MATHEMATICS FOR COMPUTER SCIENCE CIT400

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ÅSELF STUDY EXERCISE WEEK2

**1. Scenario Analysis (using ⱻx (student(x) ꓥ Enrolled(x))**

Means there exists at least one student who is enrolled SQL Equivalent:

sql

SELECT \*FROM Students

WHERE Enrolled=’yes’

LIMIT 1;

This confirms that at least one enrolled student exists in the database.

**2. Set Theory practice:**

**Given:**

* A= {1, 3}
* B= {2, 3}
* U= {1, 2, 3, 4}

a) AUB= {1, 2, 3}

b) AՈB= {3}

c) A’ (Complement of A in Ս) = {2, 4}

**Explanation:**

* Union combines all elements without repetition.
* Intersection keeps common elements.
* Complement gives what’s in U but not in A.

3.  **ɏx P(x)** in data queries means that a condition p(x) is true for all values of **x** in the domain.

**XP(X)**

**Example**: In SQL, SELECT\*FROM Students WHERE ALL

Passed=’yes’ checks if all students passed.

This logic helps ensure universal condition in data queries.

Set Operations and Diagrams

**Given:**

* A={1,2}
* B={2,3}

a) AՍB (union):

AՍB= {1, 2, 3}

b) AՈB (intersection):

AՈB (Intersection):

AՈB= {2}

**Venn diagram:**

1 A

B

A

B

2

A

2

3

2

Union (AՍB) Intersection (AՈB) Venn

Diagram