Selection for Discrete Preparation

Unit- I

→ Pegion hole principle

- → Truth-table
- → Proof Using Inference rules
- → Induction
- → ~~Proff~~ by Contradiction $\sqrt{17}$, ..
- → Prof by Contrapositive.
- → Recurrence relation solution
- → Permutation, → Combination
- → Principle of Inclusion & Exclusion

Unit-2

→ Properties of Relation

→ Closure of Relation
- → Reflexive Closure
- → Symmetri "
- → Transitive "

→ Representation of Relation by Matrix

→ $\underline{M_R \odot M_R = M_{R^2}}$ theorem

→ ~~Prop~~ Prove of Equivalence relation

→ Definition of Equivalence Class.

→ Proof of Partial order relation

→ Define Poset

→ Hass diagram
- → lub
- → glb
- → Maximal
- → Minimal
- → Greatest
- → least

elements of a Poset.

→ Problems Using Warsal Algorithms.

- Define Graph
  - Complete Graph
  - K-regular "
  - Bi-partite "
  - Simple "
  - Multi "
- Representation of Graph by Adjacency & Incidence Matrix
- Isomorphisms of two Graph
- Connected, path, circuit Graph
- Euler Graph, Hamiltonian Graph
- Tree, spanning tree, Minimal Spanning tree (Problem)
- Theorem :- Tree having n vertices n-1 edges
- Plannar graphs, Euler-formula (e-v+r = 2 theorem)
- graph Coloring
  - Cromatic number
  - " Polynomial.

Unit-III

→ Define - → Semigroup
→ Monid
→ Group

→ Theorem - $(ab)^{-1} = b^{-1}a^{-1}$
$(a^{-1})^{-1} = a$

Langrange theorem

→ Permulation of Group
→ Homomorphism & Isomorphism
→ Cyclic Group

$Z_n = \{0, 1, 2 \ldots n-1\}$

$$a \oplus b = \begin{cases} a+b, & a+b < n \\ a+b-n, & a+b \geq n \end{cases}$$

the show that $(Z_n, \oplus)$ is a Group.

$Z_4 = \{0, 1, 2, 3\}$ is a cyclic group then $\langle 3 \rangle$ is Generator of Z_4

→ Ring
→ Integral Domain
→ Field.

* U-(IV) } What ever I tought * U(V)