Printed Pages:2 **Sub Code:KCA-045**

Paper Id: 236600 **Roll No.** | | | | | | | | | | |

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.