

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.