

$R$		
A	B	C
1	1	2
1	1	2
1	2	3
1	2	3
1	2	3
1	4	1
1	5	1

$S$	
C	D
4	2
4	2
2	1
2	1
2	6
3	2

Consider the relations  $R$  and  $S$  shown above. Let  $\pi^*, \sigma^*, \cup^*, \cap^*, -^*, \times^*$  denote the bag semantic versions of the relational algebra (RA) operators. Compute the results of the following RA queries.

1.  $(\pi_C(R)) \cap (\pi_C(S))$
2.  $(\pi_C^*(R)) \cap^* (\pi_C^*(S))$
3.  $\delta(\pi_C^*(R))$
4.  $\gamma_{B,C, \text{COUNT}(B,C) \rightarrow E}(R)$
5.  $\tau_D(S)$
6.  $\pi_{A \rightarrow F, B^2+C \rightarrow G}^*(R)$
7.  $R \overset{\circ}{\bowtie}_L S$
8.  $R \overset{\circ}{\bowtie}_R S$