

Roll No.

Total Pages : 03

CCMTE/D-23

24062

DISTRIBUTED SYSTEMS

MT-CSE-20-14(ii)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

- 1.** (a) What are factors that encourage moving over to DDBMS ? Explain. **4**
- (b) Explain the structural and behavioral integrity constraints. **3**
- (c) What is the role of data localization in distributed query processing ? **4**
- (d) It is sometimes claimed that serializability is quite a restrictive correctness criterion. Give examples of distributed histories that are correct (i.e. maintain the consistency of the local databases as well as their mutual consistency), but are not serializable ? **4**

Unit I

2. Discuss the distributed data processing and distributed database systems. Explain the features and types of distributed database systems. **15**
3. Discuss Distributed DBMS using an example and explain the following promises of DDBMS technology : **15**
 - (i) Transparent management of distributed and replicated data,
 - (ii) Reliable access to data through distributed transactions
 - (iii) Improved performance
 - (iv) Easier system expansion.

Unit II

4. Discuss the top-down design process for designing distributed databases. What are various issues in design of distributed databases ? Explain. **15**
5. Discuss the view management in centralized and distributed systems. Also discuss the materialized view maintenance. **15**

Unit III

6. Discuss various layers of Query Processing and explain the following steps of query decomposition : **15**
 - (i) Normalization
 - (ii) Analysis
 - (iii) Elimination of redundancy
 - (iv) Rewriting.
7. What is query optimization ? Explain different global query optimization algorithms. **15**

Unit IV

8. What is concurrency ? Explain different locking-based concurrency control algorithms in centralized database systems. **15**
9. Discuss the deadlock detection and resolution in distributed environment and explain centralized, distributed and hierarchical approaches for detecting distributed deadlocks. **15**