Paper Code: MCA 327	Subject: Distributed DBMS

Time: 3 hours	Maximum Marks: 60

Note: Q.no.1 is compulsory. Attempt one question from each unit.

Q1. Each multiple type question is of one mark and each short answer is of two marks. (20)

(a) Which of the following is an objective of data distribution in distributed system:

    i.   Locality of reference

    ii.   Availability and Reliability

    iii.   Communication Cost

    iv.   All of these

(b) A schedule is said to be serializable:

    i.   If the result is the same as in serial execution of the same set of transaction

    ii.   If the result is the same as in non serial execution of the same set of transactions

    iii.   If the result is the same as in serial execution of a different set of transactions

    iv.   None of these.

(c) A cycle in a global WFG involve an extra node indicates

    i.   There is the possibility of a local deadlock

    ii.   There is the possibility of a global deadlock

    iii.   A deadlock has occurred locally

    iv.   A deadlock has occurred globally

(d) Which of the following recovery techniques require undo and redo operations?

    i.   Log based recover

    ii.   Non log-based recovery

    iii.   Both log based and non-log based recovery

    iv.   None of these

(e) Which of the following is not a phase of distributed query processing?

    i.   Query decomposition

    ii.   Query fragmentation

    iii.   Local query optimization

    iv.   Access plan generation

(f) What is data about data called

    i.   System catalog

    ii.   Data dictionary

    iii.   Meta data

iv.   None of these

(g) Which of the following strategies is used to ensure that either all physical databases in a
    distributed system are updated or none at all?
        i.   Two-phase commit
        ii.   Two-phase locking
        iii. Two-phase update
        iv.   Update propagation

(h) Which of the following techniques is used when the information on stable storage is lost?
        i.   Shadow Paging
        ii.   Check pointing
        iii. Cold restart
        iv.   None of these

(i)   What are the features of a distributed data base?
(j)   Differentiate between Reliability and Availability.
(k)   What are the objectives of distributed transaction management?
(l)   Define various issues in heterogeneous data base?
(m)   Differentiate between distribute data bases and distributed processing?
(n)   What are the alternative architectures for DDBases?

Unit – I

Q.2   (a) Discuss the issue that have to be considered during the distributed data base design?   (5)
       (b) What is fragmentation? Discuss the different types of fragmentation with example?   (5)

Q.3   (a) Explain the process of transforming a global query into fragmented query?   (5)
       (b) What do you mean by global query optimization? Why is it different in DDBMS?   (5)

Unit-II

Q.4   (a) what is concurrency control? Describe Quorum based protocols for distributed   (5)
        concurrency control?
       (b) Explain distributed serializability? How is it ensured in a DDBMS?   (5)

Q.5   (a) Describe two phases commit protocol? What are the demerits of this protocol?   (5)
       (b) What are the distributed deadlocks? Explain how will you demerits of this protocol?   (5)

Unit-III

Q.6   (a) Explain two phase locking for concurrency control in distributed transactions?   (5)
       (b) Explain how recovery mechanism is helpful for supporting and ensuring atomicity in   (5)
       distributed transactions?

Q.7   (a) Describe architectural attributes of distributed transactions?   (5)
       (b) Explain catalog management in DDB and why is it important?   (5)

Unit-IV

Q.8   (a) Explain homogeneous and heterogeneous DDBMS and suggest different levels where   (5)
       heterogeneity may occur?
       (b) What are client server database? Explain how they are implemented?   (5)

Q.9   (a) Explain loosely and tightly coupled federated databases?   (5)
       (b) Write short notes on (i) SOL Server (ii) ODBC   (5)

****