Set No. 1

II B.Tech I Semester Regular Examinations, November 2007
DATA BASE MANAGEMENT SYSTEMS
(Common to Computer Science & Engineering, Information Technology and Computer Science & Systems Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain the Transaction management in a database.
   (b) Discuss the Query Processor of Database system structure.   [8+8]

2. (a) What is an unsafe query? Give an example and explain why it is important to disallow such queries?
   (b) What is relational completeness? If a query language is relationally complete, can you write any desired query in that language.   [8+8]

3. What is dependency Preservation property for decomposition? Explain why is it important.   [16]

4. Explain the 4NF. Why is it useful? Explain with example   [16]

5. (a) Define the concept of a transaction.   [6]
   (b) Write a short notes on
      i. Serialazability
      ii. Recoverability   [10]

6. (a) With an example explain serial & non serial serialazability schedule.   [8]
   (b) Describe each of the following locking protocols
      i. Two phase lock
      ii. Conservative two phase lock   [8]

7. Give an example of a database application in which the reserved-space method of representing variable-length records is preferable to the pointer method. Explain your answer.   [16]

8. Explain the distinction between closed and open hashing. Discuss the relative merits of each technique in database applications.   [16]

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Set No. 2

II B.Tech I Semester Regular Examinations, November 2007
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Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
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1. (a) Define the concept of aggregation. Give an example of where this concept is useful.

   (b) Explain the difference between a weak and a strong entity-set.   [8+8]

2. Consider the following database.
   Employee (employee-name, street, city)
   Works (employee-name, company-name, salary)
   Company (company-name, city)
   Manager (employee-name, manager-name)
   Give an expression in the relational algebra, the tuple relational calculus, and the domain relational calculus, for the following query.
   Find the names of all employees who work for estate bank.   [16]

3. (a) Explain in detail the following

      i. join operation
      ii. Nested - loop join
      iii. Block Nested - Loop join.

   (b) For the following relational database write the expressions in SQL.
   Branch_Schema (branch_name, Branchcity, Assets)
   Customer_schema(customername, customerstreet, customercity)
   Loan_schema(Branchname, loan_number, Amount)
   Borrower_schema(customername, loan_number)
   Account_schema (Branchname, Account_number, balance)
   Depositor_schema(customername, Account_number)

      i. Find the names of all branches in Loan_Schema?
      ii. Find all customers having loan, account or both at bank?
      iii. Display customernames in alphabetical order who have a loan at the Perry ridge branch?
      iv. Find set of all customers who have an account at the bank?   [8+8]

4. (a) Define BCNF. How does BCNF differ from 3NF? Explain with an example.

   (b) Explain 3nf? Give one example?   [8+8]

5. (a) Write a short notes on

      i. Serialazability

ii. Recoverability [10]

(b) Why must lock & unlock be atomic operation? [6]

6. (a) What are the merits & demerits of using fuzzy dumps for media recovery. [6]

(b) Explain the phases of ARIES Algorithm. [4]

(c) Explain 3 main properties of ARIES Algorithm [6]

7. List the physical storage media available on the computers youu use routinely. Give the speed with which data can be accessed on each mediaum. [16]

8. (a) Compare the Ordered Indexing with Hashing.

(b) Compare Linear Hashing with extendable Hashing. [8+8]

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Set No. 3

II B.Tech I Semester Regular Examinations, November 2007
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Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
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⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Explain the distinction among the terms primary key, candidates key and super key.

   (b) Write about the different types of attributes.

   (c) What are the two types of constraints in E.R diagram? Explain.   [6+5+5]

2. (a) Distinguish between procedural and non-procedural DML's.

   (b) Define relational algebra, Tuple & Domain relational calculus.

   (c) What are the differences between the two types of relational calculus? [6+6+4]

3. (a) Explain in detail the 2 ways of executing pipeline?   [6]

   (b) Write the SQL expressions for the following relational database?   [10]
   sailor_schema (sailor_id, Boat_id, sailorname, rating, age)
   Recerves (Sailor_id, Boat_id, Day)
   Boat_Schema (boat_id, Boatname, color)

      i. Find the age of the youngest sailor for each rating level?
      ii. Find the age of the youngest sailor who is eligible to vote for each rating level with at lead two such sailors?
      iii. Find the No.of reservations for each red boat?
      iv. Find the average age of sailor for each rating level that at least 2 sailors.

4. (a) Define BCNF. How does BCNF differ from 3NF? Explain with an example.

   (b) Explain 3nf? Give one example?   [8+8]

5. (a) Define the concept of schedule for a set of concurrent transaction. Give a suitable example.   [8]

   (b) Explain read-only, write-only & read-before-write protocols in serialazability.
                                                                               [8]

6. (a) What are the recovery-related steps involved during normal execution.   [6]

   (b) How does the two phase locking protocol ensures Serialazability.   [10]

7. Give an example of a database application in which the reserved-space method of representing variable-length records is preferable to the pointer method. Explain your answer.   [16]

8. Explain about the B^{+}tree file organization in detail..   [16]

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Set No. 4

II B.Tech I Semester Regular Examinations, November 2007
DATA BASE MANAGEMENT SYSTEMS
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Time: 3 hours   **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Why would choose a database system instead of simply storing data in operating system files ? When would it make sense not to use a database system?

   (b) What is logical data independence and why is it important?   [8+8]

2. (a) What is a relational database query? Explain with an example.

   (b) What are the SQL constructs to modify the structure of tables, views and to destroy the tables and views?   [8+8]

3. (a) Explain different Binary Operations?   [9]

   (b) For the following relational database, give the expressions in SQL. branch_schema (branch_name, branch city, assets) customer_schema (customer name, customer street, customer city) Loan_schema (branch name, loan_number, amount) Borrower_schema (customer name, Loan number) Account_schema (branch name, account_number, balance) Depositer_secham (Customer name, account_number)

       i. find the names of all customers whos street address include substring 'Main'   [2]

       ii. Find average balance for each customer who lives in Harrison and at least three accounts?   [3]

       iii. . Find all customer who have a loan at bank whose names are neither ?smith? non ?jones'?   [2]

4. (a) What is Normaliztion?give types of normalization

   (b) What are the advantages of normalized relations over the un normalized relations?   [8+8]

5. (a) What are the list of actions transaction can perform on a database objects. Explain with suitable schedule.   [8]

   (b) What are the transaction isolation Levels in SQL.   [8]

6. (a) What are the merits & demerits of using fuzzy dumps for media recovery. [6]

   (b) Explain the phases of ARIES Algorithm.   [4]

   (c) Explain 3 main properties of ARIES Algorithm   [6]

7. Explain about Variable-Length file organization with an example.   [16]

8. What are the causes of bucket overflow in a hash file organization? What can be done to reduce the occurrence of bucket overflows? [16]

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