34 Lecture - CS301

Important Subjective

1. What is an equivalence relation?

Answer: An equivalence relation is a binary relation on a set that is reflexive, symmetric, and transitive.

2. What is the difference between an equivalence relation and a partial order?

Answer: An equivalence relation is reflexive, symmetric, and transitive, while a partial order is reflexive, antisymmetric, and transitive.

3. What is an equivalence class?

Answer: An equivalence class is a set of elements in a set that are related to each other by an equivalence relation.

4. What is a partition of a set?

Answer: A partition of a set is a collection of disjoint subsets of the set that together cover the entire set.

5. What is the relation between an equivalence relation and a partition?

Answer: An equivalence relation on a set induces a partition of the set into disjoint subsets, where each subset consists of elements that are related to each other by the equivalence relation.

6. What is the difference between an equivalence relation and a congruence relation?

Answer: An equivalence relation is a binary relation on a set, while a congruence relation is a binary relation on an algebraic structure such as a ring or a group.

7. What is an example of an equivalence relation?

Answer: An example of an equivalence relation is the relation of equality on a set.

8. What is an example of a non-trivial equivalence relation?

Answer: An example of a non-trivial equivalence relation is the relation of congruence modulo n on the integers.

9. What is an example of a set that cannot be partitioned into equivalence classes?

Answer: The set of real numbers cannot be partitioned into equivalence classes under any equivalence relation.

10. How are equivalence relations used in database design?

Answer: Equivalence relations are used to ensure data integrity and consistency by enforcing constraints on the values that can be stored in a database table.