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 : CSE2260	**Course Name:** Database Management Systems	
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	What is schema? Give an example.	**2 Marks**	**L1**	**CO1**
2	Give an example for, i. Composite attribute ii. Complex attribute	**2 Marks**	**L1**	**CO1**
3	What is data abstraction.	**2 Marks**	**L1**	**CO1**
4	Mention the different types of DBMS languages.	**2 Marks**	**L1**	**CO2**
5	What is weak entity? Give an example.	**2 Marks**	**L1**	**CO2**

Part B

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

6.	**a.**	Illustrate three schema architecture with a neat diagram.	**10 Marks**	**L2**	**CO1**
		Or			
7.	**a.**	Explain any three database models with an example for each.	**10 Marks**	**L2**	**CO1**

8.	**a.**	Consider the following two relations in a University Database: Student(SID, Name, Age, Major) Graduate(SID, Name, Age, Major) Write the relational algebra expression to perform the following tasks: (i) Retrieve the details of students whose age is greater than 20. (ii) Retrieve the names and majors of all students. (iii) Find the set of students who are either in Student or Graduate relation. (iv) Find the set of students who are present in both Student and Graduate relations. (v) Find the set of students who are in Student but not in Graduate.	**10 Marks**	**L2**	**CO2**
		Or			
9.	**a.**	Consider the following COMPANY database EMP(Name,SSN,Salary,SuperSSN,Gender,Dno) DEPT(DNum,Dname,MgrSSN,Dno) DEPT_LOC(Dnum,Dlocation) DEPENDENT(ESSN,Dep_name,Sex)WORKS_ON(ESSN,Pno,Hours) PROJECT(Pname,Pnumber,Plocation,Dnum) Write the relational algebra queries for the following (i)Retrieve the name, address, salary of employees who work for the Research department. (ii) find the names of employees who work on all projects controlled by department number 4. iii) Retrieve the SSN of all employees who either in department no. 4 or directly supervise an employee who work in department number 4. (iv) Retrieve the names of employees who have no dependents. (v) Retrieve each department number, the number of employees in the department and their average salary.	**10 Marks**	**L2**	**CO2**

10.	**a.**	Outline an ER diagram Bank Management System. a. Assume suitable Entities and its Attribute set. b. Represent appropriate structural constraints. **c.** List the weak entity and identifying relations, if any. Justify your answer.	**10 Marks**	**L2**	**CO1**
		Or			
11.	**a.**	Outline an ER diagram for Supermarket management system. a. Assume suitable Entities and its Attribute set. b. Represent appropriate structural constraints. c. List the weak entity and identifying relations, if any. Justify your answer.	**10 Marks**	**L2**	**CO1**

12	**a.**	Consider the Insurance database given below. The primary keys are underlined and the data types are specified. Person (driver_id#: string, name: string, address: strong) Car (regno: string, model: string, year: int) Accident (report_no: int, adate: date, location: string) Owns (driver_id #: string. regno: string) Participated(driver_id#: string, regno: string, report_no:int, damage_amt: int) Solve the following queries using SQL. (i) Update the damage amount for the car with a specific Regno in the accident with report number 12 to 25000. (ii) Add a new accident to the database. (iii) Find the total number of people who owned cars that were involved in accidents in 2008. (iv) Find the number of accidents in which cars belonging to a specific model were involved. (v) Find all drivers who participated in accidents causing more than $5000 damage, and list the accident date, location, and the model of the car involved.	**10 Marks**	**L3**	**CO2**
		Or			
13	**a.**	Flights (flno: integer, from: string, to: string, distance: integer, departs: time, arrives: time, price: integer) Aircraft (aid: integer, aname: string, cruisingrange: integer) Certified (eid: integer, aid: integer) Employees (eid: integer, ename: string, salary: integer) Solve the following queries using SQL. (i) Find the names of aircraft such that all pilots certified to operate them earn more than 80,000. (ii) Find the second highest salary of an employee. (iii) For each pilot who is certified for more than three aircraft, find the eid and the maximum cruising range of the aircraft that he (or she) is certified for. (iv) Find the names of pilots whose salary is less than the price of the cheapest route from Los Angeles to Honolulu. (using Nested Queries) (v) Calculate the average price of flights from each origin city for flights longer than 1000 miles.	**10 Marks**	**L3**	**CO2**