CCS213-18 Discrete Structures : EXERCISE
2BSCS-2 : Marasigan, Vem Aiensi A.

$X = \{ 1, 2, 3, 4\}$

Define $(x,y) \in R, x \leq y, x,y \in X$

ANSWER:

$X \times X = \{ (1, 1) , (1, 2) , (1, 3) , (1, 4) , (2, 2) , (2, 3) , (2, 4) , (3, 3) , (3, 4) , (4, 4) \}$

1. **Determine when R is transitive on a set X i.e. (x, y) and (y, z) ∈ R then (x, z) ∈ R.**

ANSWER:

$R = \{ (1, 2) , (2, 2) , (1, 3) , (3, 4) , (2, 4) \}$

* These relations are transitive in set X.

2. **X = { a, b, c, d } Is this anti symmetric?**
   If $x \neq y$ and $(x, y), (y, x) \in R$ $x, y \in X$

ANSWER:

$R = \{ (a, b) , (b, a) , (a, c) , (c, a) , (a, d) , (d, a) , (b, c) , (c, b) , (b, d) , (d, b) , (c, d) , (d, c) \}$

* These relations are not anti-symmetric as it does not satisfy the property where a = b.