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PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – JUNE-2025

Date: 02- 06-2025

Time: 02:00 pm – 03:30 pm

School: SOIS	Program: MCA	
Course Code: CSA4006	Course Name: Advanced Database Technology	
Semester: II	Max Marks: 50	Weightage: 25%

CO - Levels	C01	C02	C03	C04	C05
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	Describe the difference between SQL and NoSQL with example.	2 Marks	L2	C01
2	What is Commodity Hardware?	2 Marks	L1	C01
3	Define database operations.	2 Marks	L1	C01
4	List the difference between Document databases and Query databases.	2 Marks	L2	C02
5	What is scale up and scale out in NoSQL?	2 Marks	L1	C02

Part B

Answer the Questions.

Total Marks 40M

6.	a.	Explain the process of Achieving Horizontal Scalability with Database Sharding.	10 Marks	L2	C02
Or					
7.	a.	Demonstrate CAP theorem in detail. Explain its advantages and disadvantages.	10 Marks	L3	C02

8.	a.	What is Serializability? Explain its type with suitable examples.	10 Marks	L2	C01
Or					
9.	a.	What is Transaction? Describe Various transaction properties in database.	10 Marks	L2	C01

10.	a.	Explain Concurrency control techniques in detail.	10 Marks	L2	C01
Or					
11.	a.	Demonstrate the key difference between Lock based protocols and Time-stamp based protocols.	10 Marks	L3	C01

12.	a.	What is Sharding? Explain different methods of sharding in detail.	10 Marks	L2	C02
Or					
13.	a.	Describe the following concept in detail: <div style="margin-left: 40px;"> (i) Strong Consistency and Eventual Consistency (ii) BASE in NoSQL transaction. </div>	10 Marks	L2	C02