CS & DA

Database Management System

Query Languages

DPP 02 (Discussion Notes)

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[MSQ]

#Q. Consider the following employee table

Employees (EMPID, EmpName, Sal, DeptID, ManagerID) assume that EMPID is primary key of relation. which of the following SELECT statements is/are invalid?

✗ **A** SELECT ManagerID, DeptID FROM employees;

DISTINCT

✓ **B** SELECT ManagerID, DISTINCT DeptID FROM employees;

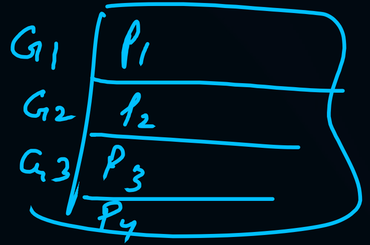
✓ **C** SELECT DISTINCT ManagerID, DISTINCT DeptID FROM employees;

✗ **D** SELECT DISTINCT ManagerID, DeptID FROM employees;

[MSQ]

#Q. Consider the following product relation Products (PID, PName, Cost).

Assume that PID is primary key of the relation. Which SELECT statement should we use to limit the display of product information to the product having cost less than 50?



[✓ A] SELECT PID, PName FROM Products WHERE Cost < 50;

B SELECT PID, PName FROM Products Having Cost < 50;

[✓ C] SELECT PID, PName FROM Products WHERE PID IN
(SELECT PID FROM Products WHERE Cost < 50);

PID of products whose cost < 50

{P1, P2 .. P5}

[✓ D] SELECT PID, PName FROM Products GROUP BY PID Having Cost < 50;

Each tuple will be a group

[MCQ]

#Q. The employees table contains these columns

empID	NUMBERS (4)
LastName	VARCHAR (25)
JobID	VARCHAR (10)

- - - - - Negi - - -

Suppose that, you want to search for record that contains 'Negi' as substring in the LastName. Which SQL statement will be used ?

any no of characters

0 to n

[✓ A] SELECT empID, LastName, JobID FROM employees WHERE LastName LIKE '%Negi%';

X B SELECT empID, LastName, JobID FROM employees WHERE LastName = 'Negi_%';

C SELECT empID, LastName, JobID FROM employees WHERE LastName LIKE 'Negi'; X

D None of these

_ %

Negi

aNegib

[NAT]

#Q. Consider a relation A(P,Q) currently has tuples {(1, 2), (1, 3), (3, 4) } and relation B(Q, R) currently has {(2, 5), (4, 6), (7, 8)}. Then the number of tuples in the result of the SQL query: SELECT * FROM A NATURAL OUTER JOIN B; is?

↓ FULL

A ⟗ B

A (P, Q)

P	Q
✓1	2
✓1	3
✓3	4

B (Q , R)

Q	R
2	5 ✓
4	6 ✓
7	8

$\boxed{4}$

P	Q	R
1	2	5
1	3	N
3	4	6
N	7	8

[NAT] [Mark-1]

#Q. Consider the following instance of database table Supply and following SQL query

```
4 — SELECT Counter_no
1 — FROM Supply
2 — GROUP BY Counter_no , Part
3 — HAVING MAX(cost) ≥ 2
```

Number of tuples returned by the above SQL query is 4

Supply

Counter_no	Part	Cost
1	P1	2
1	P2	1
1	P3	3
2	P1	4
2	P3	3
3	P3	1

[NAT] **[Mark-2]**

#Q. Consider following two queries Q1 and Q2 executed on the given instances of tables.

```
Q1:     SELECT Sid, Sname
        FROM Salesman AS S
        WHERE (SELECT COUNT(*)
        FROM Customer AS C
        WHERE S.Sid= C.Sid) > 1
                    distinct
Q2:     SELECT S.Sid, S.Sname
        FROM Salesman AS S, Customer AS C
        where S.Sid= C.Sid
        group by (S.Sid, S.Sname)
        Having count(S.Sid) > 1;
```

Let 'X' is the number of tuples produced by Q1 and 'Y' is the number of tuples produced by Q2.

then value of X+Y is "4"

X=2

2, Venkat

3, Abhishek

Y=2

Salesman

Sid	Sname	City
1	Vishal	Ujjain
2	Venkat	Hyderabad
3	Abhishek	Hyderabad
4	Satya	Hyderabad
5	Rohit	Lucknow
6	Mili	Delhi

Customer

Cid	Cname	Sid
1	Akshay	3
2	Mohit	1
3	Ram	2
4	Soham	3
5	Reema	3
6	James	2

[NAT]

#Q. Consider following two queries Q1 and Q2 executed on the given instance of Sell table. Let X is the number tuples produced by Q1 and Y is the number of tuples produced by Q2.

```
Q1: SELECT S.cost FROM Sell S WHERE NOT EXISTS
    (SELECT * FROM Sell WHERE cost > S. cost)
Q2: SELECT MAX(cost) FROM Sell        4
```

4
4
4

Value of |X-Y| is__________.

