BT-5/D-23   **45169**

DATABASE MANAGEMENT SYSTEMS
PC-CS-301A

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. What do you mean by Data Models ? Explain Network, Hierarchical and Relational Model with the help of example.   **5,10**

   (a) What is Data independence and also explain why it is required ?   7

   (b) Explain the following attributes :   8
      (i) Strong Entity
      (ii) Weak Entity
      (iii) Derived attribute
      (iv) m : n relation with the help of an example.

Unit II

3. What do you mean by Relational Algebra ? Explain select operation, union operation and cartesian product operation with the help of example. **15**

4. (a) What is stored procedure ? Write a procedure to display record of all the students whose marks are greater than 70. **8**

   (b) Write a trigger that will be invoked automatically to insert the working_hours = 0 if someone tries to insert working – hours < 3. **7**

Unit III

5. What do you mean by normalization . Explain BCNF and 3NF and check whether any table data is in BCNF and 3NF with the help of example. **5,10**

   What do you mean by concurrency control and recovery management ? Explain lock based protocol and two phase locking in detail. **5,10**

Unit IV

7. (a) What are different types of failures ? Explain different techniques of recovery. **5**

(b) Explain timestamp based concurrency control with the help of an example. **10**

8. (a) What do you mean by serializibility ? Explain view serialiazability in detail. **10**

(b) What do you mean by dead lock and explain commit and lock in detail with the help of an example. **5**