COMPUTER ENGINEERING   COURSE NO. COM– 603

(R D B M S)

Time Allowed – 3 Hours   *Maximum Marks - 100*

Note: Attempt *five* questions in all selecting at least two questions from each Section. Each question carries **20** marks.

Section – A

1. (a) Describe Conceptual, Logical and Physical database models.

    (b) Explain the concept of data independence and discus the two types of data independence.   (12, 8)

2. (a) What is the role of:

        (i)   Data Administrator   (ii)   Data dictionary

    (b) Give an example of each of the following relationships:

        (i)   one to one   (ii)   one to many

        (iii) many to many

    (c) Draw ER diagram for Library Management System.   (8 ,6, 6)

3. (a) Explain specialization and generalization concepts in ER diagram with suitable example.

    (b) What are the advantages and disadvantages of relational database model as compared to other traditional models?

[Turn Over

(c) What do you understand by database integrity? Discuss Integrity constraints. (7, 7, 6)

4. (a) Explain the various indexing schemes used in database environment.

(b) What is B⁺ tree? Explain insertion and deletion operation with example and also describe B⁺ organization. (10, 10)

Section – B

5. (a) Explain the Boycc- Codd Normal form with an example. Also state how it differs from that 3NF.

(b) Define functional dependency. Explain trivial and non-trivial FD with example. (10, 10)

6. (a) Explain about primary key, super key, candidate key and alternate key using suitable example.

(b) Explain in brief ACID properties of database transaction. (10, 10)

7. (a) What is concurrency control? Explain locking and discuss various modes of locking.

(b) Explain system recovery procedure with check point record. (12, 8)

8. Write short note on:

(a) Distributed database

(b) Distributed Query Processing.

------------^------------