CS & IT ENGINEERING

Database Management System

Query Languages

DPP-01 Discussion Notes

By- Mili Dhara Ma'am

[MCQ]

#Q. Consider the following statements:

S_1: $\pi_{\text{List N}}(\pi_{\text{List N}-1}\ldots\ldots(\pi_{\text{List 1}}(R))$ — Commutative

$\equiv \pi_{\text{List 1}}(\pi_{\text{List 2}}\ldots\ldots(\pi_{\text{List N}}(R))$

S_2: $\sigma_{c_n}\left(\sigma_{c_{n-1}}\ldots\ldots\left(\sigma_{c_1}(R)\right)\right) \equiv \sigma_{c_1}\left(\sigma_{c_2}\ldots\ldots\left(\sigma_{C_N}(C)\right)\right)$

Which of the following statement(s) is/are correct?

A. S_1 only

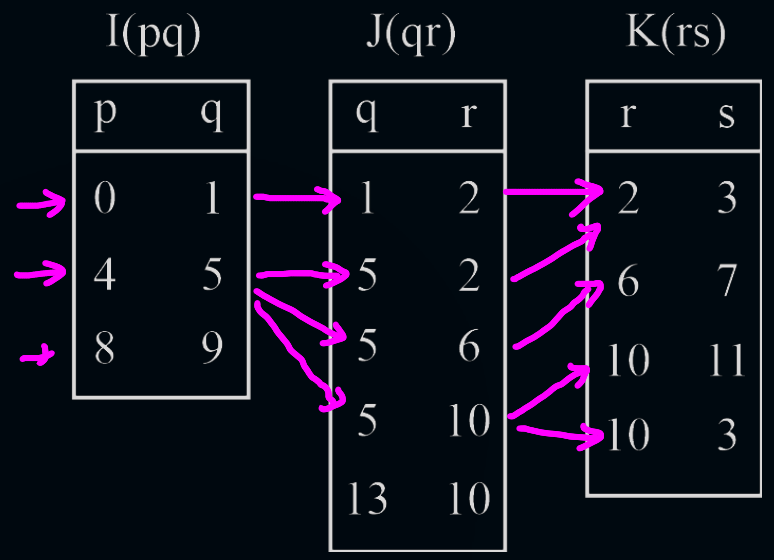
B. S_2 only

C. Both S_1 and S_2 only

D. Neither S_1 nor S_2

[MCQ]

#Q. Consider the following table



The number of tuples in $(I \bowtie J \bowtie K)$ where $\bowtie$ is the natural join is

A 5

B 8

C 10

D 11

[MCQ]

#Q. Let R_1 and R_2 be two relations which are union compatible with the same set of attributes.

$R_1(A, B, C) \bowtie R_2(A, B, C)$

1 2 3 ∩ 3 4 5

$R(A, B, C)$

1 2 3

S_1: $R_1 \cap R_2 = T_1 \bowtie T_2$ $R_1 \bowtie R_2$

S_2: $R_1 \cup R_2 = T_1 \bowtie T_2$ $R_1 \bowtie R_2$

Which of the above statement(s) are INCORRECT?

A. S_1 only

B. S_2 only

C. Both S_1 and S_2 only

D. Neither S_1 nor S_2

[MSQ]

#Q. Consider the following relations:

Enroll (Sid, Papercode), Paper(Papercode, Desc) Which of the following relational algebra displays the sid's who only enrolled for Papercode having descriptions (Desc) as "CS"?

