THAKUR COLLEGE OF
ENGINEERING & TECHNOLOGY

IN-SEMESTER EXAMINATION-II

SE (Semester-III)

SUBJECT – Database Management System

Branch: COMP
Div.: ALL
Duration: 60 Minutes

Date: 26/10/2023
Timing: 2:00 PM to 3:00 PM
Maximum Marks: 20

Instructions –

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams / sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

Q.1		Answer any 5 of the following questions	Marks	Course Outcomes	Learning Levels
	a.	What is a SQL view, and how does it differ from a table? Give an example of when you might create a view.	2	CO 4	R
	b.	Explain the concept of a SQL trigger. Provide a real-world scenario in which you might use a trigger.	2	CO 4	U
	c.	What is Fourth Normal Form (4NF) in the context of relational databases? Discuss why and when it is useful to apply 4NF.	2	CO 5	E
	d.	Define the concept of Functional Dependency in relational databases. Provide an example to illustrate your explanation.	2	CO 5	R
	e.	Define what a transaction is in the context of a database management system (DBMS). Provide a brief explanation.	2	CO 6	R
	f.	Explain the concept of transaction states in a DBMS. Briefly outline the typical states a transaction goes through during its execution.	2	CO 6	U
	g.	Discuss the key components of a log-based recovery system in a DBMS. What role does the transaction log play in ensuring data consistency and recoverability?	2	CO 6	C
Q.2	a.	Create a SQL trigger that automatically updates the "Last Modified" timestamp column whenever a row in a table named "Products" is modified. Include error handling to handle potential issues.	5	CO 4	AN
		OR			
	b.	Define the concept of a Candidate Key and explain its importance in the context of database design and normalization. Provide examples to illustrate your explanation.	5	CO 5	AN
Q.3	a.	Design a SQL database schema for a library management system, including tables for books, authors, borrowers, and transactions. Specify primary keys, foreign keys, and any relevant constraints.	5	CO 4	U
		OR			
	b.	Explain the concept of the ACID properties in the context of database transactions. Discuss why each of these properties is essential for reliable database management.	5	CO 6	U