Exam.Code:0921
Sub. Code: 6472

2123

B.E. (Information Technology)

Third Semester

PC-IT-303: Database Management System

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) What is meant by data integrity?

b) Differentiate between scalar and aggregate operators.

c) What is the purpose of specialization in data modelling?

d) Give an example of a partial functional dependency.

e) Can relational calculus queries be executed over the DBMS directly?

f) Which Normal Form is the most desirable over a telecom company database that needs to analyse data pertaining to multiple entity sets at one time?

g) What is the function of a database trigger?

h) Which file organisation and index supports random access to file records?

i) What are recoverable and cascadeless schedules in a DBMS system?

j) Discuss pros and cons of locking versus serializability for concurrency control.

(10x1)

UNIT - I

II. Explain the concept of data independence in DBMS. Give example how the schema creation/modification and file organization/storage correlates with the concept of data independence.

(10)

III. Explain the different index data structures that can be used for physical data organization in a DBMS.

(10)

IV. Consider the relational database given below:

employee (e_id, e_ name, street, city)

works (e_id, company _name, salary)

company (company_ name, city)

manages (e_id, mgr_ id)

Write relational algebra queries for the following:

a) Find e_id, e_name and city of all employees who work for "Panjab University" and have salary more than 1,00,000.

b) Find all names of employees who live in the same city as company for which they work.

(2x5)

P.T.O.

UNIT - II

V. What are the three main goals of relational database design? Which is the highest normal form and which is the most desirable? (10)

VI. Write a PL/SQL code block to show the creation and usage of explicit cursor. (10)

VII. Write short notes on:-

a) Strict two phase locking protocol

b) Query optimization strategies (2x5)

x-x-x