

R18

Code No: 155AY

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, January - 2025

DISTRIBUTED DATABASES
(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A

(25 Marks)

- 1.a) What are the promises of Distributed Database Systems? [2]
- b) Explain the concept of allocation in distributed database design. [3]
- c) Define query decomposition and its importance. [2]
- d) Describe the objectives of distributed query optimization. [3]
- e) What is a distributed transaction? [2]
- f) Explain the role of concurrency control in distributed transactions. [3]
- g) What are the basic methods used for deadlock detection. [2]
- h) Discuss the architectural models of parallel database systems. [3]
- i) What are the architectural issues in distributed object databases? [2]
- j) Define and compare persistence in OODBMS and ORDBMS. [3]

PART - B

(50 Marks)

- 2.a) Analyze the architectural models of DDBMS and their advantages.
 - b) Explain the fragmentation and allocation strategies in DDBMS. [5+5]
- OR**
- 3.a) Evaluate the problem areas in Distributed Database Systems.
 - b) Discuss the design issues in distributed database systems. [5+5]
- 4.a) Describe the challenges of query optimization in distributed systems.
 - b) Explain query localization and its significance in distributed databases. [5+5]
- OR**
- 5.a) Analyze the decomposition of queries in distributed query processing.
 - b) Compare centralized and distributed query optimization algorithms. [5+5]
- 6.a) Explain the importance of serializability in distributed transactions.
 - b) Analyze deadlock detection and prevention mechanisms in distributed DBMS. [5+5]
- OR**
- 7.a) Discuss the different concurrency control algorithms used in distributed DBMS.
 - b) Evaluate the time-stamped ordering approach in concurrency control. [5+5]

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- 8.a) Discuss fault-tolerance strategies in distributed systems.
- b) Explain the role of parallel data placement in parallel database systems. [5+5]

OR

QA QA QA QA QA QA QA G

- 9.a) Describe local and distributed reliability protocols with examples.
- b) Analyze the impact of site failures on distributed database systems. [5+5]

- 10.a) Explain the fundamental object concepts in distributed object DBMS.
- b) Discuss the significance of object query processing in OODBMS. [5+5]

OR

- 11.a) Discuss the fundamental object concepts and models in Distributed Object Database Management Systems (OODBMS).

QA QA QA QA QA QA QA G

- b) Highlight the challenges and techniques used in query optimization for object-oriented data models. [5+5]

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