

Roll No.

Subject Code—2076

M.C.A. (Second Year) EXAMINATION

(5 Years Integrated Course)

MCA-202

DATABASE MANAGEMENT SYSTEM

Time : 3 Hours

Maximum Marks : 100

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

1. Explain the following :

- (a) Data Dictionary
- (b) Conceptual data model
- (c) Data Languages
- (d) Data Independence
- (e) Responsibilities of DBA.

5×4=20

2. Explain network data model in detail. **20**

(2-01-06-09)

P.T.O.

3. (a) How does SQL implement the entity integrity and referential integrity constraints of the relational data model ? Explain with an example. 10
- (b) What are the relational algebraic operations developed specifically for a relational database ? 10
4. (a) What is functional dependence ? What are the possible sources of the information that defines the functional dependencies that hold among the attributes of a relation schema ? 10
- (b) Describe the concept of transitive dependency and explain how this concept is used to define 3NF. 10
5. (a) Define query optimization and explain its significance for a DBMS. 10
- (b) Explain how heuristic query optimization is performed, with an example. 10

6. (a) How does the granularity of data items affect the performance of concurrency control ? What factors affect selection of granularity size for data items ? 10
- (b) Discuss the main techniques for recovery from non-catastrophic transaction failures. 10
7. (a) Why is data replication useful in DDBMS ? What typical units of data are replicated ? 10
- (b) Explain the architecture of client-server computing. 10
8. Write short notes on the following :
- (a) Serializability
- (b) View in SQL
- (c) Disadvantages of database system. 5,7,8