



R22 Regulation

Subject code: 4P5HB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Regular/Supplementary Examinations, November 2025

DISTRIBUTED DATABASES (CSE(DS))

Maximum Marks: 60

Date: 12.11.2025

Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BloomTx
1.a)	What is a Distributed Database System (DDBS)?	1M	1	L1
b)	Define fragmentation in distributed database design	1M	1	L1
c)	What is the main objective of query processing in a distributed database?	1M	2	L2
d)	What is query decomposition?	1M	2	L1
e)	Define a transaction in database systems.	1M	3	L1
f)	What is serializability in concurrency control?	1M	3	L2
g)	What is meant by fault tolerance in distributed systems?	1M	4	L2
h)	Name any one type of failure in a Distributed DBMS.	1M	4	L1
i)	What is object identity in an Object-Oriented Data Model?	1M	5	L1
j)	Mention one difference between OODBMS and ORDBMS.	1M	5	L2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BloomTx
2	Describe the main promises and problem areas of Distributed Database Systems. How do these influence system design?	10M	1	L3
OR				
3	a) Explain the concept of Distributed Data Processing and how it differs from a centralized system.	5M	1	L3
	b) Discuss the major architectural models for Distributed DBMS.	5M		L2
4	Discuss the objectives of query processing and the factors affecting its efficiency in distributed databases.	10M	2	L4
OR				
5	a) Explain the process of localization of distributed data with an example.	5M	2	L3

	b) Outline the role of cost functions in distributed query optimization.	5M		L2
6	a) Discuss serializability in distributed transactions with suitable example. b) Describe the causes and prevention methods for deadlocks in DDBMS.	5M 5M	3	L2 L2
	OR			
7	Explain the concept of distributed concurrency control. Compare locking-based and timestamp-based methods with examples.	10M	3	L4
8	a) Discuss the advantages and limitations of database clustering for load distribution. b) Explain how fault tolerance is achieved in Distributed DBMS.	5M 5M	4	L2 L2
	OR			
9	a) Discuss how site failures and network partitioning affect system performance. b) Explain the mechanisms of load balancing and parallel query processing.	5M 5M	4	L2 L3
10	a) Explain fundamental object concepts and models used in OODBMS. b) Discuss architectural issues in distributed object management.	5M 5M	5	L2 L2
	OR			
11	a) Explain the role of persistence and inheritance in OODBMS design. b) Compare Object-Oriented DBMS and Object-Relational DBMS.	5M 5M	5	L3 L4