b) Let $R_1, R_2, R_3 \ldots\ldots R_n$ be the decomposition of schema U. Let u(U) be a relation and let $r_i = \pi R_i(u)$ show that

$u \subseteq r_1 \bowtie r_2 \bowtie r_3 \ldots\ldots r_n$

Unit - V

9. a) Explain distributed databases. Discuss various lacking protocols in distributed database.

b) Explain relative advantages of centralized and distributed databases.

OR

10. a) How does an object in object oriented model differ from the concept of an entity in entity relationship model. Explain.

b) Explain, why ambiguity potentially exists in multiple inheritance. Illustrate with example.

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Total No. of Questions : 10] *[Total No. of Printed Pages : 4*

Roll No .....

IT-403

B.E. IV Semester

Examination, June 2013

Data Base Management System

Time : Three Hours

Maximum Marks : 70/100

Note: *Attempt any one question from each unit. All questions carry equal marks.*

Unit - I

1. a) i) What are the main advantages of DBMS.

ii) What are the main functions of database administrator.

b) i) Differentiate between physical and logical data independence.

ii) Explain primary key, super keys, candidate keys with examples.

OR

2. a) Explain strong and weak entities. How weak entity can be converted to a strong entity. Outline what sort of redundancy will result by converting weak entity to strong entity.

b) Explain the following constraints while designing E-R diagram.

i) Total and partial constraints.

ii) Disjoint and partial constraints.

iii) Condition defined and used defined constraints.

Unit - II

3. a) Differentiate between Hierarchical, Network and Relational data models by taking examples. Also discuss their advantages and disadvantages.

   b) Explain with examples :

      i) Integrity constraints

      ii) Relational schema

      iii) Domains

      iv) Extension and intension of relation.

OR

4. a) What are the characteristics of relation. Explain Domain, Tuple, Attributes, Degree, Cardinality of relation.

   b) Discuss the concepts of Network and Hierarchical model.

Unit - III

5. a) Explain various types of join with examples.

   b) What are views? Explain what are the major problems with processing update operations expressed in terms of views.

OR

6. Consider the relational database given below. Give expressions in QBE and for each of the following queries.

   Employee (Person-name, street, city)

   Works (Person-name, company-name, salary)

   Company (Company-name, city)

Manager (person-name, Manager-name)

i) Give all managers in the database a 10% raise.

ii) Find name of all employees who work in 'xyz'.

iii) Find all employees who do not work in 'xyz'.

iv) Modify the database so that the 'Jones' now lives in Newtown.

Unit - IV

7. a) Explain functional dependency and trivial functional dependency by taking examples. List all functional dependencies satisfied by the relation of figure given below.

A	B	C
a_1	b_1	c_1
a_1	b_1	c_2
a_2	b_1	c_1
d_2	b_1	c_2

   b) Give closure of the following set F of functional dependencies for the relation

   R (A, B, C, D, E) where

   F = {A → BC

   B → D

   CD → E

   E → A}

   Also list all candidate keys of R

OR

8. a) What are the design goals of relational databases? Explain, why each is desirable.