NOV/DEC 2008

2008 VISVESVARAYA TECHNOLOGICAL UNIVERSITY

B.E/B.TECH COMPUTER SCIENCE ENGINEERING

DATA BASE MANAGEMENT SYSTEM

TIME: 3 HOUR
MARK: 80

Answer ANY Five Question
All Question Carry Equal Marks

1 a. List the advantages of DBMS over traditional file systems. briefly explain them.

b. Define and explain the importance of database catalog. explain the intenal storage format of a catalog with an

2 a. Discuss concepts related to stuctural constraints of a relationship type with examples.

b. Design an E-R diagram for keeping track of information about a hospital database taking into account at least entities.

3 a. Explain the need of primary and foreign keys with suitable examples.

b. Explain the division operator with an example. How can a division operator be implemented using other relational algebraic operators?

c. Consider the following schema for a company database:

Employee(name,SSN, Salary,DNO,SuperSSN)
Department(Dname,Dno's,MGRSSN)
Project(pname,pnumber,Dnum)
Works-on(Essn,Pno,Hours)
Dependent(ESSn,Dependent-name,Sex)
Write the queries in relational algebra to

i) List the name of all employeea with atleast two dependents.

ii) Find the name of employees who work on all the projects controlled by department 5

iii) Retrieve the name of managers who do not have female dependents.

4 a. Explain the ALTER TABLE command. Explain how a new constraint can be added and also an existing constraint can be removed using suitable examples.

b. Using the same tables given in Q.NO.3(c), write SQL queries to:

i) Retrieve the name of employees who are paid the same salary as that of RAJ.

ii) Retrieve the name of employees who have two or more dependents.

iii) Retrieve the name of employees and their SuperSSN name.

5 a. How are triggers and assertions defined in SQL? Explain with examples.

b. Give an example of declaring a C language data type in SQL and explain it.

6 a. Which normal form is based on the concept of full functional dependency? Explain the same with an example.

b. A relation R has four attributes ABCD. For each of the following sets of FD, identify the candidate key and the highest

normal form:
i) C->D, C -> A, B-> C ii) B-> C, D-> A iii) ABC-> D, D->A

7 a. Define multivalued dependency. Explain 4NF with an example.

b. Explain all the phases involved in ARIES algorithm with an example.

8 Write short notes on:

a. Two phase locking protocol

b. Write ahead log protocol

c. Time stamp ordering algorithm

d. Transaction support in SQL