Printed Pages—3 TEE011

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0203 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. VII) ODD SEMESTER THEORY EXAMINATION 2010-11

DATABASE MANAGEMENT SYSTEM, DATA MINING AND WAREHOUSING

Time : 3 Hours *Total Marks : 100*

Note : Attempt **all** questions.

1. Attempt any **four** parts of the following : **(5×4=20)**

   (a) Describe the advantages of implementing database management system in an organization.

   (b) Describe the concept of data independence and explain its importance in database environment.

   (c) Draw and describe the three tier architecture of database management system.

   (d) Describe the basic roll of database administrator.

   (e) Describe the database schema, database instance and database state.

   (f) Describe the main categories of data model.

2. Attempt any **two** parts of the following : **(10×2=20)**

   (a) What do you understand by E R Diagram ? Assume any system having at least four entities. Assume suitable

attributes and then draw an E R diagram for same and explain the various relationships used.

(b) 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 primary key fields are underlined, and the domain of each field is listed after the field name.

Write the following queries in relational algebra expressions :

(i) Find the names of suppliers who supply some red part.

(ii) Find the sids of suppliers who supply some red or green part.

(iii) Find the sids of suppliers who supply some red part and some green part.

(iv) Find the sids of suppliers who supply every part.

(v) Find the sids of suppliers who supply every red part.

(c) (i) Describe the domain calculus and tuple calculus.

(ii) Describe the triggers and assertions. How are these different from normal SQL queries ? Explain.

3. Attempt any **two** parts of the following : **(10×2=20)**

(a) What do you understand by functional dependency and functional dependency preservation ? Write and explain the Armstrong (inference) axioms.

(b) Consider the given relation R(X,Y,W,Z,P,Q) and the set of functional dependencies F = {XY→W, XW→P, PQ→Z, XY→Q}, the relation R has been decomposed into R1(Z,P,Q), R2(X,Y,Z,P,Q). Determine whether the decomposition is lossless or lossy ? Use the lossless join algorithm.

(c) Describe the multivalue dependencies. Define the fourth normal form with suitable example.

4. Attempt any **two** parts of the following : **(10×2=20)**

(a) Describe the functions and architecture of client server computing model.

(b) (i) Define and describe the data warehouse.

(ii) Explain the parallel computing system in brief.

(c) Describe the data extraction and cleanup process.

5. Attempt any **two** parts of the following : **(10×2=20)**

(a) What are the different components of data warehouse ? Explain the tasks and phases involved in data warehousing.

(b) Describe the important types of multiprocessor architecture. Explain the mapping between data warehouse and multiprocessor architecture.

(c) What is the data cube ? Explain the nature of data cube and the operations performed on it.