



MALLAREDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Sponsored by CMR Educational Society)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC - 'A' Grade - ISO 9001:2008 Certified) Maisammaguda, Dhulapally (Post Via Hakimpet), Secunderabad - 500100

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DATABASE SYSTEMS QUESTION BANK

(R22A0553)

FOR

III B.TECH II SEMESTER (R-22)

2024-2025

R22A0553:DATABASE SYSTEMS

UNITWISEQUESTIONS

S.NO		
		UNIT-1:Introduction (Database)
1	A	Explain about Functional components of a DBMS?
	B	Explain the purpose of Data base Systems?
2		What are the application programs?Explain database access from application programs?
3		Explain File Processing System vs DBMS
4		Define DBMS?List Data base system applications
5		Explain about three schema Architecture of a database?
6		Explain about DBMS Languages?
		UNIT-2:DataBase design
1		Explain the E-R diagram components and notations with their extended features?
2		Discuss the basic concepts of E-R Model
3		What are the different data models? Explain E-R model and relation model briefly?
4		Define a) Entity b)Attribute c)Relationship with examples
5		State and explain various features of E-R Models
6	A	What are the Different types of Data Models? Explain with example.
	B	Briefly explain about views of data.
7	A	Discuss the correspondence between the ER model construct and the relational model constructs.
	B	Show how each ER model construct can be mapped to the relational model
	C	Explain about Keys
		UNIT-3:Structured Query Language
1		Describe the following in SQL with examples
	A	NestedQueries
	B	Correlated Queries
2	A	Explain about Views &
	B	Triggers

3		Explain about correlated and uncorrelated Aggregate Functions?
4		Explain about various types of JOIN operations in SQL
5		Explain about UNION, Intersect and except
		UNIT-4 : Dependencies and Normal Forms
1		Describe about bad schema designs
2		Explain about Functional dependencies?
3.		Describe about Armstrong's axioms for FD's Closure of a set of FD's?
4.		What are the steps to be followed to convert are relations in 3NF to BCNF? Illustrate multi value Dependencies and 4NF with examples?
5.		Define 1NF ,2 NF ,3 NF and BCNF
6.		Write the properties of De compositions?
		UNIT-5 : TRANSACTIONS
1		Explain different recovery techniques used in transaction failure?
2		What is a checkpoint? Explain how check points can be used in recovery of databases.
3		Discuss about buffer management in Databases
4		Explain lock based concurrency control in detail?
5		Explain about Concurrent execution of transactions?
6		How the data will be recovered by concurrent transactions?
7		Explain about Serializability by locks?
8		Write properties of Transactions?
9		Explain about Concurrency control by Timestamps?

DATABASE SYSTEMS

MODEL PAPER-I

Time: 3 hours

Max. Marks: 70

Note: Question paper consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION-I

1. What is logical data independence and why is it important?

OR

2. a) What is a partial key? How is it represented in ER diagram? Give an example?

b) What is a descriptive attribute? Explain?

c) Discuss the usage of ISA feature in ER diagram?

SECTION-II

3. Explain the following with examples.

a) Key constraints. b) Foreign key constraints.

OR

4. What is a view? Explain about views in detail?

SECTION-III

5. Explain the following

a) Lossless Join b) Lossless decomposition

OR

6. What are the advantages of normalized relations over the unnormalized relations?

SECTION-IV

7. a) How the use of 2PL would prevent interference between the two transactions.

b) Explain the difference between strict 2PL and rigorous 2PL?

OR

8. Explain different recovery techniques used in transaction failure?

SECTION-V

9. How do volatile and non-volatile storage devices differ from each other?

OR

10. How will the data be recovered by concurrent transactions?

DATABASE SYSTEMS

MODEL PAPER-II

Time: 3 hours

Max. Marks: 70

Note: Question paper consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION-I

1. a) Describes to manager component of database system structure?
b) Explain levels of abstraction in DBMS

OR

2. Explain the E-R diagram components and notations with their extended features?

SECTION-II

3. Explain the following.
a) Types of Join Operations b) Set Operations

OR

4. a) Define Relational Algebra, tuple and domain relational calculus?
b) What are the differences between the two types of relational calculus?

SECTION-III

5. Define BCNF? How does BCNF differ from 3NF? Explain with an example.

OR

6. What is Redundancy? What are the different problems encountered by redundancy? Explain them.

SECTION-IV

7. What are the transaction isolation levels in SQL?

OR

8. Explain how concurrency execution of transactions improves overall system performance?

SECTION-V

9. How the data will be recovered by concurrent transactions?

OR

10. What is Buffer Management? What is Log Based Recovery and recovery base Transactions?
