Roll No.											

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 15-12-2025 **Time:** 1.00pm to 04.00pm

School: SOCSE	**Program:** B.TECH	
Course Code : CSE2260	**Course Name:** Database Management Systems	
Semester: V	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	16	16	34	34	-

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. **10Q x 2M=20M**

1.	Define database management systems.	2 Marks	L1	CO1
2.	List the components of an ER diagram.	2 Marks	L1	CO1
3.	What is natural join? Give an example.	2 Marks	L1	CO1
4.	What is the use of the GROUP BY clause with example?	2 Marks	L1	CO2
5.	What is the difference between DELETE and DROP?	2 Marks	L1	CO2
6.	Define a procedure.	2 Marks	L1	CO2
7.	Define checkpointing in database recovery.	2 Marks	L1	CO3
8.	Define Fourth Normal Form (4NF).	2 Marks	L1	CO3
9.	What is Data Warehousing	2 Marks	L1	CO4
10.	What is a Spatial Database used for?	2 Marks	L1	CO4

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Explain the main characteristics of DBMS.	**10 Marks**	**L1**	**CO1**
		Or			
12.	**a.**	Develop an ER diagram for keeping track of information about a Banking system taking into account atleast four entities.	**10 Marks**	**L2**	**CO1**

13.	**a.**	Solve the given queries using SQL: Student(USN, Name, Department, Percentage) Faculty(Fid, Fname, Department, Designation, Salary) Course(CID, Cname, Fid) Enroll(CID, USN, Grade) i) Retrieve student count semester wise. ii) Retrieve total number of employees who earns salary more than 40000. iii) List the faculty and their designation who earns highest salary. iv) List the faculty id handling course 'AOA' and 'Data Mining'. v) Display the student USN, Name and their Percentage increased by 10 percent.	**10 Marks**	**L3**	**CO2**
		Or			
14.	**a.**	Explicate the following operations in Relational Algebra and give one example for each i)Left Outer Join ii)Right Outer Join iii)Full Outer Join.	**10 Marks**	**L2**	**CO2**

15.	**a.**	Given relation R(A, B, C, D, E) and functional dependencies: F = { A → B, B → C, CD → E, E → A }. **i)** Find (A)+, (B)+, and (CD)+. **ii)** Explain Normalization and its different forms with example.	**10 Marks**	**L3**	**CO3**
		Or			
16.	**a.**	Explain denormalization. When would you use denormalization in a real-world application?	**10 Marks**	**L1**	**CO3**

17.	**a.**	Describe the working principles of a Deductive Database Management System.	**10 Marks**	**L1**	**CO4**
		Or			
18.	**a.**	Explain the concept and importance of Spatial Database Management Systems.	**10 Marks**	**L1**	**CO4**

19.	**a.**	What is a **trigger**? Explain its types and structure with an example.	**10 Marks**	**L1**	**CO3**
	b.	Explain in detail the ARIES recovery method.	**10 Marks**	**L1**	**CO3**
		Or			
20.	**a.**	Explain the crash recovery mechanisms used in database systems.	**10 Marks**	**L2**	**CO3**
	b.	Explain recoverable and non-recoverable schedules of transactions.	**10 Marks**	**L2**	**CO3**

21.	**a.**	Describe the need for specialized database management systems such as Spatial, Temporal, and Constraint DBMS.	**10 Marks**	**L2**	**CO4**
	b.	Explain the necessary characteristics a system must satisfy to be considered as an Object Oriented DBMS.	**10 Marks**	**L2**	**CO4**
		Or			
22.	**a.**	Compare and contrast Object-Oriented and Relational Database Management Systems.	**10 Marks**	**L2**	**CO4**
	b.	Discuss the challenges involved in designing and managing Spatial and Temporal Databases.	**10 Marks**	**L2**	**CO4**