34 Lecture - CS301

Important Subjective

- 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.