Important Question

Unit: 1 Set Theory, Functions, Natural Numbers

- Combination of sets, Multisets,
- Operations on relations, Properties of relations, Recursive definitio of relation, Order of relations.
- Classification of functions, Operations on functions,
- Mathematical Induction, Variants of Induction.

Unit-2: Algebraic Structures:

- Groups, Subgroups and order, Normal Subgroups, Cyclic Groups, Cosets,
- Definition and elementary properties of Rings and Fields.

Unit-3: Lattices

- Properties of lattices – Bounded,
- Simplification of Boolean Functions, Digital circuits and Boolean algebra. Algebraic manipulation of Boolean expressions.

Unit-4: Propositional Logic, Predicate Logic

- Proposition, Algebra of proposition, well formed formula, Truth tables
- First order predicate, well formed formula of predicate,

Unit-5: Trees, Graphs, Combinatorics

- Binary tree traversal, Binary search tree
- Representation of graphs, Multigraphs, Bipartite graphs,
- Pigeonhole Principle, Counting Techniques
- Isomorphism and Homeomorphism of graphs,

  Recursive definition of functions, Recursive algorithms,

Other Important

- Understand the basic principles of sets and operations in sets.
- Demonstrate different traversal methods for trees and graphs.
- Model problems in Computer Science using graphs and trees