Code No. : 3060

FACULTY OF INFORMATICS
B.E. III/IV (IT) I Semester (Main) Examination, December 2010
DATABASE SYSTEMS

Time : 3 Hours] [Max. Marks : 75

Note : *Answer* ***all*** *questions from* ***Part A****, answer* ***any five*** *questions from* ***Part B****.*

PART – A **(25 Marks)**

1. State the purpose of a database model. **2**
2. Define Aggregation. **2**
3. List fundamental Relational Algebra operations with their symbolic representation. **2**
4. Write the basic structure of SQL queries. **3**
5. Define the terms schema, catalog and environment. **3**
6. Specify Armstrong's Axiom. **3**
7. Distinguish between B – Tree and B^+ – tree. **3**
8. Draw the state diagram of a transaction. **2**
9. Write about the types of locks in database. **2**
10. List the three parser in the ARIES recovery system. **3**

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PART – B (50 Marks)

11. Draw and explain each and every component of Database architecture.

12. a) Justify the need of Null values in database (2).

    b) Consider the following relational schema.

    employee (empno, name, office, age)

    books (isbn, title, authors, publisher)

    loan (empno, isbn, date)

    Answer the following Queries in Relational algebra.

    a) Find the names of employees who have borrowed a book published by Mc Graw-Hill.

    b) Find the names of employees who have borrowed all books published by Mc Graw-Hill.

    c) Find the names of employees who have borrowed five different books published by Mc Graw-Hill.

    d) For each publisher, find the names of employees who have borrowed more than five books of that publisher.

13. Explain any five Integrity Constraints with examples.

14. Compare a) Static Hashing and Dynamic Hashing

    b) Ordered Indexing and Hashing.

15. List ACID properties. Explain how each of them is ensured.

16. How are dead locks handled in Data bases ?

17. Write about :

    a) Remote Backup System.

    b) Checkpoints and its importance.