$X = 3$

$y = 1$

$|X - y| = |3 - 1| = \boxed{2}$

Sell

Counter_no	Drink_name	Cost
1	Pepsi	2
2	Pepsi	1
1	Kinley	3
2	Cola	4
3	Cola	4
3	Pepsi	4

[MCQ]

#Q. Consider the relational schema orders(Cid,date,amount) and following SQL query:

$\underbrace{\text{Cid,date}}_{\downarrow\ \text{PK}}$

```
SELECT Cid, date, MAX(amount)
FROM orders
GROUP BY Cid, date
HAVING MAX(amount) > 2000;
```

Each tuple will be a group

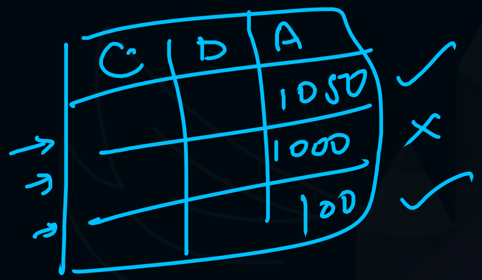
Output produced by above query for an arbitrary 'orders' table will always contain

✗ **A** Exactly one tuple from the table ✓

✗ **B** At least one tuple from the table

✗ **C** No tuple from the table

[✓ **D**] None of the above



C	D	A
		1050 ✓
		1000 ✗
		100 ✓

[MCQ]

100 ✓

#Q. Consider a relation schema Student(Sid, Sname, Marks) and following two queries.

```
Q1:  SELECT S.Marks FROM Student S WHERE NOT EXISTS
     (SELECT * FROM Student WHERE Marks > S.Marks)
Q2:  SELECT MAX(Marks) FROM Student
```

100

Sid	Marks
S_1	80
S_2	90
S_3	80
S_4	100 ✓

✗ A Q1 and Q2 always produces the same answer

✗ B Q1 and Q2 always produces the different answer

[✓ C] Q1 and Q2 may produce same answer

D None of the above

[NAT]

#Q. Consider a database schema EMP(EID, ENAME, SALARY, DEPTNO) and database table contains exactly 20 rows where salary is not allowed to be NULL.

0 to 20

Consider the following SQL query 'Q'

```
Q:   SELECT ENAME, DEPTNO FROM EMP
     WHERE SALARY < ANY (SELECT SALARY FROM EMP WHERE DEPTNO = 20)
```

→ Salary of employees working in dept. 20

Let 'X' is the minimum number of rows that can be returned by query Q for some random 20 rows in table EMP, and 'Y' is the maximum number of rows that can be returned by query Q for some other random 20 rows in table EMP.

Value of X+Y is ___19___.

X = 0

Y = 19

Y ≠ 20

5000 < ANY

< 5000

19 rows

EID	S	Dept. No
→ E1	1000	
	1000	
	1000	—
	1000	
	⋮	
	1000	20

[MCQ]

[Mark-2]

