

24162

**B. Tech. 4th Semester (CSE) F. Scheme
Examination, May-2014**

DATABASE MANAGEMENT SYSTEM

Paper-CSE-202-F

Time allowed : 3 hours] [Maximum marks : 100

Note : Q. No. 1 is compulsory. Attempt five questions in total selecting one question from each section.

1. (a) Differentiate between DBA and data manager. 5×4
- (b) What are the various types of indexes used in index sequential files ?
- (c) What do you mean by completeness and soundness of Armstrong inference rules ?
- (d) List out ACID properties.

Section-A

2. (a) Describe three tier client server architecture.
Why do we need mappings between schema levels ? 12
- (b) What are the various constraints that can be added to an ER diagram ? 8
3. (a) Explain various data languages. 10
- (b) Explain various data models. 10

Section-B

4. (a) What do you mean by hashing ? Explain in detail. 15
- (b) What are the causes of bucket overflow in a hash file organization ? What can be done to reduce the occurrence of bucket overflows ? 5
5. Consider the relational database 20
- Employee (name, street, city)
- Works (name, company-name, salary)
- Company (company-name, city)
- Manager (name, manager)
- Give an expression in RA, TRC and DRC
- (a) Find the names of all employees who work for first bank corporation.
- (b) Find the name of all employees who live in the same city and street as do their managers.
- (c) Find the names and cities of residence of all employees who work for first Bank Corporation.
- (d) Find the names of all employees who do not work for first Bank Corporation.
- (e) Find the names of all employees who earn more than every employee of small bank corporation.

Section-C

6. Consider the relational database 20
Employee (name, street, city)
Works (name, company-name, salary)
Company (company-name, city)
Manager (name, manager)
Give an expression in SQL for the following queries : 20
- (a) Find the names of all employees who work for first bank corporation.
 - (b) Find the name of all employees who live in the same city and street as do their managers.
 - (c) Find the names and cities of residence of all employees who work for first Bank Corporation.
 - (d) Find the names of all employees who do not work for first Bank Corporation.
 - (e) Find the names of all employees who earn more than every employee of small bank corporation.
 - (f) Modify the database so that Jones now lives in Newton.
 - (g) Give all employee of first Bank Corporation a 10 percent raise.
 - (h) Give all managers of first Bank Corporation a 10 percent raise.
 - (i) Give all employee of first Bank Corporation a 10 percent raise unless the salary becomes greater than 100,000/- in such cases give only a 3 percent raise.
 - (j) Delete all tuples in works relation for employee of small bank corporation.

7. (a) What do you mean by normalization ? Explain in detail 1NF, 2NF, 3NF. 12
- (b) Tell the highest normal form of the relation (R, N, D, A) for following sets of FD. 8
- $D \rightarrow A$
- $A \rightarrow E$
- $N \rightarrow R$
- $C \rightarrow N$
- $R \rightarrow N$
- C- Cname

Section-D

8. What do you mean by serializability ? How you will check for conflict serializability with a suitable example. 20
9. (a) What is the need of concurrency control and recovery system ? 5×4
- (b) What are the problems in concurrent transactions?
- (c) What do you mean by failure ? Give its classification.
- (d) Explain network model.