DBMS Lab Quiz (End Semester) 20-21

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Consider the following three SQL queries (Assume the data in the people table): (a)Select Name from people where Age > 21; (b)Select Name from people where Height > 180; (c)Select Name from people where (Age > 21) or (Height > 180); If the SQL queries (a) and (b) above, return 10 rows and 7 rows in the result set respectively, then what is one possible number of rows returned by the SQL query (c) ?

○ 7

◉ 10

○ 3

○ 21

*

Which of the following statements are TRUE about an SQL query? P : An SQL query can contain a HAVING clause even if it does not have a GROUP BY clause Q : An SQL query can contain a HAVING clause only if it has a GROUP BY clause R : All attributes used in the GROUP BY clause must appear in the SELECT clause S : Not all attributes used in the GROUP BY clause need to appear in the SELECT clause

◉ P and S

○ Q and R

○ Q and S

○ P and R

*

Consider the following relational schema:

```
Suppliers (sid:integer, sname:string, saddress:string)
 Parts (pid:integer, pname:string, pcolor:string)
 Catalog (sid:integer, pid:integer, pcost:real)
```

What is the result of the following query?

```
(SELECT Catalog.pid from Suppliers, Catalog
WHERE Suppliers.sid = Catalog.pid)
 MINUS
(SELECT Catalog.pid from Suppliers, Catalog
WHERE Suppliers.sname <> 'sachin' and Suppliers.sid = Catalog.sid)
```

○ pid of Parts available in catalog supplied by sachin

○ pid of Parts supplied by all except sachin

◉ pid of Parts supplied only by sachin

○ pid of Parts available in catalogs supplied by all except sachin

*

Consider the relation "enrolled(student, course)" in which (student, course) is the primary key, and the relation "paid(student, amount)" where student is the primary key. Assume no null values and no foreign keys or integrity constraints. Given the following four queries:

```
Query1: select student from enrolled where
           student in (select student from paid)
Query2: select student from paid where
           student in (select student from enrolled)
Query3: select E.student from enrolled E, paid P
            where E.student = P.student
Query4:  select student from paid where exists
           (select * from enrolled where enrolled.student
           = paid.student)
```

○ There exist databases for which Query4 will encounter an integrity violation at runtime.

◉ All queries return identical row sets for any database

○ There exist databases for which Query3 returns strictly fewer rows than Query2

○ Query2 and Query4 return identical row sets for all databases but there exist databases for which Query1 and Query2 return different row sets.

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Select operation in SQL is equivalent to

1. The selection operation in relational algebra
2. The selection operation in relational algebra, except that select in SQL retains duplicates
3. The projection operation in relational algebra
4. The projection operation in relational algebra, except that select in SQL retains duplicates

◉ only 4

○ only 1

○ 1, 2 and 4

○ 1,2 and 3

Database table by name Loan_Records is given below.

Borrower	Bank_Manager	Loan_Amount
Ramesh	Sunderajan	10000.00
Suresh	Ramgopal	5000.00
Mahesh	Sunderajan	7000.00

What is the output of the following SQL query?

```
SELECT Count(*)
FROM   ( ( SELECT Borrower, Bank_Manager
           FROM Loan_Records) AS S
           NATURAL JOIN ( SELECT Bank_Manager, Loan_Amount
                          FROM Loan_Records) AS T );
```

- ○ 6
- ◉ 5
- ○ 9
- ○ 3

Consider a relation Product (Name, price) which contains the Name and prices of different Products. Assuming that no two Products have the same price, what does the following SQL query list ?

```
Select Name

from Product as B

where (select count ( * )

from Product as T

where T.price > B.price) < 7
```

○ Name of the seventh most expensive Product

◉ Names of the six most expensive Products

○ Name of the sixth most expensive Product.

○ Names of the seven most expensive Products

Consider the following database table named *top_scorer*

top_scorer		
player	**country**	**goals**
Klose	Germany	16
Ronaldo	Brazil	15
G Miiller	Germany	14
Fontaine	France	13
Pele	Brazil	12
Klinsmam	Germany	11
Kocsis	Hungary	11
Batistuta	Argentina	10
Cubillas	Peru	10
Lato	Poland	10
Lineker	England	10
T Mulle	Germany	10
Rahn	Germany	10

Consider the following SQL query:

```
SELECT ta.player FROM top_scorer AS ta
WHERE ta.goals >ALL (SELECT tb.goals
            FROM top_scorer AS tb
            WHERE tb.country = 'Spain')
AND ta.goals >ANY (SELECT tc.goals
            FROM top_scorer AS tc
            WHERE tc.country = 'Germany')
```

The number of tuples returned by the above SQL query is _____.

- ( ) 7
- ( ) 10
- ( ) 12
- ( ) 5

Which of the below is true ? I. Implementation of self-join is possible in SQL with table alias. II. Natural join and outer join operations are equivalent. III. Outer-join operation is basic operation in relational algebra.

○ Only III is correct.

○ I and II are correct

● Only I is correct

○ II and III are correct.

