Reg.No.									

MANIPAL INSTITUTE OF TECHNOLOGY
(Constituent Institute of MANIPAL University)
MANIPAL-576104

IV SEMESTER B.E. (CSE) (Revised credit scheme)
END SEMESTER EXAMINATION May - 2008
SUBJECT : DATABASE MANAGEMENT SYSTEMS(CSE-206)

TIME : 3 HOUR **17 – 05 -2008 (2 – 5 pm)** **MAX.MARKS : 50**

Note : Answer any FIVE full questions. Missing data can be assumed.

1. (a) What is data abstraction? Explain the levels of data abstraction.. 3

(b) Consider the following relational database and give an expression in the relational algebra for each of the following queries:

employee(person_name, street, city)
works (person_name, company_name, salary)
company (company_name, city)
manages (person_name, manager_name)

(i) Find the company with the most employees.
(ii) find the company with smallest payroll.
(iii) Find the names and cities of residence of all employees who work for First bank corporation.
(iv) Give all managers in the database a 10 percent salary raise, unless the salary would be greater than Rs. 100,000. In such cases give only a 3 percent raise. 4

(c) Explain the various outer join operations with example. 3

2. (a) Explain the test for empty relations in nested queries. 2

(b) Use following schema and write the queries:

Employee(Fname, Initial, Lname, ENo, DOB, Addr, Sex, Salary, SENo, DNo)
Department(DNmae, DNo, MgrENo, MgrStDt,)
Dept_Location(DNo, DLocation)
Project(PName, PNo, PLocation, DNo)
Work_on(ENo, PNo, Hours)
Dependent(ENo, Dep_Name, Sex, DOB, Rel)

i) Give all employees in the research dept a 10% salary raise.
ii) Retrieve the name of employees who have no dependents (use exists/not exists).
iii) For each project retrieve the project number, project name, number of employees from department 5 who work on the project.
iv) Retrieve a list of employees and the projects they are working on, order by dept and with in dept alphabetically by last name and first name. 4

(c) Discuss the update of a view. 2

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(d) Explain view serializability with example. 2

3. (a) What are attributes? Explain different types of attributes with example. How they are represented in an ERD. 4

(b) Consider the University database application with following details:

- An University has many departments.
- Each department has multiple instructors; one among them is head of department.
- An instructor belongs to only one department.
- Each department offers multiple courses, each of which is taught by a single instructor.
- A student may enroll for many courses offered by different departments.

Draw an ERD for the above by identifying entities, relationships, attributes and cardinality. 4

(c) Explain the concept of recoverable and cascade less schedules. 2

4. (a) What are integrity constraints? Briefly explain the various integrity constraints. 3

(b) What are exceptions? Explain the various exceptions in Oracle. 3

(c) Create a transparent Audit system for Cust_Mstr. The system must keep track of the records that are being deleted or updated. The functionality being when a record is being deleted or modified the original record details and the date of operation, operation, user who performed the operation are stored in the audit table, then the delete or update operation is to go through.
Cust_Mast(Cust_No, FName, MName, LName, DOB, Occup, Addr) 4

5. (a) Explain what is canonical cover. Give an algorithm to compute canonical cover.
Given schema (A, B, C) and F= { A $\longrightarrow$ BC, B $\longrightarrow$ C, A $\longrightarrow$ B, AB $\longrightarrow$ C }
compute the canonical cover for F. 3

(b) Explain multi valued dependency and Fourth normal form. 3

(c) Explain the different Armstrong's axioms and why they are used. 2

(d) Explain the multi table clustering file organization. 2

6. (a) Explain bitmap indices with example. 2

(b) What are the causes of bucket overflow in a hash file organization? What can be done to reduce the occurrence of bucket overflows. 2

(c) Explain the Updates on B+ trees with example. 3

(d) Explain the optimization of disk block access techniques – (i) scheduling (ii) file organization (iii) non volatile write buffers. 3

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