R18

Code No: 155AY

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, March - 2024

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)	Define a distributed database system.	[2]
b)	List the key issues in distribution design.	[3]
c)	Name any two objectives of query optimization.	[2]
d)	Write a short note on query localization.	[3]
e)	What is the significance of a commit point in a transaction?	[2]
f)	Differentiate between centralized and distributed transactions.	[3]
g)	Define database clusters.	[2]
h)	How do distributed reliability protocols handle failures?	[3]
i)	What is mean by distributed object storage?	[2]
j)	Name a few persistent programming languages commonly used in object-oriented data modeling.	[3]

PART – B

(50 Marks)

2.a)	Discuss the significance of distributed data processing in modern computing.	
b)	Elaborate on the promises made by distributed database systems and their impact.	[5+5]
	OR	
3.a)	Explain the concept of fragmentation and its role in distributed database design.	
b)	Write a detailed overview of the components in distributed database management system architecture.	[5+5]
4.a)	Discuss the main objectives of query processing and how they contribute to the efficiency of database systems.	
b)	Compare and contrast centralized and distributed query optimization.	[5+5]
	OR	
5.	Describe the layers of query processing in detail, highlighting the functions of each layer.	[10]
6.	Explain the types of serializability with suitable examples.	[10]
	OR	
7.a)	Describe the types of transactions and provide examples of each.	
b)	Discuss two-phase locking as a concurrency control mechanism.	[5+5]

8. Explain the process of parallel query processing. Illustrate with an example. [10]

OR

9. Analyze the impact of site failures and network partitioning on the reliability of Distributed DBMS. [10]

10.a) Discuss the fundamental object concepts and models in DODBMS.

b) Explain the characteristics of persistent programming languages in the context of object- oriented data modeling. [6+4]

OR

11.a) Compare OODBMS with ORDBMS.

b) Elaborate on the concept of object identity. [5+5]

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