06/06/2025 SE IT SEM-III C-SCHEME DMS QP CODE: 10085094

Duration: 3 Hours **[Max Marks:80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1			
	a	What are the responsibilities of a Database Administrator (DBA)?	**[5]**
	b	Differentiate between Strong and Weak Entity.	**[5]**
	c	Explain the aggregate/group functions in SQL with examples.	**[5]**
	d	Explain the GROUP BY and HAVING clause in SQL with an example.	**[5]**
2	a	Draw and explain the overall system structure of DBMS.	**[10]**
	b	Design an ER diagram for a Hospital Management System and convert it into a relational schema.	**[10]**
3	a	Explain various JOIN types (INNER, LEFT OUTER, RIGHT OUTER, FULL OUTER) with SQL syntax and output examples.	**[10]**
	b	Explain different relational algebra operators with examples.	**[10]**
4	a	Explain Conflict Serializability in concurrency control.	**[10]**
	b	What is Normalization? Explain 1NF, 2NF, and 3NF.	**[10]**
5	a	Explain the concept of Transactions and ACID Properties.	**[10]**
	b	What are the recovery techniques in DBMS? Discuss log-based recovery.	**[10]**
6	a	What is Indexing in DBMS? Explain clustered and non-clustered indexing with examples.	**[10]**
	b	Write a JDBC program to retrieve and display data from a database table.	**[10]**
