

CSE 20 Exam 5 Study Guide

Lecture 16

a) The statement of and the proof for Theorem 1.

Know the three conditions for an equivalence relation.

Be able to prove all or parts of the Theorem.

b) Examples of relations that are and are not equivalence relations.

e.g. Consider the following relationship between people.

Two people x and y are related by R , i.e. xRy , if their CD collections are different.

Consider each of the three conditions required for an equivalence relation. Which are and are not satisfied. Explain your answers.

i) reflexive - not satisfied because a person's CD collection cannot be different from their collection

ii) symmetric - satisfied since if x is different from y then y is different from x

iii) transitive - not satisfied since x can be different from y and y different from z but z can be the same as x .

Lecture 17

The homework exercises

Lecture 18

a) Definition 3.

Know each of the three conditions in the definition.

Know if a given relation satisfies the conditions for an order relationship.

For example, consider the set $S = \{x, y, w\}$

and the relation $R = \{(x, x), (y, y), (z, z), (x, z), (y, z)\}$

Does R satisfy the three conditions for an order relation?

i) reflexive

Yes, since all elements are related to themselves

ii) antisymmetric

yes, since there is no case of aRb and bRa

iii) transitive

yes, since there is no case of aRb and bRc , except the reflexive relations

b) The homework exercises.