VIT UNIVERSITY
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VELLORE ▪ CHENNAI
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Term End Examination - November 2014

Course : ITE302 - Database Systems **Slot : D1**

Class NBR : 1587 / 1590

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

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

1. Compare and contrast a Naïve and casual user.

2. List the advantages of DBMS.

3. Define the terms
   a. Entity type
   b. Degree of a relation
   c. Partial participation
   d. Super key
   e. Extension

4. R = (A,B,C,D)

1	S	E	5
2	D	R	6
3	F	T	5

S = (M,N,O)

W	E	1
B	R	1
N	T	1

Find the result of the following operations for the above table
   a) R U S
   b) R left outer join on A=O S
   c) Project M on N='T' (S)
   d) S(N,O) divided by R(C)

5. Identify the SQL functions for the following scenario.
   a) Entering date in the format 12th December 2014.
   b) Finding the total of a column.
   c) Finding how old are you in terms of months.
   d) To change the given string to capital letters.
   e) Change 'abc' anywhere in a string to 'P'.

6. Write down second normal form with an example.

7. Does 2PL guarantee serialiazibility? Justify.

8. State the difference between

   a) Dense and Sparse index **[2.5]**

   b) Btree and Hash index **[2.5]**

PART – B (6 X 10 = 60 Marks)

Answer any SIX Questions

9. Discuss the relational model constraints. Specify the constraints violated on insert / delete/ update.

10. What are the categories of a Data Model? How it is applied in building a three schema architecture?

11. A School database has to keep record of faculty and student participation in extra or co curricular activities. A faculty can conduct any number of workshop/seminar/guest lecture/conference in a year. And he/she can attend any inside school and outside school. A student can attend or be a organizing member in the events conducted by the school and outside school. A student has to register for one co curricular activity (like CSI/NSS/IEEE) during his course of study. There will be one faculty incharge for every 60 students to evaluate the co curricular activity. Draw an ER diagram for the above scenario. Mention if you are making any assumptions.

12. a) Write a function to display the number of days between two dates. **[5]**

    b) Write a procedure to print the reverse of a given number. **[5]**

13. Consider the universal relation R= {A,B,C,D,E,F,G,H,I,J} and a set of functional dependencies F= { A,B→ C ; A → D,E ; B→ F; F→ G,H ; D→ I,J }. If the following decomposition are made determine whether each decomposition has dependency preservation property and lossless join property.

    a) D1= {r1, r2, r3, r4, r5} ; r1= { A,B,C } , r2 = { A, D, E } ,
    r3 ={ B , F }, r4 = { F, G , H}, r5 = { D , I , J }

    b) D2 = { r1, r2, r3} ; r1= { A, B,C, D, E },
    r2= { B, F, G , H} , r3 = { D, I , J }

14. Person (name, age, address(stno,city,state,country), identification(type, number))

    The above information must be created for a person. Address consists of four components and the identification number various for each person. For each identification its type (driving license or pancard number or aadar card number etc) and the corresponding number must be stored. Write the syntax for creating the table, types and insert.

15. Discuss the recovery techniques used in traditional DBMS.

16. Explain secondary index with neat sketch.

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