Exam. Code : 208602
Subject Code : 4749

M.Sc. Information Technology 2nd Sem.
(Batch 2021-23)
DISTRIBUTED DATABASES
Paper : MIT-202

Time Allowed—3 Hours] [Maximum Marks—100

Note :— Attempt ***five*** questions in all, selecting at least **one** question from each section. The **fifth** question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. Discuss the functions performed by a distributed database system. Also differentiate between homogenous and heterogeneous database management system.

2. Discuss the following topics :-

   (i) Peer-to-peer distributed system

   (ii) Client-server system

SECTION—B

3. Discuss the concept of fragmentation in context of DDBMS. Also describe its reasons and alternative approaches to deal with it.

4. Discuss the requirement of information for :

   (i) management of fragmentation

   (ii) allocation of space

SECTION—C

5. Write notes on the following :-

   (i) Query decomposition

   (ii) Query optimization

6. Discuss salient features of some query optimization algorithms in DDBMS.

SECTION—D

7. Compare the two-phase locking approach to control the concurrent database operations as applied in centralized and distributed database systems.

8. Discuss following approaches to concurrency in reference to distributed database systems :

   (i) Locking-based concurrency control

   (ii) Timestamp-based concurrency control

   (iii) Optimistic concurrency control