Code No: K0227/R07

Set No. 1

IV B.Tech II Semester Regular Examinations, Apr/May 2013
DATA BASE MANAGEMENT SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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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) 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. (a) Explain in detail the 2 ways of executing pipeline?
   (b) Write the SQL expressions for the following relational database?   [6+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) Explain about 4 NF? Give one example?
   (b) Explain about 5 NF? Give one example?   [8+8]

5. (a) Define the concept of schedule for a set of concurrent transaction. Give a suitable example.   [8+8]
   (b) Explain read-only, write-only & read-before-write protocols in serialazability.

6. (a) Discuss about deadlock detection & starvation.   [8]
   (b) Explain the use transaction log in database recovery.   [8]

7. Explain about File organizations in detail.   [16]

8. (a) Compare the Ordered Indexing with Hashing.
   (b) Compare Linear Hashing with extendable Hashing.   [8+8]

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Set No. 2

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Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
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1. Explain the E-R diagram components and notions with their extended features.
   [16]

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) With an example, explain the optimization of nested sub queries:
   (b) For the following relational database, give the expressions in SQL.   [9+7]
       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'.
       ii. Find average balance for each customer who lives in Harrison and at least three accounts?
       iii. Find all customer who have a loan at bank whose names are neither 'smith' non 'jones'.
       iv. Find all customers who have both an account and a loan at perryridge branch?

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) Explain the concept of transaction atomicity.   [6]
   (b) How does the two phase locking protocol ensures Serialazability.   [10]

6. (a) What are the fields in an update log record? Explain the use of each field ?
   [5]
   (b) Describe the steal & no force policies.   [5]
   (c) Define checkpointing. What are the three steps of checkpointing in ARIES.
   [6]

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7. Explain about magnetic disks and explain the performance measures of Disks in detail. [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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$$\boxed{\textbf{Set No. 3}}$$

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(Electrical & Electronics Engineering)

Time: 3 hours   **Max Marks: 80**

Answer any FIVE Questions
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1. What are the major disadvantages of file processing system?   [16]

2. (a) What is a foreign key constraint? Why are such constraints important? What is referential integrity?

     (b) How many distinct tuples are in a relation instance with cardinality 22? [8+8]

3. (a) Explain in details how to handle the overflow of tuples?

     (b) Write the SQL expression for the following Queries?   [8+8]
Sailor_Schema (sailor_id, Sailorname, Rating.Age)
Reserves (Sailor_id, Boat_id, Day)
Boat_Schema (Boat_id, Boatname.color)

       i. Find the names of sailors who have reserved boat name 103;
       ii. Find the sailor_id of sailors who have reserved a red boat;
       iii. Find the colors of boats reserved by the sailor rubber?
       iv. Find the names of sailors who have reserved a red boat?

4. Explain the FD and MVD with examples?   [16]

5. (a) Explain how concurrency execution of transactions improves overall system performance.   [8]

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

6. (a) Briefly explain why recovery is needed.   [6]

     (b) When does a system recover from a crash ? in what order must transaction be undone & redo ?why is this order important ?   [10]

7. (a) Explain about tertiary storage media in detail.

     (b) Explain about Buffer Manager.   [8+8]

8. (a) Explain about Disk Space management in detail.

     (b) Explain about Memory hierarchy.   [8+8]

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Set No. 4

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Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
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1. (a) What are the types of languages a database system provides? Explain.

   (b) What are the five main functions of a Database Administrator?   [8+8]

2. (a) Define the division operation in terms of basic relational algebra operations. Describe a typical query that calls for division. Unlike join, the division operator had not special attention in database. Explain, Why?

   (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 a view? How do views support logical data independence? How are views used for security? How are queries on views evaluated? Why does SQL restrict the class of views that can be updated?   [2+6+4+4]

4. Consider the relation R(A,B,C,D,E,F) and FDs
   $A \rightarrow BC, F \rightarrow A, C \rightarrow AD \rightarrow E, E \rightarrow D$ AD is the decomposition of R into R1(A,C,D) R2 (B,C,D) and R3 (E,F,D) loss less? Explain the requirement of Loss less decomposition?

5. (a) Differentiate between conflict Serialazability & view serialazability with example.   [12]

   (b) What are the 4 properties of database.   [4]

6. (a) Explain optimistic concurrency control under timestamp   [8]

   (b) Discuss about deadlock detection & starvation.   [8]

7. Compare the Heap file organization and Sequential file organization.   [16]

8. Suppose that we are using extendable hashing on a file that contains records with the following search-key values: 2,3,5,7,11,17,19,23,29,31 Show the extendable hash structure for this file if the hash function is h(x) = x mod 8 and buckets can hold three records.   [16]

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