

Roll No. ....

Exam Code : J-19

Subject Code—0105

**M. Sc.(CS)/M.C.A. EXAMINATION**

(Batch 2009 Onwards)

(Third Semester)

RDBMS

MS-11

(MCA-3 Years)

*Time : 3 Hours*

*Maximum Marks : 70*

**Section A**

1. Attempt any *Seven* questions. **7×5=35**
- (a) Define Replication Transparency and Distribution Transparency.
  - (b) Briefly explain various operations of Relational Algebra.
  - (c) Why do we need mapping between different layers of database architecture ?

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- (d) Differentiate between Composite and Simple attribute.
- (e) Differentiate between Physical and Logical data independency.
- (f) Describe shadow paging and immediate update recovery techniques.
- (g) Explain responsibilities of Database Administrator.
- (h) Explain heuristics in query optimization.
- (i) Write a short note on Client-Server architecture.
- (j) Differentiate between trivial and non-trivial functional dependency.

### Section B

**Note :** Attempt all the questions.

2. Differentiate between Referential and Entity Integrity constraints. With the help of an example explain different kinds of constraints that can be specified while creating a relation in SQL.

*Or*

What is a DBMS ? What are its advantages over file processing system ? Explain various data models with the help of diagram. **12**

3. What is Normalization ? Why is it required ? Explain various kinds of Normalization up to BCNF.

*Or*

What are the problems in concurrency control and recovery ? Give a brief overview of concurrency control and recovery techniques. **12**

4. What do you mean by E-R diagram ? Sketch the E-R diagram of Hospital Management System and then reduce diagram into tables.

*Or*

What do you mean by DDBMS ? What are its advantages and disadvantages ? List the functions that need to be provided by Distributed DBMS in addition to Centralized DBMS. **11**