2 copy.

Roll No. .....

Total Pages : 2

8101

BT-3/D09

DATABASE MANAGEMENT SYSTEMS

Paper : CSE-201(E)

Time : Three Hours] [Maximum Marks : 100

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

UNIT–I

1. (a) Distinguish between Database systems and File processing system. Discuss the advantages of using Database systems over file processing systems.

   (b) What do you understand by ER model ? Discuss the algorithm to map the ER model to relations. Use suitable examples.

2. Write short notes on the following :

   (a) Responsibilities of Database Administrator.

   (b) Data Independence.

   (c) Client/Server architecture.

UNIT–II

3. (a) What are the Codd's twelve rules that a Database must obey if it is to be considered truly relational ?

   (b) What do you understand by Union compatibility ? Why do the UNION, INTERSECTION, and DIFFERENCE operators require that the relation on which they are applied be union compatible ?

4. What do you understand by Hashing ? What are the desirable properties of a hashing function ? Discuss the following hashing function using suitable examples :
   (i) Radix conversion,
   (ii) Midsquare method, and
   (iii) Divisor-remainder method.

UNIT–III

5. (a) What are the desirable properties of Relation decomposition ?
   (b) Using an example show the decomposition of a relation in 3NF into BCNF.
6. (a) What do you understand by Join dependency and Fifth normal form ? Why 5NF is also called Project-join normal form (PJNF) ?
   (b) What do you understand by Null value and Dangling tuple problems ? Explain.

UNIT–IV

7. (a) What are the problems with concurrency control and recovery in distributed databases ?
   (b) Give a brief overview of Concurrency control and Recovery techniques in distributed databases.
8. (a) What is meant by concurrent execution of Database transactions ? Discuss the atomicity, durability, isolation, and consistency preservation properties of a Database transaction.
   (b) What is the Two-phase locking protocol ? Discuss the different variations of this protocol.
