

Roll No. ....

Total Pages : 3

**BT-5/D-22**

**45169**

**DATABASE MANAGEMENT SYSTEMS**

**Paper-PC-CS-301A**

**Time : Three Hours]**

**[Maximum Marks : 75**

**Note :** Attempt *five* questions in all, selecting atleast *one* question from each unit.

**UNIT-I**

1. What is three scheme architecture of DBMS. Explain this architecture with the help of diagram. Also explain physical data independence and logical data independence with the help of example and structure. 15
  
2. Explain ER-Model and draw ER diagram of :
  - (a) The collection consists of albums.
  - (b) An album is made by exactly one artist.
  - (c) An artist makes one or more albums.
  - (d) An album contains one or more tracks.
  - (e) Artists, albums, and tracks each have a name.
  - (f) Each track is on exactly one album.
  - (g) Each track has a time length, measured in seconds.

## UNIT-II

3. What is difference between relational algebra and relational calculus ? Also write the tuple relational calculus for the following query :
- (a) Find the loan number, branch, amount of loans of greater than or equal to 10000 amount.
  - (b) Find the loan number for each loan of an amount greater or equal to 10000.
  - (c) Find the names of all customers who have a loan and an account at the bank. 15
4. What is stored procedures and triggers. Write procedure to calculate simple interest and commulative interest on a amount. 15

## UNIT-III

5. What do you mean by Normalization and also explain 3 Normal form and BCNF form with the help of example table data. 15
6. What is concurrency control and recovery management in RDBMS. Also explain serializability and lock based protocol with the help of timing diagram. 15

## UNIT-IV

7. (a) What are different types of failure and also explain recovery techniques for a data base system.
- (b) Explain timestamp concurrency control, and validation in detail with the help of example. 15

8. (a) What is distributed data base and also explain commit and lock system in brief.
- (b) What is dead lock and explain ACID property of Data base management systems.
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