VIT UNIVERSITY
(Estd. u/s 3 of UGC Act 1956)

Regular Arrear Examination - December 2013

Course : ITE302 - Database Systems

Time : Three Hours **Max.Marks:100**

PART – A (8 X 5 = 40 Marks)
Answer ALL Questions

1. Name the users in DBMS and specify their roles.
2. List the advantages of DBMS.
3. Explain the keys in relational model. Give one relation with all keys.
4. Write relational algebra for the following queries.

   Train (no, name, source, destination, starttime, reachtime)

   a. Find the train names that start @ 6.00 am in Chennai
   b. Find all the train details
   c. Find the trains whose total journey time is less than five hours
5. List the binary relational algebra operations.
6. Explain 2NF.
7. What are the steps involved in query processing?
8. What are the basic principles of concurrency control algorithms?

PART – B (6 X 10 = 60 Marks)
Answer any SIX Questions

9. Describe the three-schema architecture with neat sketch.
10. Categorize the attributes that would be given on an Entity. Give the diagrammatic notation and one example for each attribute type.
11. Write down the steps to convert an ER schema to relational schema.
12. List the commands in DDL. Give the syntax for each DDL command.

13. Write corresponding SQL statements for the following query.

    Emp(SSn, Name, Desg, dob, dno)

    Dept (no, name, doj)

    a. Find the employees whose name start with R.
    b. Find the employees who are not under any dept.
    c. Find the emp name and dept name.
    d. Find the employees who have joined the dept between jan 1st 2011 and dec 31st 2012.
    e. Find the employees who are managers and are born in January.

14. Explain the ACID properties of a transaction.

15. Explain the basic concept of two phase locking and timestamp ordering approaches used in concurrency control.

16. Given the following relation R ={ A,B,C,D,E,F,G} and a set of functional dependencies FD= { A,B → C ; C → D,E ; B → F,G }

    Check whether the decomposition D ={ D1 (A,B,C), D2 (D,E,F) ,

    D3(C, B, G) is lossless or not.

⇔⇔⇔