Sub Code: RCAE41

Paper Id: 214510 Roll No:

MCA
(SEM V) THEORY EXAMINATION 2019-20
DISTRIBUTED DATABASE SYSTEMS

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Define the concepts of recoverable, cascade less and strict schedules.
b.	What is transaction commit point?
c.	What is fuzzy checkpoint?
d.	State the Thomas's write rule.
e.	What do you mean by recovery line?
f.	What is orphan message?
g.	Define derived horizontal fragmentation.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Justify that three phase commit protocol is a non-blocking protocol.
b.	Explain in detail the main steps involved in query processing.
c.	Explain the primary copy and majority protocol for distributed transaction management.
d.	Explain the architecture of locking scheduler.
e.	Define view equivalence and explain view serializable schedule with example.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Define the conflict equivalent serializable schedule. Check schedule S: $r_3(x)$; $r_2(x)$;$w_3(x)$; $r_1(x)$;$w_1(x)$;is conflict serializable or not. Also write the equivalent serial schedule.
(b)	Define schedule and serializable schedule. Check whether the following schedule is conflict serializable or not: $r_3(x)$; $r_2(x)$;$r_1(x)$; $w_3(x)$;$w_1(x)$;

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	State and explain the basic timestamp ordering algorithm for concurrency control.
(b)	What is two phase locking technique? Describe with example. Will two phase locking result in deadlock? Justify your answer with the help of an example.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss the issues to achieve atomicity in distributed transaction management system.
(b)	Explain the check-pointing algorithm for distributed database system.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	In how many ways may the joint relations stored at different sites be processed? List the relative advantages and disadvantages of those strategies. Also write down the factors which affect the cost of data transfer.
(b)	Explain in brief the various query optimization techniques and write their advantages and disadvantages.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain the roles of different components of a Distributed DBMS.
(b)	Explain the difference between fragmentation and replication. When is it useful to have replication or fragmentation of data? Explain your answer.