

III B.Tech II Semester Supplementary Examinations, Apr/May 2006
DATA BASE MANAGEMENT SYSTEMS

(Common to Computer Science & Engineering, Computer Science &
 Systems Engineering and Electronics & Computer Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. List and explain the various operations of Relational algebra. [16]
2. (a) Consider the following schema:
 Suppliers (sid: integer, sname: string, address: string)
 Parts (Pid: integer, pname; string, color: string)
 Catalog (Sid: integer, pid: integer, cost: real)
 Write the following queries in SQL.
 - i. Find the names of suppliers who supply red part.
 - ii. Find the sids of suppliers who supply all parts.
 - iii. Find the pids of parts that are supplied by at least two different suppliers.
 - iv. Find the pids of the most expensive parts supplied by the suppliers named TATA. [3+3+3+3]
- (b) Why are null values not preferable in a relation. [4]
3. Describe a hashed file and show how insertion and deletion of a file record can be performed on it. [16]
4. Discuss about the following:
 - (a) The system R optimizer.
 - (b) The iterator interface for operators and access methods. [10+6]
5. Show that the following equivalences hold and explain how they can be applied to improve the efficiency of certain updates.
 - (a) $\sigma_p(r1 \cup r2) = \sigma_p(r1) \cup \sigma_p(r2)$
 - (b) $\sigma_p(r1 - r2) = \sigma_p(r1) - \sigma_p(r2)$ [8+8]
6. (a) Explain the difference between weak entity and strong entity set? How to represent the strong entity and weak entity set through ER-diagrams
- (b) The State Bank of India offers the five different types of accounts : loan, checking, recurring deposits, locker accounts and fixed deposit. The Bank has a number of branches and a client of the bank can open many accounts. A account can be joint and more than one client may operate an account. Identify the entities , attributes what relationships exist among these entities and Tables. Draw the corresponding E-R diagram [8+8]

7. (a) Discuss about deadlock detection and starvation.
(b) Explain read-only and write-only protocols and read-before-write protocol in Serializability. [8+8]
8. (a) Write short notes on
 - i. Write-Ahead log protocol
 - ii. Check pointing [4+4](b) Explain how a System Crash can be recovered using ARIES algorithm? [8]
