Roll No. .....

Subject Code—6764-Y

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

(Third Semester)

(MCA 3 Years)

(Re-appear Batch Prior to 2009)

COMPUTER SCIENCE

MS-11

Relational Database Management System

(RDBMS)

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. What do you understand by data independence ? Distinguish between logical and physical data independence. What are the advantages of having data independence ?

2. What do you understand by normal forms ? Why is BCNF more desirable than 3NF ? Using an example show the decomposition of a relation in 3NF into BCNF.

3. What is the two-phase locking protocol ? Discuss the different variations of this protocol. Why is strict two-phase locking often preferred ?

4. What is meant by concurrent execution of database transactions ? Discuss the atomicity, durability, isolation and consistency preservation properties of a database transaction.

5. (a) What is a weak entity ? How is it represented in E-R diagram ? Explain using suitable example.

   (b) Distinguish between redo and undo recovery techniques.

6. What are the problems with concurrency control and recovery in distributed databases ? Give a brief overview of concurrency control and recovery techniques in distributed databases.

7. Write short notes on the following :

   (a) Heuristics in query optimization

   (b) Shadow Paging

   (c) Client-server architecture.

8. Differentiate between the following :

   (a) Referential integrity constraint and entity integrity constraint

   (b) Selection and projection operation of relational algebra.