Printed Pages: 02 **Sub Code: NCS-067**

Paper Id: 110232 **Roll No.** | | | | | | | | | | |

B. TECH.

(SEM VI) THEORY EXAMINATION 2018-19

DISTRIBUTED DATABASE

Time: 3 Hours ***Total 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. Explain Orphan and inconsistent message.

b. Define Concept of data independence & Atomicity in Distributed database.

c. Define Recoverable and Cascadeless Schedule.

d. Describe Eager and Lazy Replication Techniques.

e. Explain various types of Distributed Databases.

f. Describe Semi joins and bloom joins.

g. Explain data distribution in Distributed database.

h. Describe Checkpoints.

i. Define the terms scale-up and speed-up.

j. Define the term Synchronous and Asynchronous replication.

SECTION B

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

a. How is transaction management in distributed database different from transaction management in a standalone database? Describe distributed transaction management.

b. What are protocols? Explain lock based and time stamp-based concurrency protocol with suitable example.

c. Discuss MOSS concurrency protocol with its architecture.

d. Explain the protocols used for Recovery in a distributed DBMS

e. What do you understand by Database Replication Techniques? What are the parameters of Eager Replication?

SECTION C

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

(a) Explain the problems associated with achieving a true distributed database in practice.

(b) What are the similarities and differences between parallel and distributed database management systems?

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

(a) Explain in brief working of two-phase locking protocol. Explain with the help of a schedule, how this protocol ensures a schedule to be conflict serializable but not cascadeless.

(b) Discuss Multiple Granularity in detail using an example. Discuss the significance of Multi Granularity in database.

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

(a) Explain in brief two-phase commit protocol.
(b) What is fragment of a relation? What are the main types of fragments? Why are fragments a useful concept in distributed database design?

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

(a) Compare the deferred- modification and immediate-modification version of the log-based recovery schemes, in terms of ease of implementation and overhead cost.
(b) Explain multiway joins and Semi Joins in distributed database.

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

(a) Compare the relative merits of centralized and hierarchical deadlock detection in a distributed database.
(b) Explain the Distributed Query processing techniques in detail.