

[Time: Three Hours]

[Marks:80]

Please check whether you have got the right question paper.

N.B: (1) Question No. 1 is **Compulsory**.

(2) Attempt any **three** question out of remaining **five**.

- 1 (a) Consider the following two relations: EMP and PAY 10

Emp-no	Emp-Name	Title
E1	John	Developer
E2	Mercy	Tester
E3	Smith	System analyst
E4	David	Developer
E5	Jenny	Maintenance
E6	Jack	System analyst
E7	Harry	Maintenance
E8	Tom	Developer

Title	Salary
System analyst	50000
Maintenance	42000
Tester	30000
Developer	25000

Assume that P1: Salary \leq 30000 and P2: Salary $>$ 30000 are two simple predicates. Perform a horizontal fragmentation of PAY with respect to predicates P1 and P2 to obtain two fragments PAY1 and PAY2. Using these fragments, perform derived fragmentation for EMP and prove completeness, reconstruction and disjointness rules for fragmentation of EMP relation are satisfied.

- (b) Discuss the algorithms used for distributed Deadlock preventions. 10
- 2 (a) What is transparent System? List out the transparencies of DDBS. 10
 (b) Explain SDD1 Semi joined-based algorithm in detail with example. 10
- 3 (a) Explain in detail the phases of Distributed Query processing with diagram. 10
 (b) Draw and Explain architecture for Distributed Transaction Execution. 10
- 4 (a) Describe any two methods for Deadlock Detection in distributed database. 10
 (b) What is XML schema? Define X-Path and X-Query with an example. 10
- 5 (a) Explain Two phase commit protocol in detail with diagram. 10
 (b) Explain Locking based of the Optimistic concurrency control algorithm in detail. 10
- 6 Write a short notes on **(Any Four)** 20
 (a) Features of DDBS
 (b) Architecture of Heterogeneous Database
 (c) Anomalies for concurrency control
 (d) Applications of Distributed Databases
 (e) Cost factors affects in query optimization