Master in Computer Application (MCA) First Year (Semester—II) Examination

DATABASE MANAGEMENT SYSTEMS

Paper—2

Time : Three Hours] [Maximum Marks : 80

N.B. :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw neat and labelled diagrams whenever necessary.

EITHER

1. (a) What are the components of a Database Management System ? Explain. 8

(b) Explain three level architectures of DBMS. 8

OR

(c) What are the problems with conventional file processing system ? Explain. 8

(d) Explain advantages and disadvantages of DBMS. 8

EITHER

2. (a) Explain the working of sequential file organization with example. 8

(b) What do you mean by data model ? Explain Relational and Network data model. 8

OR

(c) What is a hierarchical data model ? Give a suitable example of hierarchical data model. 8

(d) What is Entity-Relationship diagram ? Explain it with example. 8

EITHER

3. (a) What is Quel ? Explain data manipulation in Quel. 8

(b) Explain the following relational algebra operations :

(i) Union

(ii) Intersection

(iii) Difference

(iv) Cartesian product. 8

OR

(c) Explain tuple relational calculus and domain relational calculus with example. 8

(d) Explain data manipulation in QBE with example. 8

EITHER

4. (a) Explain the architecture of DBTG system. 8

(b) Explain third normal form with suitable example. 8

OR

(c) What is Normalization ? Explain first and second normal forms with example. 8

(d) Explain Multivalued dependency with example. 8

EITHER

5. (a) Write short notes on :

(i) Restore

(ii) Backward and Forward Recovery. 8

(b) Explain the role of Database Administrator. 8

OR

(c) Explain Deadlock in distributed systems. 8

(d) Explain the different types of locks in concurrent access. 8