

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**MCA I Year II Semester Regular & Supplementary Examinations August-2023**  
**DATABASE MANAGEMENT SYSTEM**

**Time: 3 Hours****Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 What is the Three Schema architecture? Explain the three schema architecture with block diagram. CO1 L1 12M

**OR**

- 2 Define ER diagram? Write about components of ER diagram. CO2 L2 12M

**UNIT-II**

- 3 a Define Relational Data model and its concepts. CO1 L1 6M  
b What are the properties of Relation. CO2 L1 6M

**OR**

- 4 a What is Relational Algebra ? Explain Relational algebra operations. CO3 L1 6M  
b Suppose there is Sales database which comprises the following tables : CO4 L3 6M  
Salesman(salesman\_id,name ,city,commission)  
Customer(customer\_id,cust\_name,city,grade,salesman\_id)  
Write a SQL query to find the Salesperson and customer who reside in the same city. Return Salesman, Cust\_name and City.

**UNIT-III**

- 5 Let us consider Employee (Emp\_Id, Emp\_FName, Emp\_LName, Emp\_Salary, Emp\_City, Emp\_department) table. Write sql query CO4 L3 12M  
i) To add another two columns, say, Emp\_ContactNo. and Emp\_EmailID to the above Employee table.  
ii) To print all Emp-department from the Employee table order by Emp\_FName Ascending and Emp\_department Descending  
iii) To retrieve the Emp\_FName, Emp-LName in a single column as "Emp\_FullName" The Emp\_FName and Emp\_LName must be separated with space

**OR**

- 6 Explain different types of Joins in SQL with examples. CO4 L1 12M

**UNIT-IV**

- 7 a What is Functional Dependency? CO4 L1 4M  
b Discuss different types of functional dependencies with examples. CO4 L6 8M

**OR**

- 8 a What is Normalization. CO5 L1 2M  
b What are the conditions required for a relation to be in 1NF,2NF,3NF CO5 L1 10M  
Explain with example.

**UNIT-V**

- 9 Explain the following concepts CO6 L5 12M  
i) Hash based indexing ii) Multi level index

**OR**

- 10 What is transaction? Explain the ACID properties of transaction with neat diagram. CO6 L1 12M

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