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**COMP1048 Databases and Interfaces**

**Lab 002**

**Relational Algebra**

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Q1. 1.B 2.A 3.C

Q2. D

Q3. D

Q4. B

Q5.1 B

Q5.2 D

Q5.3 B

Q5.4 A

Q1

|  |  |  |
| --- | --- | --- |
| a | b | c |
| 4 | 2 | 3 |
| 1 | 2 | 6 |

(𝑅 − 𝑆) =

|  |  |  |
| --- | --- | --- |
| a | b | c |
| 2 | 5 | 4 |
| 2 | 7 | 3 |

(𝑆 − 𝑅) =

|  |  |  |
| --- | --- | --- |
| a | b | c |
| 2 | 5 | 4 |
| 4 | 2 | 3 |
| 1 | 2 | 6 |
| 2 | 7 | 3 |

(𝑅 − 𝑆) ∪ (𝑆 − 𝑅) =

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| r×S | | |  |  |
| R.a | **R.B** | **S.B** | **S.C** | **S.D** |
| 1 | 2 | 2 | 4 | 6 |
| 1 | 2 | 4 | 6 | 8 |
| 1 | 2 | 4 | 7 | 9 |
| 3 | 4 | 2 | 4 | 6 |
| 3 | 4 | 4 | 6 | 8 |
| 3 | 4 | 4 | 7 | 9 |
| 5 | 6 | 2 | 4 | 6 |
| 5 | 6 | 4 | 6 | 8 |
| 5 | 6 | 4 | 7 | 9 |

Q2.

R ⋈𝜃 S = σθ(R × S)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R ⋈𝜃 S | | |  |  |
| R.a | **R.B** | **S.B** | **S.C** | **S.D** |
| 1 | 2 | 2 | 4 | 6 |
| 1 | 2 | 4 | 6 | 8 |
| 1 | 2 | 4 | 7 | 9 |
| 3 | 4 | 2 | 4 | 6 |
| 3 | 4 | 4 | 6 | 8 |
| 3 | 4 | 4 | 7 | 9 |
| 5 | 6 | 4 | 6 | 8 |
| 5 | 6 | 4 | 7 | 9 |

=

Q3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R ⋈𝜃 S | | |  |  |
| R.a | **R.B** | **S.B** | **S.C** | **S.D** |
| 1 | a | a | 7 | 8 |
| 7 | t | t | 8 | 9 |
| 4 | c | c | 5 | 6 |

Q4.

|  |  |
| --- | --- |
| C | B |
| 3 | 2 |
| 3 | 2 |
| 6 | 5 |
| 3 | 5 |
| 6 | 2 |

𝜋C,B(R) =