Sub Code:NMCAE41

Paper Id: 910184 Roll No:

MCA
(SEM-V) THEORY EXAMINATION 2019-20
ADVANCE DATA BASE MANAGEMENT SYASTEM

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.
2. Any special paper specific instruction.

SECTION A

1. Attempt *all* questions in brief. 2 x10 = 20

a. Discuss the semi-join.
b. Define check point and its impact on database recovery.
c. What is the granularity?
d. What is serializability?
e. Define Orphan Message.
f. Discuss the cascadeless schedules.
g. Explain Two-Phase Locking Method.
h. Define time stamp base protocol.
i. Explain Issues of recovery and atomicity in distributed Database.
j. What do you mean by fragmentation?

SECTION B

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

a. What is deadlock in distributed database system? Explain three algorithm widely used in deadlock detection?
b. Describe query optimization in distributed database. How is it different from query optimization in a standalone database?
c. Define a cascadeless schedule and a recoverable schedule. If a schedule is not cascadeless, does it mean 'no recovery is feasible'? Justify.
d. What is database recovery? Explain the log based recovery technique.
e. Discuss the following-
   (i) Three phase commit (3PC) protocol.
   (ii) Multiple Granularity locking

SECTION C

3. Attempt any *two* parts of the following: 5 x 2 = 10

(a) How fault, failure and recovery are related?
(b) Describe various properties of transaction.
(c) Explain the 'Thomas' rule.

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

(a) Explain the concept of conflict serializability. Define Conflicting Instruction and Non- Conflicting Instruction.
(b) How does recovery manager ensure atomicity of transaction? How does ensure durability?

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

(a) What are protocols? Explain lock based and time stamp based concurrency protocol with suitable example.
(b) What do you mean by a lock scheduler? Explain the process of obtaining the lock. Explain the lock table.

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

(a) Describe the following in brief:
   (i) State diagram of 2PC.
   (ii) Eager replication technique.

(b) Consider the following two transactions.
T1: read(A);
Read(B);
B=A+B;
Write B;
T2: write(A);
Read(B);
Add lock and unlock instruction so that transaction observe two- phase locking protocol. Is it deadlock free?

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

(a) Explain following:
   (i) Replication technique
   (ii) Moss concurrency control algorithm.

(b) Compare the deferred- modification and immediate-modification version of the log-based recovery schemes, in terms of ease of implementation and overhead cost.

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