQL QUERY

1		Explain about Null values with an example.	[L2][CO3]	**[12M]**
2	**a)**	Discuss about Nested queries with an example.	[L1][CO3]	**[6M]**
	b)	Write a short note on Correlated Nested queries with an example.	[L1][CO3]	**[6M]**
3		Explain about the form of basic SQL query with an example.	[L2][CO3]	**[12M]**
4		Explain about Union, Intersect, and Except SQL query with example.	[L2][CO3]	**[12M]**
5		Explain about aggregate operators with an example.	[L2][CO3]	**[12M]**
6		How can we compare using null values? Explain about logical connectives with examples	[L1][CO3]	**[12M]**
7	**a)**	To solve: i. Write a query to find name and age of all sailors ii. Write a Query to find the name of sailors who have reserved a red boat iii. Write a query to find the name of sailors who have reserved at least one boat.	[L6][CO3]	**[6M]**
	b)	Explain about Expression and string in Select command with an example.	[L2][CO3]	**[6M]**
8		Discuss about set comparison operators?	[L1][CO3]	**[12M]**
9	**a)**	To solve: i. Write a query to find name and age of sailors who have rating above 7. ii. Write a query to find the name of sailors who have reserved at least two boat.	[L6][CO3]	**[6M]**
	b)	Discuss about GROUP BY clauses and HAVING clauses.	[L5][CO3]	**[6M]**
10	**a)**	What is outer joins with an examples?	[L1][CO3]	**[6M]**
	b)	To solve: PERCENTAGE OF MARKS OBTAINED BY SIX STUDENTS IN SIX DIFFERENT SUBJECTS _table below_ i.Find the student name that has MIN value in English Subject. ii.Find the AVG value of a student 'Ravi'. iii.Write a query to COUNT the values in the table.	[L6][CO3]	**[6M]**

PERCENTAGE OF MARKS OBTAINED BY SIX STUDENTS IN SIX DIFFERENT SUBJECTS

Subject → Student ↓	Science (Out of 150)	English (Out of 100)	Hindi (Out of 50)	Maths (Out of 150)	Social Studies (Out of 125)	Maithili (Out of 50)
Ravi	85	67	84	70	70	78
Riya	80	53	86	60	80	78
Amit	90	51	88	65	50	66
Kirti	65	78	90	85	70	68
Prasad	70	82	86	80	60	72
Tanya	60	84	80	65	50	76

UNIT –IV
INTRODUCTION TO SCHEMA REFINEMENT AND PROPERTIES OF DECOMPOSITIONS

1		Compare and contrast 4NF with 5NF.	[L3][CO4]	**[12M]**
2		Define normalization. List and Explain different normal forms with examples.	[L2][CO4]	**[12M]**
3		Explain about 1NF with an example.	[L2][CO4]	**[12M]**
4		Explain about Fifth Normal form with an example.	[L2][CO4]	**[12M]**
5		Explain about 2NF with an example.	[L2][CO4]	**[12M]**
6	a)	Write short notes on Lossless join Decomposition.	[L2][CO4]	**[6M]**
	b)	Write a short notes on Dependency preserving Decomposition	[L2][CO4]	**[6M]**
7		Explain about 4NF with an example.	[L2][CO4]	**[12M]**
8	a)	Comparison between 1NF, 2NF, and 3NF.	[L2][CO4]	**[6M]**
	b)	Write short notes on 3NF with an example.	[L1][CO4]	**[6M]**
9	a)	Illustrate redundancy and the problems that it can cause?	[L3][CO4]	**[6M]**
	b)	Explain about properties of decompositions?	[L2][CO4]	**[6M]**
10		Explain about properties of decomposition and fifth normal form with an example.	[L2][CO4]	**[12M]**

UNIT –V
RECOVERABILITY, PHYSICAL STORAGE AND DATABASE CONCEPTS

1	(a)	Discuss how do you recover from failure?	[L6][CO5]	**[6M]**
	(b)	Explain about the deadlock prevention schemes.	[L2][CO5]	**[6M]**
2	(a)	Write short note on Buffer management for management of data.	[L3][CO5]	**[6M]**
	(b)	Explain in detail about ISAM	[L4][CO5]	**[6M]**
3	(a)	Illustrate classification of storage structure	[L2][CO5]	**[6M]**
	(b)	Explain concurrency control with lock based protocols	[L4][CO5]	**[6M]**
4	(a)	Explain different types of locks.	[L2][CO5]	**[6M]**
	(b)	Discuss about Times tamp based locking protocols?	[L6][CO5]	**[6M]**
5	(a)	What are the storage types?	[L1][CO5]	**[3M]**
	(b)	Define blocks?	[L1][CO5]	**[3M]**
	(c)	What is meant by Physical blocks?	[L1][CO5]	**[3M]**
	(d)	What is meant by buffer blocks?	[L1][CO5]	**[3M]**
6	(a)	What are the types of storage devices?	[L1][CO5]	**[6M]**
	(b)	Explain Buffer Management in concurrency control system	[L2][CO5]	**[6M]**
7		Classify various levels of RAID with neat diagrams	[L4][CO5]	**[12M]**
8	(a)	What are the factors to be taken into account when choosing a RAID level?	[L1][CO5]	**[6M]**
	(b)	Distinguish between fixed length records and variable length records.	[L2][CO5]	**[6M]**
9	(a)	Explain how recovery is done using undo logging and redo logging.	[L3][CO5]	**[6M]**
	(b)	Which level of RAID is best? Why?	[L1][CO5]	**[6M]**
10	(a)	Explain about failure with loss of non-volatile storage.	[L2][CO5]	**[6M]**
	(b)	What are the methods that are used in log based recovery?	[L1][CO5]	**[6M]**

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