

CS2102 Database Systems – Quiz 1

2013/2014 Semester I

This is a series of MCQ. Please write your answers in the OCR form provided.

Questions 1 to 5 are based on the following two relations R1 and R2.

R1	
A	B
1	2
3	4
5	6
7	7
7	1
3	2

R2	
C	D
1	2
3	3
5	7
6	7
1	1
2	3

1. Which of the following tuples belongs to the result of the query Q1 ?

$$Q1 = \{ \langle X \rangle \mid R1(X, X) \}$$

- a. $\langle 1 \rangle$
- b. $\langle 2 \rangle$
- c. $\langle 3 \rangle$
- d. All of the above tuples belong to the result
- e. None of the above tuples belongs to the result

2. Which of the following tuples belongs to the result of the query Q2 ?

$$Q2 = \{ \langle X, Y \rangle \mid \exists Z (R1(X, Z) \wedge R2(Z, Y) \wedge X \neq Y) \}$$

- a. $\langle 1, 3 \rangle$
- b. $\langle 3, 3 \rangle$
- c. $\langle 6, 7 \rangle$
- d. All of the above tuples belong to the result
- e. None of the above tuples belongs to the result

3. Which of the following tuples belongs to the result of the query Q3 ?

$$Q3 = \{ P \mid \exists X \in R1 \exists Y \in R2 (X.B = Y.C \wedge P.A = X.A) \}$$

- a. $\langle 3 \rangle$
- b. $\langle 5 \rangle$
- c. $\langle 7 \rangle$
- d. All of the above tuples belong to the result
- e. None of the above tuples belongs to the result

4. Which is the result of the following query ?

$R1 \div \pi_C(R2)$

- a. ϕ
- b. { <1>, <3>, <5>, <7> }
- c. { <1>, <2>, <4>, <6>, <7> }
- d. { <1>, <2>, <3>, <5>, <6> }
- e. None of the above

5. Which of the following tuples is not in the result of the following query?

SELECT COUNT(*) FROM R1, R2 WHERE R1.A = R2.C GROUP BY R1.A

- a. <0>
- b. <1>
- c. <2>
- a. All of the above tuples belong to the result
- b. None of the above tuples belongs to the result