Exam. Code   : 206702
Subject Code :   4104

M.Sc. Computer Science 2nd Semester
DISTRIBUTED DATABASE SYSTEMS
Paper—MCS–205

Time Allowed—3 Hours]　　　　[Maximum Marks—100

Note :– Attempt **five** questions in all. Select at least **one** question from each Section. The **fifth** question may be attempted from any Section.

SECTION–A

1. (a) What are the different types of schemas in distributed databases ? Explain.　　　　10

   (b) Discuss various levels of transparencies in a distributed system.　　　　10

2. (a) What is meant by transparency in a distributed system ? Explain the use of integrity constraints.　　　　10

   (b) What is the need of fragmentation in distributed systems ? Explain.　　　　10

SECTION–B

3. (a) Differentiate global query and local query. How a query can be applied on a fragment ?　　　　10

   (b) How a Join and Union operation are used on a query in DDBMS ? Explain.　　　　10

4. Explain the following :

    (a)   Unary Tree in a query.   10

    (b)   Operations on query.   10

SECTION–C

5. Discuss the following concepts by taking suitable examples :

    (a)   Algebraic Operations for query optimisation.   10

    (b)   Relation Reduction using Semi Join.   10

6. Explain the following concepts :

    (a)   Timestamping in distributed systems.   10

    (b)   Recovery mechanism in Transaction failure.   10

SECTION–D

7.   (a)   What are two phase locking protocols ? Explain their use.   10

    (b)   Explain the methods used for deadlock prevention in DDBMS.   10

8. Write notes on the following :

    (a)   Reliability and concurrency control.   10

    (b)   Authorization in DDBMS.   10