Roll No. ....

24162

B. Tech. (4th Semester)
(Information Technology/C.E.E.)
Examination – May, 2012

DATABASE MANAGEMENT SYSTEMS

Paper : CSE-202-F

Time : Three hours]   [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is compulsory. Attempt *one* question from each of the *four* Sections.

1. (a) What functionality does the recovery manager of a DBMS provide ? What does transaction manager do ?

(b) What are the advantages and disadvantages of relational data model ?

(c) What is meant by a safe expression in relational calculus ?

(d) What are the steps involved in the design of a data warehouse ?

(e) What is meant by functional dependency, full functional dependency and transitive dependency. $5 \times 4 = 20$

SECTION – A

2. (a) Discuss the main categories of data models. 10

(b) What is the difference between procedural and nonprocedural DML ? 5

(c) Discuss some types of database utilities and tools and their functions. 5

3. (a) What is meant by a recursive relationship type ? Give example. 7

(b) Discuss the conventions for displaying an ER scheme as an ER diagram. 7

(c) What is a weak entity ? What is a partial key ?   6

SECTION – B

4. (a) List the operations of relational algebra and the purpose of each.   15

(b) In what sense does relational calculus differ from relational algebra ?   5

5. (a) Discuss the techniques for allowing a hash file to expand and shrink dynamically. What are the advantages and disadvantages of each ?   10

(b) What is a search tree ? What is a B-tree ? What is the structure of a B-tree mode ?   10

SECTION – C

6. (a) List the data types that are allowed for SQL attributes.   7

(b) How does SQL allow implementation of general integrity constraints ?   7

(c) What is a view in SQL, and how is it defined ?   6

7. (a) Discuss attribute semantics as an informal measure of goodness for a relation schema. 7

(b) Why should nulls in a relation be avoided as far as possible ? Discuss the problems of spurious triples and how we may present it. 7

(c) Define MVD. Define UNF. 6

SECTION – D

8. (a) What semijoin operation for query processing in distributed databases ? 10

(b) Write a short note on data mining and data warehousing. 10

9. (a) Describe the life cycle of a transaction. 8

(b) Describe shadow paging technique for recovery. 7

(c) Write a short note on concurrent transactions. 5