#Q. Consider the following Relational scheme

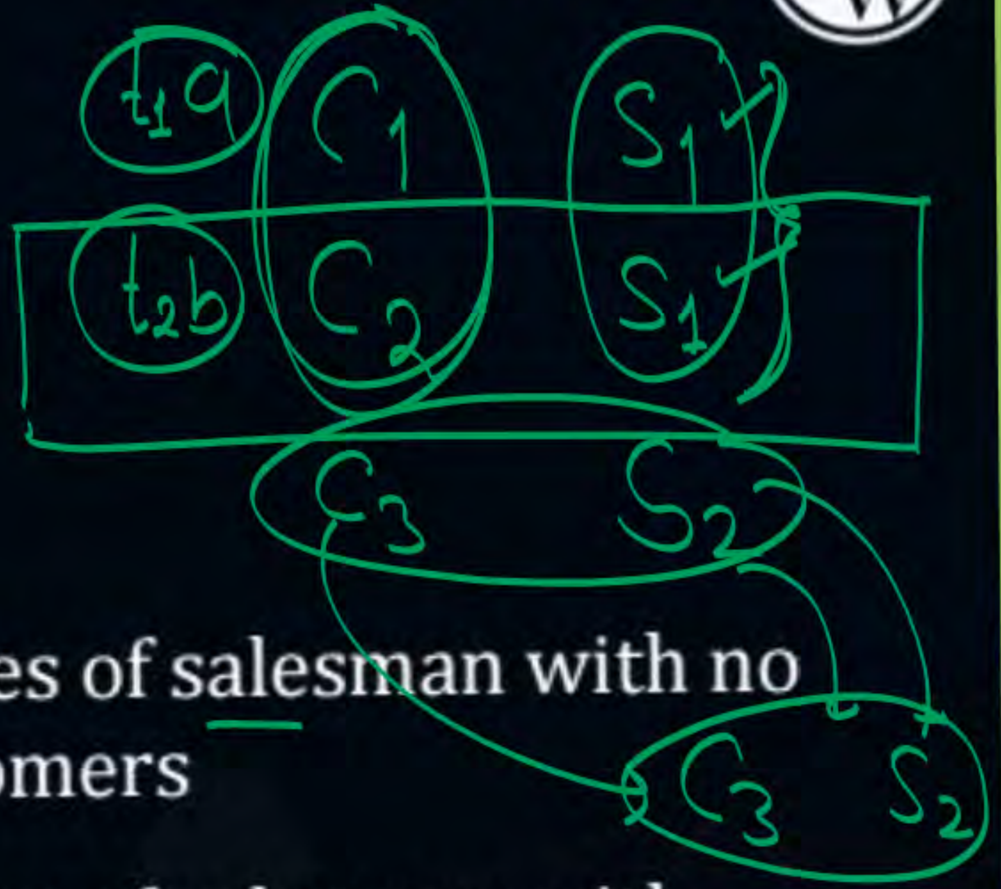
Salesman (salesman_id, name, city) and

a Customer (customer_id , c_name , city , salesman_id)

What output is produced by following SQL query:

```
SELECT name
FROM Salesman
WHERE salesman_id IN
    ( SELECT DISTINCT a.salesman_id
    FROM Customer a
    WHERE NOT EXISTS
    ( SELECT *
    FROM Customer b
    WHERE
    (a.salesman_id = b.salesman_id
                  AND
    a.customer_id <> b.customer_id)));
```

ids of the Salesman who have provided services to exactly one customer



A. Names of salesman with no customers

[✓ B]. Names of salesman with exactly one customer

C. Names of salesman with more than one customers

D. Names of salesman with at most one customer

[MCQ] [1 Mark]

#Q. Consider the following relation store (store_id,owner_name,country)

Which of the following SQL statement lists the number of stores in each country along with country name.

[✓ A] Select count (store_id), country from store group By country

✗ B Select count (store_id), country from store group by (store_id, country)

✗ C Select count (store_id, country) from store group by (country)

✗ D Select count (store_id, country) from store group by (store_id, country)

[NAT]   [2 Marks]

#Q. Consider the following relation

Agents

aid	name	City	Rating	
1.	Ram	Bhopal	5	4.5
2	John	Ujjain	7	4.5
3	Geeta	Indore	3	3
4.	Mohan	Bhopal	4	
5.	Shyam	Ujjain	2	

Consider following SQL query:

o/p =
2
2

4 Select count (*)
1 From Agents
2 Group by City
3 Having (Avg(Rating) > 4)

* Number of tuples returned by above SQL query is 2

[MCQ] Non-empty relation Empty relation

#Q. Consider two relation schema R(A, B) and S(C, B), and following two queries.

Q1: SELECT A FROM R
WHERE B ≥ALL (SELECT B FROM S WHERE C=1)

true

Q2: SELECT A FROM R
WHERE B ≥ANY (SELECT B FROM S WHERE C=1)

False

R(A,	B)
→ 10	5 ✓
20	10 ✓
→ 30	2 ✓

S(C,	B)
5	2 —
5	3
5	4

5 >= ALL → 5 >= ANY

2 >= 2 ✓

~~A~~ Both the queries always produces same answer

~~B~~ Tuples produced by query Q1 is always a subset of tuples produced by Q2

~~C~~ Tuples produced by query Q2 is always a subset of tuples produced by Q1

✓ D None of the above

$Q_1 \subseteq Q_2$ ✓

Q_1:

A
10
20

Q_2:

A
10
20
30

Q_1:

A
10
20
30

Q_2:

A

Empty

✓ $Q_2 \subseteq Q_1$

[MCQ]

D_1 Finance ✓ X

D_2 HR   Fin & HR

D_3 Marketing

#Q. Consider the following relational schema:

EMP(Eid, Ename)

Work_in(Eid, Did)

DEPT(Did, Dname)

If we want to retrieve the Eids of the the employees working for both finance and HR department then which of the following is true?

[✓ A] (Select distinct W.Eid from Work_in W, DEPT D
Where W.Did=D.Did AND D.Dname = 'finance') Intersect
(Select distinct W.Eid from Work_in W, DEPT D
Where W.Did=D.Did AND D.Dname = 'HR')

B Select distinct W.Eid from Work_in W, DEPT D Where W.Did=D.Did AND D.Dname = 'finance' AND D.Dname = 'HR'

C Both (A) and (B)

D None of the above

THANK - YOU