PVP 12

Code: CS5T2, EM5T3

III B.Tech - I Semester – Regular Examinations - November 2014

DATABASE MANAGEMENT SYSTEMS
(Common for CSE & ECM)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) List five responsibilities of a DBMS. Explain. 7 M

   b) What are data models? Explain in detail. 7 M

2. a) Discuss about integrity constraints over relations. 7 M

   b) What is SQL? Describe the form of a basic SQL query. 7 M

3. a) Consider the following schema:
   Suppliers(*sid*: integer, *sname:* string, *address*: string)
   Parts(*pid*: integer, *pname:* string, *color:* string)
   Catalog(*sid:* integer, *pid:* integer, *cost:* real)

   The key fields are underlined, and the domain of each field is listed after the field name. Thus *sid* is the key for Suppliers, *pid* is the key for Parts, and *sid* and *pid* together form the key for Catalog. The Catalog relation lists the prices charged for parts by Suppliers. Write the following queries in relational algebra

i) Find pairs of *sids* such that the supplier with the first *sid* charges more for some part than the supplier with the second *sid*.

ii) Find the *pid*s of parts that are supplied by at least two different suppliers.

iii) Find the *pid*s of the most expensive parts supplied by suppliers named Yosemite Sham.

iv) Find the *pid*s of parts supplied by every supplier at less than $200. (If any supplier either does not supply the part or charges more than $200 for it, the part is not selected.)

8 M

b) Explain about Domain Relational Calculus with examples. 6 M

4. a) What are the design issues of ER diagrams? Explain. 7 M

b) Describe relational database design using ER to relational mapping. 7 M

5. a) Discuss about minimal cover for a set of Functional Dependencies. 7 M

b) Consider a relation R with five attributes ABCDE. You are given the following dependencies: A → B, BC → E, and ED → A. 7 M

i) List all keys for R.

ii) Is R in 3NF?

iii) Is R in BCNF?

6. a) Explain about buffer management in file organization. 7 M

b) Describe the concept of Indexing in DBMS and explain primary index. 7 M

7. a) List the ACID properties. Explain the usefulness of each. 7 M

b) Discuss about concurrency in index structures. 7 M

8. Explain the following:
   a) Immediate database modification 5 M
   b) Database recovery concepts 5 M
   c) Data structures of ARIES 4 M