B. Tech Degree V Semester Examination, November 2008

CS/IT 505 DATABASE MANAGEMENT SYSTEMS

(2006 Scheme)

Time : 3 Hours Maximum Marks : 100

PART – A

(Answer ***ALL*** Questions)
(All questions carry ***EQUAL*** marks)

(8 x 5 = 40)

I. (a) List any five differences between file-oriented approach and database approach.
(b) Explain the term structural constraints.
(c) Differentiate between heap files and sorted files.
(d) Distinguish between spanned and unspanned records.
(e) State and prove Armstrong's inference rules. What do you mean by saying that these rules are sound and complete?
(f) Define the basic constraints in SQL.
(g) Illustrate with necessary example the shadow paging recovery technique.
(h) Discuss the characteristics of object oriented databases.

PART – B

(All questions carry ***EQUAL*** marks)

(4 x 15 = 60)

II. (a) Discuss the main categories of data models. (10)
(b) List the *five* functions of DBA. (5)

OR

III. Design an ER diagram for a banking enterprise. (15)

IV. With necessary diagram, explain the various single level ordered indexing schemes. (15)

OR

V. Illustrate with necessary diagrams, internal and external hashing techniques. (15)

VI. (a) Define normalization. Illustrate with suitable example 1NF, 2NF and 3NF. (10)
(b) Consider the relational schemes :

Borrower (Customername, loanno)
Loan (Branchname, loanno, amount)
Depositer (Customername, accountno)
Account (Branchname, accountno, balance)

Write SQL and relational algebra queries for the following :

(i) Find the loan number of loans with loan amount between Rs. 1000 and Rs. 10,000.
(ii) Find the names of all customers who have a loan at the "Perryridge" branch. (5)

OR

(Turn Over)

VII. Define 1NF, 2NF, 3NF and BCNF. Find a BCNF decomposition of the relation scheme LENDING with the following set of functional dependencies :

LENDING (Branchname, Branchcity, Assets, Customername, Loannumber, Amount)

Branchname → {Assets, Branchcity}

Loannumber → {Amount, Branchname}

A candidate key for this scheme is {loannumber, customername} (15)

VIII. (a) Describe the steps in building a datawarehouse. (10)

(b) List the ACID properties of a transaction. (5)

OR

IX. (a) Illustrate with an example an algorithm for testing conflict serializability of a schedule. (10)

(b) Differentiate between serial and non-serial schedule. (5)

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