Subject Code—2055-X

M.C.S. EXAMINATION.

(Third Semester)

(Re-appear)

RDBMS

MS-11

Time : 3 Hours   *Maximum Marks : 100*

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

1. (a) Discuss the following using example :

   (i) Super key

   (ii) Candidate key

   (iii) Primary key

   (iv) Alternate key

   (v) Foreign key.   10

(b) Explain the architecture of database system. Discuss its various characteristics.

10

2. (a) What do you understand by normal form ? Show that 3NF is more desirable than 2NF. **10**

(b) What is union compatibility ? Why do union, intersection and difference operations require that the relations on which they are applied be union compatibility. **10**

3. (a) What are desirable properties of decomposition ? Explain. **10**

(b) What do you mean by E-R model ? Draw and explain E-R diagram for an airline database. **10**

4. (a) What is Concurrency ? Describe various problems that arise due to it with help of an example. **10**

(b) What is Serializability ? Discuss how serializability is used to enforce concurrency control in database system ?

10

5. (a) Discuss basic algorithms which are used for executing various query operations ?

10

(b) Discuss how Heuristics is used in query optimization.

10

6. (a) What is meant by transaction rollback ? What is meant by cascading rollback ? Why do practical recovery methods use protocols that don't permit cascading rollback ? Which recovery techniques do not require any rollback.

10

(b) Describe shadow paging recovery technique. Under what circumstances does it not require a transaction log ? List advantages and disadvantges of shadow paging.

10

7. (a) Discuss multiversion concurrency control technique. **10**

   (b) Discuss how query processing is performed in distributed database. **10**

8. (a) Discuss client server computing paradigm. **10**

   (b) Discuss entity integrity and referential integrity constraints. **10**