Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 09-10-2025 **Time:** 09.30am to 11.00am

School: SOCSE	**Program:** B.Tech	
Course Code : CSE3513	**Course Name:** NoSQL Data Management	
Semester: V	**Max Marks**: 50	**Weightage**: 25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**26**	**24**			

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Define NoSQL databases. Why did they emerge?	**2 Marks**	**L1**	**CO1**
2	What is meant by impedance mismatch in relational databases?	**2 Marks**	**L1**	**CO1**
3	Define Horizontal and vertical scaling?	**2 Marks**	**L2**	**CO1**
4	Write short notes on quorums in distributed systems.	**2 Marks**	**L2**	**CO2**
5	What is a materialized view? How is it useful in NoSQL?	**2 Marks**	**L2**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	**Design a university database using a document-oriented NoSQL model with students, courses, and grades. Show example documents.**	**10 Marks**	**L2**	**CO1**
		Or			
7.	**a.**	Given a healthcare database (doctors, patients, appointments, prescription), design an aggregate-oriented schema that supports one-to-many relationships between doctors and their patients. Provide example documents showing how doctors are embedded within a patient document.	**10 Marks**	**L2**	**CO1**

8.	**a.**	**Discuss the role of aggregates in aggregate-oriented data models. Give suitable examples. And compare it with traditional relational model with suitable example.**	**10 Marks**	**L2**	**CO1**
		Or			
9.	**a.**	What are materialized views**?** Discuss their role in query optimization.	**10 Marks**	**L2**	**CO1**

10.	**a.**	Compare the single server distribution model with sharding.	**10 Marks**	**L2**	**CO2**
		Or			
11.	**a.**	Write short notes on version stamps and their role in distributed databases.	**10 Marks**	**L2**	**CO2**

12.	**a.**	**Consider a replicated database for a banking system. Explain how master-slave replication ensures consistency. Provide a diagram.**	**10 Marks**	**L2**	**CO2**
		Or			
13.	**a.**	Using the CAP theorem, analyze which trade-offs you would make in a real-time stock trading system.	**10 Marks**	**L2**	**CO2**