

MCA SEMESTER I EXAMINATION 2024

PAPER-MCA 103 (Backlog)

DATABASE MANAGEMENT SYSTEM

Time: 2.5 hours

MM:60

Course outcomes (CO)

CO1. Demonstrate the basic elements of a relational database management system.

CO2. Identify the data models for relevant problems.

CO3. Design entity relationship and convert entity relationship diagrams into RDBMS and formulate SQL queries on the respect data into RDBMS and formulate SQL queries on the data.

CO4. Demonstrate their understanding of key notions of query evaluation.

CO5. Extend normalization for the development of application software's.

Section-A

Note: Answer all questions from this section and all carry equal marks (5marks)

Q.N	Questions	CO	BL
1	What is Database Management System? Explain the architecture of DBMS.	CO1	L2
2	What do you understand by Data Abstraction? Explain data abstraction with proper example.	CO1	L2
3	What do you understand by Data Independence? Explain both physical and logical data independence with examples.	CO1	L3
4	What do you understand by Entity Integrity and Referential Integrity Constraint? Explain them with proper examples.	CO3	L2

Section B

Note: Answer any FOUR questions from section B and all carry equal marks(10marks)

Q.N	Questions	CO	BL
1	What are weak and strong entities in ER Diagrams? Draw an ER Diagram for College environment.	CO2	L3
2	What is Normalization? Explain 1NF, 2NF and 3NF with proper examples.	CO4	L2
3	What are database Transactions? Explain the ACID properties in database system.	CO5	L2
4	Let Relation R (ABCD) and FD: {AB→C, C→D, D→A} List all candidate keys and Prime non-prime attributes.	CO1	L3
5	Let R(ABCDEF) be the Relation. Check the highest normal form for functional dependencies FD: {AB→C, C→DE, E→F, F→A}	CO1	L3
6	Create a SQL table STUDENT for MCA students and insert few records in the table. The students will decide about the fields/attributes. Then create a table HOSTEL and insert few records in the table. Write the SQL statements for the following: (i) List the name and address of all students who belong to state UP. (ii) List the hostel id and room number of students who haven't paid the hostel dues. (iii) Display all the students with all the fields in the table STUDENT. (iv) Create a foreign key for the table HOSTEL which connects HOSTEL with MCA STUDENT table.	CO4	L1