

MCA
(SEM IV) THEORY EXAMINATION 2022-23
DISTRIBUTED DATABASE SYSTEM

Time: 3 Hours**Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- (a) List features of relational data model.
- (b) What is Transparencies in distributed database?
- (c) Differentiate between homogenous & heterogeneous DDBMS.
- (d) Draw transaction state diagram.
- (e) Differentiate between shared lock & exclusive lock.
- (f) Discuss the role of client in client/server system.
- (g) What are the functions of Transaction Manager?
- (h) What do you understand by semi join?
- (i) What are the different strategies for designing distributed database?
- (j) Differentiate between full & partial replication in DDBMS.

SECTION B**2. Attempt any three of the following: 10 x 3 = 30**

- (a) Discuss the distributed database system? Also explain the promises of DDBS.
- (b) Explain query processing. Also explain the layers of query processing.
- (c) Discuss the Transaction. Explain ACID properties with an example.
- (d) Discuss various reasons for failures in distributed systems.
- (e) Briefly explain fundamental object concepts and models. Also explain abstract data types.

SECTION C**3. Attempt any one part of the following: 10 x 1 = 10**

- (a) Discuss various technical problems that need to be resolved to realize the full potential of DDBMS.
- (b) Give a brief account of architectural models for distributed DBMS.

4. Attempt any one part of the following: 10 x 1 = 10

- (a) Briefly explain the objectives of query processing.
- (b) Discuss the query optimization? Explain distributed cost model with an example.

5. Attempt any one part of the following: 10 x 1 = 10

- (a) Discuss the serializability? Explain time stamp based concurrency control algorithm.
- (b) Explain deadlock handling. Discuss various deadlock avoidance algorithms.

6. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Explain the working of two phase commit protocol of distributed transactions.
 - (b) Explain general architecture of a parallel database system and shared memory architecture.
7. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Describe following terms with reference to object oriented data model:
 - (i) Inheritance.
 - (ii) Object identity.
 - (b) Write a short note on OODBMS. Also compare between OODBMS and ORDBMS.

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