

Code No: K0227

R07**Set No. 1**

IV B.Tech II Semester Supplementary Examinations, July/Aug 2012
DATA BASE MANAGEMENT SYSTEMS
(Electrical & Electronics Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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. (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, sailername, 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 least 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) Discuss join dependency give example.
(b) Explain 5 NF. [8+8]
5. (a) Explain how concurrency execution of transactions improves overall system performance. [8]
(b) What are the transaction isolation Levels in SQL. [8]
6. What is two phase locking protocol ? how does it guarantee serializability. [16]
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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1. Construct an E-R diagram for the database of a hospital with a set of patients and a set of doctors. With each patient a log of the various test conducted is also associated. Construct the appropriate relations for this diagram. [16]
2. (a) What is the difference between a candidate key and the primary key for a given relation? What is a super key?
(b) Explain the statement that relational algebra operators can be composed. Why is the ability to compose operators important? [8+8]
3. (a) What SQL construct enables the definition of a relation? What constructs allow modification of relation instances?
(b) What does the DBMS do when constraints are violated? What is referential integrity? What options does SQL give application programmers for dealing with violations of referential integrity? [8+8]
4. Explain the 4NF. Why is it useful? Explain with example [16]
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 serializability. [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. (a) Explain about Fixed-Length Representation in detail.
(b) Explain about Byte-String Representation. in detail. [8+8]
8. (a) When is it preferable to use a dense index rather than a sparse index? Explain your answer.
(b) Since indices speed query processing, why might they not be kept on several search keys? List as many reasons as possible. [8+8]

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R07**Set No. 3**

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1. (a) Describe about the three levels of Data Abstraction.
 (b) What are the types of languages a database system provides? Explain. [8+8]
2. (a) What is a relation? Differentiate between relation schema and relation instance. Define the terms unity and degree of relation. What are domain constraints?
 (b) Explain new insertion, deletion and updating of database is performed in the relational algebra. [8+8]
3. (a) Define query processing and briefly explain the steps involved in it?
 (b) Write queries for the following using the given information

Emp Name	DOB	DOJ	Emp Salary	Bonus	DOR
Buelin	06-12-1983	07-08-2005	15000	600	07-08-2055
Andy	12-01-1970	06-12-1973	20000	1200	06-12-2043
Lubber	07-08-1985	12-04-2006	13000	500	12-04-2056
Zobra	08-02-1960	07-03-1982	25000	1500	07-03-2032

- (a) Find total salary of employees from emp table?
 (b) Find months between employee DOJ and DOR from emp-schema?
 (c) Create new salary table using the empno, empname, and empsalary from existing table?
 (d) Arrange empnames in ascending and descending order? [16]
4. (a) What is functional dependency? Explain with Example?
 (b) What is 2 NF? Explain with example? [8+8]
5. (a) Explain the concept of transaction atomicity. [6]
 (b) How does the two phase locking protocol ensures Serializability. [10]
6. (a) How is check point done in ARIES [6]
 (b) Can a second end check point record be encountered during analysis phase. [4]
 (c) why is the use of CLRS important for the use of UNDO actions that are not the physical inverse of the original update. [6]

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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. 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 $h(x) = x \bmod 8$ and buckets can hold three records. [16]

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1. (a) What is Data Independence? Explain the two levels of Data Independence.
 (b) Write about the storage manager of database system structure. [8+8]
2. (a) Define all the variations of join operation, why special attention is given for this?
 (b) 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? [8+8]
3. (a) Explain the following.
 - i. Query Processing
 - ii. Pipelined evaluation
 (b) For the following relational database, give the expressions in SQL. [8+4+4]
 student (stuno, stuname, major, level, age)
 Class(Classname, meets_at, Room, fid)
 Faculty(fid, fname, deptid)
 - i. Find the age of the oldest student who is either a history major or is enrolled in a course taught by I.Teach?
 - ii. Find the names of all classes that either meet in room R128 or have five or more students enrolled?
 - iii. Find the names of all students who are enrolled in two classes that meet at the same time?
 - iv. Find the names of faculty members who teach in every room in which some class is taught?
4. (a) Define BCNF. How does BCNF differ from 3NF? Explain with an example.
 (b) Explain 3nf? Give one example? [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 types of failures of a system. [6]
 (b) What are the reasons strict 2PL used in many database systems [5]
 (c) How the use of 2PL would prevent interference between the two transactions. [5]

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7. Explain about File organizations in detail. [16]
8. (a) Explain briefly about page formats.
(b) Explain briefly about record formats. [8+8]

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