RAMAIAH UNIVERSITY OF APPLIED SCIENCES

Faculty of Engineering & Technology
Term Test Question Paper – B. Tech.

Department: Computer Science and Engineering

Programme/Branch: B.Tech CSE

Semester/Batch: 5th /2018

Date of Test: 05 Jan 2021

Course Code: 19CSC302A

Course Title: Database Systems

Term Test-2

INSTRUCTIONS TO STUDENTS:

1. Answer all the questions
2. Use only SI units
3. Use of non-programmable scientific calculator is permitted
4. Missing data may be appropriately assumed
5. Indicate the question number (including its part as applicable) for your answers
6. **Mail the scanned answer sheets in pdf format within the stipulated time to** prabhakara.cs.et@msruas.ac.in **/** rathvsm.cs.et@msruas.ac.in **/** amirai.cs.et@msruas.ac.in

Answer Duration: 1 Hr 15 Mins **Scanning and Uploading: 10 Mins post Answer Duration**
Maximum Marks: 25

IMPORTANT:
You may retain the question paper for future reference

Question No. 1 **(10 x ½ = 5 Marks)**

For the sub questions 1.1-1.10, multiple choices are indicated as possible answers. You are supposed to pick and write any one of the choices as your answer in the answer booklet.
(Each sub question carries ½ (half) mark):

1.1 The variables are bounded with help of _____ in relational calculus.
   a. Expressions
   b. Quantifiers
   c. Tokens
   d. Identifiers

1.2 The clause in SQL to sort the fetched data is _____.
   a. ORDER BY
   b. ORDER
   c. SORT BY

d. SORT

1.3 A view in SQL can be deleted using the _____ VIEW command.
   a. DELETE
   b. DROP
   c. REMOVE
   d. TRUNCATE

1.4 The event type that is not possible in SQL trigger is _____.
   a. Insert
   b. Delete
   c. Alter
   d. Update

1.5 Consider a relational schema Employee (EmpId, Fname, Lname, Salary). The relational calculus query to list all employees whose salary is greater than 50,000 is _____.
   a. {t (EMPLOYEE(t) AND t.Salary > 50000}
   b. (t I (EMPLOYEE(t) AND t.Salary > 50000)
   c. {t I (EMPLOYEE(t) AND t.Salary > 50000}
   d. {t II (EMPLOYEE(t) AND t.Salary > 50000}

1.6 Consider two schemas R and S which consist of m and n tuples respectively. The maximum and minimum size of SELECT * FROM R NATURAL JOIN S is_____.
   a. *m* * *n* and 0
   b. *m* + *n* and 0
   c. *m* + *n* and *m* – *n*
   d. *m* * *n* and *m* – *n*

1.7 The SQL query to retrieve the data of the students from the STUDENT table whose name starting with the letter 'r' is *SELECT * FROM student WHERE name LIKE* _____.
   a. '%r%';
   b. '%r';
   c. 'r%';
   d. '_r%';

1.8 Consider the relational table SALES. The statement _____ is a legal expression in SQL.
   a. SELECT NAME FROM SALES;
   b. SELECT NULL FROM SALES;
   c. SELECT * FROM SALES WHEN PRICE = NULL;
   d. SELECT # FROM SALES;

1.9 Which of the following SQL Statement will give the number of employees in relation EMPLOYEE (EmpId, Fname, Lname, Did, Salary).
   a. SELECT count(*) FROM Employee;
   b. SELECT count(EmpId) FROM Employee;
   c. Both (a) & (b)
   d. Count (*) FROM Employee;

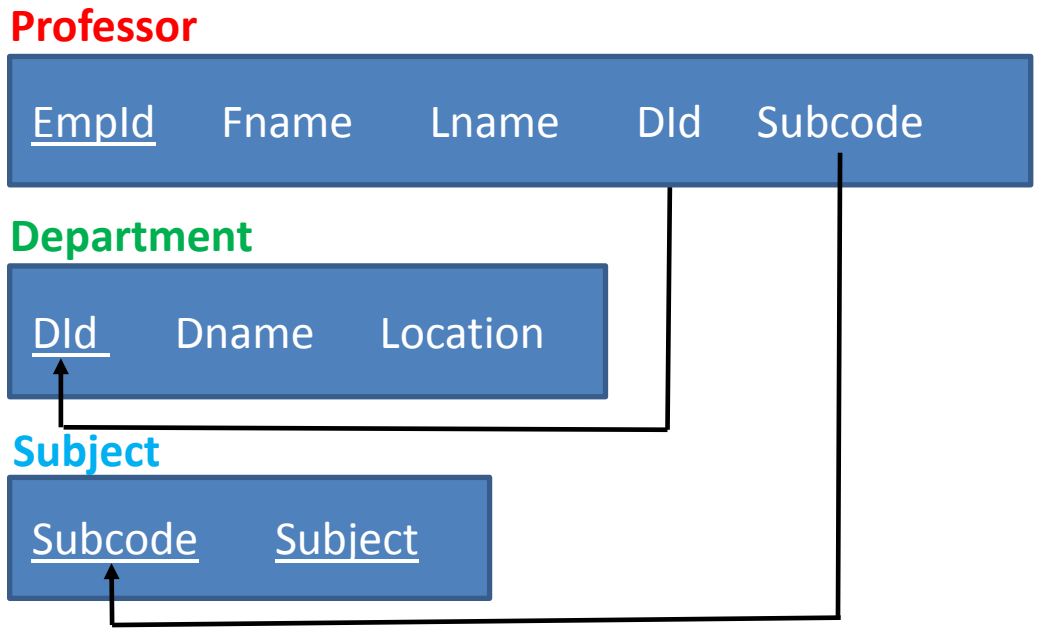
1.10 Primary and Secondary (Key) Indexes are _____ and _____ respectively.
   a. Dense & Dense
   b. Dense & Non-Dense
   c. Non-Dense & Dense
   d. Non-Dense & Non-Dense

Question No. 2 **(3+2= 5 Marks)**

a. List the Single Level Ordered Indexes and explain any one of them.
b. Transform the following Quantifier Expression from (∀x) to (∃x)
   (i) (∀x) (P(x) **AND** Q(X)) (ii) (∀x) (P(x) **OR** Q(X))

Question No. 3 **(3+2 = 5 Marks)**

a. Consider that you are working in the development team of a database company. Implement the following schema in SQL which has been provided to you by the design team of the company. Assume appropriate data types and constraints.



b. Refer 3(a). Write SQL query to

(i) Display the Professor details, with subject and department name, who teach "DBMS" in "CSE" Department.

(ii) Add a column Salary with appropriate type to the Professor table.

(iii) Display professor details with Salary (as Revised_sal) increased by 1.5 times.

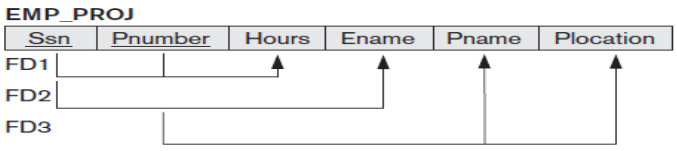
Question No. 4 **(2+3= 5 Marks)**

a. Differentiate between Assertion and Trigger.

b. Explain the concept of Internal Hashing Technique with an example. State the collision avoidance methods.

Question No. 5 **(2+3= 5 Marks)**

a. State the Normal Form of the Relation Emp_Proj with reason and regroup the attributes to put the relation into the next NF.



b. Insert key values 1, 12, 8, 2, 25 into an empty B Tree of Order 3.

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