

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.