Malla Reddy University
Department of CSE
Database Management Systems - MR22-1CS0102
Question Bank

UNIT I
1. Describe the Structure of Database Management system.
2. Differentiate between File System and Database Management System.
3. What is Data Model? Explain about various Data Models
4. Define Database Management System (DBMS). List out the advantages of DBMS.
5. What is meant by Data Abstraction? Describe various levels of Data Abstraction.
6. Define Data Independence. Describe Physical Data Independence and Logical Data Independence
7. What is meant by Mapping Cardinality? List and explain types of Cardinality Ratios
8. Construct an ER diagram for a University database which keeps track of students, courses, instructors, and departments. Each student can enrol in multiple courses, and each course can have multiple students. A course is taught by one instructor and each instructor can teach multiple courses. Every course must belong to only one department (at least), and each department can have multiple courses. An instructor works in one department, and each department can have multiple instructors.

UNIT II
1. What is Relational Algebra? List out various types of Relational algebra operations
2. What is Relational Calculus? Describe types of Relational Calculus with suitable example.
3. Explain about the relational model and various integrity constraints over relations.
4. Write a note about views. Explain with an example the creation, alteration, and deletion of views.
5. Explain about inner joins.
6. With a suitable example discuss outer joins.
7. List out and explain the rules for converting E-R model to relational schema
8. Construct an ER diagram for a University database which keeps track of students, courses, instructors, and departments. Each student can enrol in multiple courses, and each course can have multiple students. A course is taught by one instructor and each instructor can teach multiple courses. Every course must belong to only one department (at least), and each department can have multiple courses. An instructor works in one department, and each department can have multiple instructors.
Convert the above E-R diagram to relational schema.

UNIT III
1. With suitable examples explain DDL and DML commands
2. What is a stored procedure? Explain its usage with an example

3. Discuss the importance of triggers with an appropriate example
4. Write a note on DCL and TCL queries
5. Explain what functional dependency is and list out inference rules for functional dependency.
6. Explain what is partial dependency and the necessary conditions for 2NF.
7. With a suitable example explain the necessary conditions for 3NF
8. With a suitable example explain BCNF and 4NF
9. A given relation R = {A, B, C} has the following functional dependencies. FDs: {A→B, B→C, C→A}. Verify whether R is in BCNF

UNIT IV

1. Explain in detail about the basic concepts of Transaction Processing
2. Describe the read and write operations of transaction processing with a neat sketch
3. Why concurrency control is needed in transaction processing and explain the different concurrency control problems with a neat diagram
4. Describe the different types of issues that causes a transaction failure in detail
5. Narrate the different states included in transaction processing with a neat sketch
6. Explain the ACID properties of transaction in detail and discuss how it is related to transaction processing
7. Describe in detail about the process of characterizing schedules based on recoverability
8. What is system log? How system log and system record will be helpful in recovering the lost data in transactions

UNIT V

1. Discuss two-phase locking technique for concurrency control
2. Explain in detail concurrency control based on timestamp ordering
3. Write a note about magnetic disc storage device
4. Explain the working and differentiating features of magnetic tape storage
5. Discuss the process of data transfer using buffer blocks
6. Write a short note on records and its types
7. Explain how file blocks are allocated on disks
8. Discuss various operations on files