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MCA
(SEM IV) THEORY EXAMINATION 2023-24
DISTRIBUTED DATABASE SYSTEMS

TIME: 3 HRS**M.MARKS: 100****Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

a.	Discuss issues of recovery in distributed databases.	02
b.	Differentiate between homogenous & heterogeneous DDBMS.	02
c.	Define distributed database and its types?	02
d.	What are the types of failures in distributed database?	02
e.	Describe orphan message with suitable example.	02
f.	Explain transaction and its properties.	02
g.	Explain derived horizontal fragmentation.	02
h.	Define Moss concurrency control protocol.	02
i.	List various types of failures in distributed database.	02
j.	Compare ORDBMS with OORDBMS.	02

SECTION B**2. Attempt any three of the following:****3 x 10 = 30**

a.	Differentiate Distributed Deadlock prevention to Distributed Deadlock Avoidance. Explain one scheme of Distributed deadlock Detection and Recovery.	10
b.	Explain different type of problem occur in a distributed system due to the failure of link and partitioning of the network. Explain different ways by which recovery can take place.	10
c.	Illustrate view equivalence and explain view serializable schedule with example.	10
d.	Discuss about Recovery in Message Passing System. Explain concept of inconsistent states?	10
e.	Difference between homogenous and heterogeneous database, also draw architecture of heterogeneous database along with some query processing issues.	10

SECTION C**3. Attempt any one part of the following:****1 x 10 = 10**

a.	Explain Lock based protocol, Time stamp-based protocol, Multiple granularities and Multi version techniques with examples.	10
b.	Explain Multiway joins, Semi joins and Deadlock detection for Distributed database systems.	10

4. Attempt any one part of the following:**1 x 10 = 10**

a.	Generate an algorithm for synchronous check pointing in a Distributed database system.	10
b.	Explain the roles of different components of a Distributed DBMS.	10

5. Attempt any one part of the following:**1 x 10 = 10**

a.	Discuss two phase locking technique with example. Will two phase locking result in deadlock? Justify your answer with the help of an example.	10
b.	Explain the difference between fragmentation and replication. When is it useful to have replication or fragmentation of data? Explain your answer.	10

6. Attempt any one part of the following:**1 x 10 = 10**

a.	Explain the conflict equivalent serializable schedule. Analyze schedule S: r3(x); r2(x);w3(x); r1(x);w1(x); is conflict serializable or not. Also write the equivalent serial schedule.	10
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b.	Explain schedule and serializable schedule. Analyze whether the following schedule is conflict serializable or not: $r3(x); r2(x); r1(x); w3(x); w1(x)$.	10
7.	Attempt any one part of the following:	1 x 10 = 10
a.	Justify that three-phase commit (3PC) protocol is a non-blocking protocol.	10
b.	Discuss the objectives of distributed query processing. Explain the various phrases in distributed query processing in detail.	10

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