Code No.: 5241

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) I Semester (Main) Examination, December 2011

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. Differentiate between file system and database system. **3**
2. Write about multiplicity constraints with example. **3**
3. Define metadata. What is the need of metadata ? **2**
4. What is a candidate key ? **2**
5. What is an atomic transaction ? **2**
6. What is check pointing ? Explain its need in DBMS. **3**
7. What are the features of sparse index ? **2**
8. What are bitmap Indices ? **3**
9. What is dynamic SQL ? **2**
10. What restrictions are necessary to ensure the view is updatable ? **3**

PART – B **(50 Marks)**

11. a) Draw and explain the 'Database Architecture'. **6**
    b) Explain the concept of aggregation in E-R model give a suitable example. **4**
12. a) Define the concept of aggregation. Give example. **3**
    b) Consider the following relational database :
    Employee (employee-name, street, city)
    Works (employee-name, company, salary)
    Company (company, city)
    Manager (employee-name, manager-name)
    Write the following in SQL, DDL/DML

1) Find all employees who earn more than an average salaries of all employees of their company.
2) Find all employees in the database who live in the same cities and on the same street as do their managers.
3) Create an assertion to impose the constraint that no employee should drawn an salary more than his / her manager. **(2+2+3)**

13. a) Compare BCNF and 3NF with an example. **4**

    b) Discuss about the following constraints on a single relation
    1) Not null
    2) Unique
    3) Check. **6**

14. a) Explain nested subqueries and complex queries with examples. **6**

    b) Explain log based recovery scheme. **4**

15. a) Describe about 'Thomas' write rule. **4**

    b) What are the three phases in 'ARIES recovery algorithm' ? Explain each of them. **6**

16. Define hashing. Explain the differences between closed and open hashing. Discuss the merits of each technique in database applications. **10**

17. Write short notes on the following :

    a) Data mining and analysis. **4**

    b) Division operator in relational algebra. **3**

    c) Deadlock recovery. **3**