

Course  
&  
Test Series

## Self-Made Assignment -Database

### Relational Algebra and Relational Calculus

You have to write the answers to the questions in your notebook and write the descriptive questions in your own language

#### Solve these following Multiple Choice Questions

Q1. Which relational algebra operation would you use to get only the Name and Age of all students?

- A) Select
- B) Project
- C) Join
- D) Rename

Q2. What is the result of the relational algebra expression:  $\pi(\text{Name})(\sigma(\text{Age} > 18)(\text{Students}))$ ?

- A) Names of students younger than 18
- B) IDs of students older than 18
- C) Names of students older than 18
- D) All students' names

Q3. What does the operation  $A \cup B$  do in relational algebra?

- A) Select certain rows
- B) Combine all columns
- C) Combine rows from tables A and B, removing duplicates
- D) Multiply rows from A and B

Q4. Which of the following is a non-procedural query language?

- A) Relational Algebra
- B) Relational Calculus
- C) SQL
- D) Both B and C

Q5. In Tuple Relational Calculus, which part defines the condition?

- A) Predicate
- B) Projection
- C) Tuple
- D) Join

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## Self-Made Assignment -Database

### Relational Algebra and Relational Calculus

Solve these following True or False

1. Relational Algebra tells how to retrieve the data.
2. The result of any relational algebra operation is not a table.
3. Relational Calculus uses set theory and describes exact retrieval steps.
4.  $\sigma(\text{condition})(\text{Table})$  is used to filter rows in relational algebra.
5.  $\pi$  (projection) in relational algebra selects specific rows.

Match the Following

A: Concepts	B: Descriptions
1. $\sigma(\text{condition})$	A. Read-only table view
2. $\pi(\text{column1}, \text{column2})$	B. Selects rows based on a condition
3. $\times$ (Cartesian Product)	C. Combines all pairs of rows from two tables
4. MappingProxyType	D. Selects specific columns
5. Relational Calculus	E. Describes what data is needed, not how to get it

Q1. Explain the difference between Relational Algebra and Relational Calculus with examples.

Q2. Describe the basic operations of Relational Algebra and give examples.