

Exam.Code:0915  
Sub. Code: 6777

1108  
B.E. (Computer Science and Engineering )  
Third Semester  
CS-302: Database Systems

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Write the short note on the following:-
  - a) Explain ACID properties of Transaction.
  - b) Describe super key with example.
  - c) What is index? List its types.
  - d) Explain Shared locks and explicit locks.
  - e) Give syntax of UPDATE command. Demonstrate with suitable example. (5x2)

**UNIT – I**

- II. a) What is Functional Dependency? Explain types and properties of FD's.  
b) Describe the storage structure of indexed sequential files and their access methods. (2x5)

III. Consider the following schemas:  
**Sailors (sid, sname, rating, age)**  
**Reserves (sid, bid, day)**  
**Boats (bid, bname, color)**

Write the following queries in relational algebra, tuple relational Calculus and domain relational calculus:

- a) Find the name of sailors who have reserved boat 103.
  - b) Find the names and ages of sailors with a rating above 7.
  - c) Find the .names of sailors who have reserved a red boat.
  - d) Find the sname, bid. and day for each reservation.
  - e) Find the name of sailors who have reserved at least one boat. (10)
- IV. a) What is a trigger? How to create it? Discuss various types of triggers  
b) What is the difference between BCNF and 3 NF? Take any suitable example. (2x5)

P.T.O.

(2)

**UNIT – II**

- V. a) Explain, the difference between a weak and a strong entity set.  
b) Explain two phase locking protocol.  
c) Explain Aggregate Functions of SQL with suitable example. (2,5,3)
- VI. a) Explain Cursor in PL/SQL. Write a PL/SQL program for inserting even numbers in EVEN table and odd number in ODD table from number 1 to 50.  
b) Illustrate different types of joins in SQL with example. (2x5)
- VII. Define the following terms with illustrative examples:-  
a) Cardinality  
b) Unary relationships  
c) Aggregation  
d) Specialization  
e) Total participation (10)