A π_{sid} (Enroll ⋈ Paper)
Desc = CS

B π_{sid} (Enroll) – π_{sid} ((Enroll ⋈ σ (Paper))
Desc = CS

C π_{sid} (Enroll) – π_{sid}((Enroll ⋈ σ (Paper))
Desc < > CS

D None

S_1 — CS
DA
S_2 — CS
S_3 — DA
S_4 — CS
maths
Physics
S_5 — CS

S_3 - DA
S_1 - DA
S_4 - maths
S_4 - Physics

S_2 S_5

S_2 S_5

[MCQ]

#Q. Consider a relations work (EmpiD, Project ID)

The suitable relational algebra expression that projects the employee ids who work exactly in one project is-

A π_{Empid} (Work) – π_{Empid} (Work ⋈ $\rho_{E, P}$ (work))
Empid = E
∧
Project Id = P

B π_{Empid} (Work ⋈ $\rho_{E, P}$ (work))
Empid = E
∧
Project ID ≠ P

C π_{Empid} (work) – π_{Empid} (work ⋈ $\rho_{E, P}$ (work))
Empid = E
∧
Project ID ≠ P

D None

[MCQ]

#Q. Consider the relation R(ABCD) which of the following relational algebra expression return the lowest value of B? (R_1 and R_2 are rename of R)

I. $\Pi_{R_2 \cdot B}\,(R_1 \bowtie_{R1.B < R2.B} R_2)$

II. $\Pi_B(R) - \Pi_{R_1 \cdot B}\quad (R_1 \bowtie R_{1.B > R2.B}\, R_2)$

III. $\Pi_B(R) - \Pi_{R_1 \cdot B}\quad (R_1 \bowtie_{R1.B < R2.B} R_2)$

IV. $\Pi_B(R)$

R(A B C D)

1 2 3 4

5 6 1 8

2 7 9 10

A I

B II

C III

D IV

[MCQ]

#Q. Consider a Schema with Two Relations P (U, V, X) and Q (X, Y, Z) where all values are integer. There is no assumptions about the keys. Consider the following relational algebra expression.

I. $\pi_{U,Z}(P \bowtie \sigma_{X=3} Q)$

II. $\pi_{U,Z}(\pi_{U}(P) \times \sigma_{X=3}(Q))$

III. $\pi_{U}(\sigma_{X=3}(P) \times \pi_{Z}(\sigma_{X=3}(Q)))$

IV. $\pi_{U}(\sigma_{X=3}(P) \times \pi_{X}(Q))$

Which of the above are equivalent?

A I

B II

C III

D IV

[MCQ]

#Q. Consider the following RA expression-

P: π_{sid} (student) $-\pi_{sid}$ (student $\bowtie$ $\rho_{I, G, M}$ (Student))

Marks < M

$\wedge$ Gender = G

On a relation student (sid, Gender, Marks) and $\rho_{I = sid}$, $\rho_{G = Gender}$, $\rho_{M = Marks}$.

The above R.A displays?

A The sid of the student who obtained the maximum marks.

B The sids of the male and female students who obtained the maximum marks in their respective gender.

C The sids of male student who scored higher than all the female students

D None

[MSQ]

#Q. Consider the relation-

Works (Eid Pid) project (Pid, Name)

The relational algebra expression that displays the Eids who work in every project Name = 'M _____.

A $\pi_{Eid,\ Pid}(works) / \pi_{Pid}(\sigma_{Name = M}(Project))$

B $\pi_{Eid}(Work) - \underset{Eid}{\pi}\left[\pi_{Eid}(Work) \times \pi_{pid}\left(\underset{Name = m}{\sigma}(Project)\right) - \pi_{Eid\ Pid}(works)\right]$

C $\pi_{Eid}(Work) - \left[\pi_{Eid}(Work) \times \pi_{pid}\left(\underset{Name <> m}{\sigma}(Project)\right) - \pi_{Eid\ Pid}(works)\right]$

D None

[MCQ]

#Q. Consider the two relations R_1 and R_2 such that they have no attributes in common then-

S_1: $R_1 \bowtie R_2 = R_1 \times R_2$

S_2: $R_1 \bowtie R_2 = \phi$

Which of the given statement(s) is/are correct?

$R_1(A, B)$ $R_2(C, D)$

$R_1 \bowtie R_2 = R_1 \times R_2$

A S_1 only

B S_2 only

C Both S_1 and S_2 only

D Neither S_1 nor S_2

THANK - YOU