Jain College of Engineering & Research

Udyambag, Belagavi.

(Approved by AICTE, New Delhi, Affiliated to VTU Belagavi & Recognized by Govt. of Karnataka)

NBA Accredited Programs- ECE & ME

Program: Computer Science and Engineering(AIML)

CONTINUOUS INTERNAL EVALUATION-I

Semester: 4th **Date:** 27/05/2025

Course: Database Management System **Code: BCS403** **Max. Marks:** 50

Course Coordinator: Inchara K M **Duration:** 1 Hour 30 Min

Note: Answer any one full question choosing from each part.

Q. No.	Question	Marks	CO	PO	R.B. T. Level
	Part -A				
1 a)	Define 1NF,2NF and 3NF with examples.	8	4	1,2,3	L1
1 b)	Demonstrate the Database Transaction with transaction diagram.	10	5	2,3	L2
1 c)	Demonstrate the System Log in database transaction.	7	5	2,3	L2
	OR				
2 a)	Illustrate the following with examples. i)Datatypes in SQL ii)Substring pattern matching in SQL	8	4	2,3	L1
2 b)	Demonstrate working of Assertion & Triggers in SQL? Explain with an example.	10	5	2,3	L2
2 c)	Demonstrate the ACID properties of database transaction.	7	5	2,3	L2
	Part -B				
3 a)	Demonstrate the Two phase locking protocol used for concurrency control.	10	6	2,3	L2
3 b)	Explain the Concurrency control based on Timestamp ordering	5	6	2,3	L1
3 c)	Why Concurrency control is needed? Demonstrate with an example	10	6	1,2,3	L1
	OR				
4 a)	Define NOSQL? Explain the CAP theorem.	10	6	2,3	L2
4 b)	What is the NOSQL Graph database? Explain Neo4j.	5	6	2,3	L1
4 c)	What is document based NOSQL systems? Explain basic operations CRUD in MongoDB.	10	6	2,3	L1

COURSE OUTCOMES (COs)	
1	Describe the basic elements of a relational database management system
2	Design entity relationship for the given scenario.
3	Apply various Structured Query Language (SQL) statements for database manipulation.
4	Analyse various normalization forms for the given application.
5	Develop database applications for the given real world problem.
6	Understand the concepts related to NoSQL databases.