

**B.Tech Degree VI Semester (Supplementary) Examination in
Computer Science and Engineering
December 2002**

CS 603 DATABASE MANAGEMENT SYSTEM

(1995 Admissions)

Time: 3 Hours

Max. Marks: 100

- I. (a) What is data model ? Describe with examples at least three data models. (12)
 (b) Define the following terms and give examples.
 (i) Data independence.
 (ii) Instances and Schemas. (8)
- OR**
- II. (a) Explain with an example the Network Model. How is it implemented as per DBTG proposals ? Enumerate the commands used in the ? proposal for Record retrieval, record creation, record deletion, insertion and modification. (12)
 (b) Explain Relative file organization. (8)
- III. (a) Distinguish between Data Definition Languages and Data Manipulation Languages. (10)
 (b) Discuss the major advantages and disadvantages of the Hierarchical Model. (10)
- OR**
- IV. (a) Explain the relational database organization with examples. (10)
 (b) What languages are provided by DBMS for users to select subsets of scheme definitions for individual application program. (10)
- V. (a) Explain relation algebra and relational operators with suitable examples. (12)
 (b) Let R-(A,B,C). Let Relation r_1 and r_2 both be relations on the scheme R. Give expression in domain relational calculus equivalent to :
- | | |
|----------------------|---------------------|
| (i) $\prod_A(r_1)$ | (ii) $r_1 \cup r_2$ |
| (iii) $r_1 \cap r_2$ | (iv) $r_1 - r_2$ |
- OR**
- VI. (a) Explain the different steps in Query processing. (10)
 (b) Explain multiple-key retrieval with an example. (10)
- VII. (a) Compare BCNF and 3 NF. Also give examples. (10)
 (b) Distinguish between models with Read & Write Locks and Read only & Write only locks. (10)
- OR**
- VIII. What are the four possible types of secondary indexes that can be established by IMS ? (20)
- IX. (a) Explain in detail the distributed database system. (10)
 (b) Explain the concept of Network transparency with respect to Distributed Databases. (10)
- OR**
- X. Explain the following :
- | | |
|------------------------|------|
| (i) External Schema | |
| (ii) Conceptual Schema | |
| (iii) Internal Schema. | (20) |

