Code No.: DS743PE | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - November- 2024
DISTRIBUTED DATABASES
(CSD)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1. a)	Define Distributed Data Processing.	[2M]
b)	What is fragmentation in a distributed database design?	[2M]
c)	How does network latency impact distributed query optimization?	[2M]
d)	List the algorithms used for distributed query optimization.	[2M]
e)	Define a transaction in the context of a database system	[2M]
f)	What is serializability in transaction management?	[2M]
g)	Define load balancing in parallel database systems.	[2M]
h)	Draw common architecture used in parallel database systems.	[2M]
i)	What is object query Processing?	[2M]
j)	Define object identity in OODM.	[2M]

PART-B **(50 Marks)**

2.	Illustrate a simple architectural model for a distributed DBMS and describe its components.	[10M]
	OR	
3. a)	Discuss the promises of distributed DBMS technology	[5M]
b)	Explain the trends in distributed systems	[5M]
4.	Explain layers of query processing.	[10M]
	OR	
5.a)	Differentiate centralized query optimization and distributed query optimization.	[5M]
b)	Describe the process of localization of distributed data in query processing with example.	[5M]
6.	Demonstrate "two-phase locking" (2PL) algorithm works in concurrency control with suitable example.	[10M]
	OR	
7.	Illustrate distributed deadlock detection algorithm with an example.	[10M]
8.	Compare and contrast fault tolerance mechanisms in centralized vs. distributed database systems.	[10M]
	OR	
9. a)	Differentiate between parallel data placement strategies and evaluate their effectiveness in large-scale systems.	[5M]
b)	Identify possible failure causes in a distributed DBMS and illustrate how you would classify and handle each type of failure.	[5M]
10.	Explain Horizontal Class Partitioning and Vertical Class Partitioning, with respect to Distributed Object Database Management.	[10M]
	OR	
11.a)	Analyze the key features of OODBMS and ORDBMS, how you would choose between them for a specific application scenario.	[5M]
b)	Outline Persistent Programming languages in details	[5M]

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