*

In an inventory management system implemented at a trading corporation, there are several tables designed to hold all the information. Amongst these, the following two tables hold information on which items are supplied by which suppliers, and which warehouse keeps which items along with the stock-level of these items. Supply = (supplierid, itemcode) Inventory = (itemcode, warehouse, stocklevel) For a specific information required by the management, following SQL query has been written

```
Select distinct STMP.supplierid
From Supply as STMP
Where not unique (Select ITMP.supplierid
                  From Inventory, Supply as ITMP
                  Where STMP.supplierid = ITMP.supplierid
                  And ITMP.itemcode = Inventory.itemcode
                  And Inventory.warehouse = 'Nagpur');
```

For the warehouse at Nagpur, this query will find all suppliers who

○ do not supply any item

○ supply exactly one item

○ supply one or more items

⦿ supply two or more items

*

Students

Roll No	Student Name
1	Raj
2	Rohit
3	Raj

Performance

Roll No	Course	Marks
1	Math	80
1	English	70
2	Math	75
3	English	80
2	Physics	65
3	Math	80

Consider the following relations:

```
SELECT S. Student_Name, sum(P.Marks)
    FROM Student S, Performance P
    WHERE S.Roll_No = P.Roll_No
    GROUP BY S.Student_Name
```

The number of rows that will be returned by the SQL query is _____

○ 3

○ 0

○ 1

◉ 2

*

Consider the following database table named *water_schemes :*

water_schemes		
scheme_no	**district_name**	**capacity**
1	Ajmer	20
1	Bikaner	10
2	Bikaner	10
3	Bikaner	20
1	Churu	10
2	Churu	20
1	Dungargarh	10

The number of tuples returned by the following SQL query is _____ .

with total (name, capacity) **as**

   select district_name, **sum** (capacity)
   from water_schemes
   group by district_name
with total_avg (capacity) **as**
   select avg (capacity)
   from total
select name
   from total, total_avg
   where total.capacity ≥ total_avg.capacity

- ○ 7

- ○ 3

- ● 2

- ○ 5

Consider the following Employee table

ID	salary	DeptName
1	10000	EC
2	40000	EC
3	30000	CS
4	40000	ME
5	50000	ME
6	60000	ME
7	70000	CS

How many rows are there in the result of following query?

```
SELECT E.ID
FROM   Employee E
WHERE   EXISTS   (SELECT E2.salary
                 FROM Employee E2
                 WHERE E2.DeptName = 'CS'
                 AND    E.salary > E2.salary)
```

○ 0

○ 4

◉ 5

○ 6

Clear selection

Consider the following relational schema:

```
employee(empId, empName, empDept)
customer(custId, custName, salesRepId, rating)
```

salesRepId is a foreign key referring to empId of the employee relation. Assume that each employee makes a sale to at least one customer. What does the following query return?

```
SELECT empName
       FROM employee E
       WHERE NOT EXISTS ( SELECT custId
                          FROM customer C
                          WHERE C.salesRepId = E.empId
                            AND C.rating <> `GOOD`);
```

○ Names of all the employees with at most one of their customers having a 'GOOD' rating

◉ Names of all the employees with all their customers having a 'GOOD' rating

○ Names of all the employees with at least one of their customers having a 'GOOD' rating

○ Names of all the employees with none of their customers having a 'GOOD' rating.

The statement that is executed automatically by the system as a side effect of the modification of the database is
1.Backup
2.Assertion
3.Recovery
4.Trigger

○ 3

○ 1

◉ 4

○ 2

Which one of the following statements is CORRECT? *

Given the following statements:

```
S1: A foreign key declaration can always
    be replaced by an equivalent check
    assertion in SQL.
S2: Given the table R(a,b,c) where a and
    b together form the primary key, the
    following is a valid table definition.
    CREATE TABLE S (
        a INTEGER,
        d INTEGER,
        e INTEGER,
        PRIMARY KEY (d),
        FOREIGN KEY (a) references R)
```

○ S1 is TRUE and S2 is FALSE

○ S1 is FALSE and S2 is TRUE

○ Both S1 and S2 are TRUE

⦿ Both S1 and S2 are FALSE

*

Given relations A(w,x) and B(y,z), the result of

```
SELECT DISTINCT w, x
FROM A, B
```
Is guaranteed to be same as A, if

○ B has no duplicates and A is non-empty

○ A and B have no duplicates

● A has no duplicates and B is non-empty

○ A and B have the same number of tuples

*

Consider the following relation

```
Cinema (theater, address, capacity)
```

Which of the following options will be needed at the end of the SQL query

```
SELECT P1. address
FROM Cinema P1
```

Such that it always finds the addresses of theaters with maximum capacity?

○ WHERE P1. Capacity > All (select max(P2. Capacity) from Cinema P2)

○ WHERE P1. Capacity> = Any (select P2. Capacity from Cinema P2)

● WHERE P1. Capacity> = All (select P2. Capacity from Cinema P2)

○ WHERE P1. Capacity > Any (select max (P2. Capacity) from Cinema P2)

Consider the relations $r_1(P, Q, R)$ and $r_2(R, S, T)$ with primary keys P and R respectively. The relation r_1 contains 2000 tuples and r_2 contains 2500 tuples. The maximum size of the join $r_1 \bowtie r_2$ is :

- ⦿ 2000
- ◯ 2500
- ◯ 4500
- ◯ 5000

Clear selection

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*

Consider the following schema:

Emp (Empcode, Name, Sex, Salary, Deptt)

A simple SQL query is executed as follows:

SELECT Deptt FROM Emp
WHERE sex = 'M'
GROUP by Dept
Having avg (Salary) > {select avg (Salary) from Emp}

- ⦿ Average salary of male employee is more than the average salary of the organization
- ◯ Average salary of male employee is less than the average salary of the organization
- ◯ Average salary of male employee is the average salary of the organization
- ◯ Average salary of male employee is equal to the average salary of the organization

*

In SQL, relations can contain null values, and comparisons with null values are treated as unknown. Suppose all comparisons with a null value are treated as false. Which of the following pairs is not equivalent?

○ x = 5 AND not(not(x = 5))

◉ x ≠ 5 AND not (x = 5)

○ x = 5 AND x> 4 and x < 6, where x is an integer

○ None of the Other

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