



MID TERM EXAMINATIONS – November 2024

Programme	: B.Tech.	Semester	: Interim Semester 2
Course Title	: Database management System	Course Code	: CSE3001
Date/Session	: 13 Nov 2024/Session I	Slot	: B11+B12+B13
Time	: 1 ½ hours	Max. Marks	: 50

Answer all the Questions

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Question Description

- 1 (a) Explain Key Attribute and its type with suitable example.
- 2 (b) Briefly explain three schema architecture in DBMS. Discuss data independence and its types in detail.
Discuss the advantages of using a DBMS over traditional file systems. Draw an Entity-Relationship (ER) diagram for your university database that includes entities such as Student, Course, and Instructor. Clearly label the entities, relationships, and attributes. Discuss the cardinality and participation constraints between these entities.
- 3 (a) There are two tables - Student and Department, each have their own set of attributes.
Student (Fname, Lname, Student_id, Course, CGPA, DoB, Dno)
Department (Dept_no, DeptName)
Write relational algebra for the following queries
- Retrieve all students who are enrolled in the course 'Database Systems' from CSE department.
 - Retrieve the name of the student from each department who secured highest CGPA.
 - Find total no. of students who enrolled in "DBMS".
 - List all students whose first name is "Raj".
 - List the name of all students who born after "2010".
- 4 Explain difference between 3rd NF and BCNF.
Consider a relation R (A, B, C, D, E) with the following dependencies:
AB → C, CD → E, DE → B
Is AB a candidate key of this relation? If not, is ABD? Explain your answer.
Consider Following Schema
- 5 Employee (ENO, ENAME, Dept_no, Designation, DOJ, Salary) Department
(Dept_no, Dept_name, Dept_Location).

Solve the following query in SQL.

- (i) Insert a new employee <30, 'Ram', 5, 'Professor', '26/07/2022', 1,50,000> Retrieve the details of employees from the CSE department located at "Kolkata"
- (ii) Update the salary to Rs.1,00,000/- having Designation as "Project Manager"
- (iii) Retrieve the names of the Professors who belongs to CSE department.
- (iv) Delete the employee details of 'Dr. Rajesh Sharma' from 'CSE' department.

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