SUBJECT NO-MA20013, SUBJECT NAME- Discrete Mathematics

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Prerequisite: void

Cartesian product, relations, domain and range, composition of relations, equivalence relations, partial ordering relation. Lattices. Functions - Function as a relation, injection, surjection and bijection, composition of functions, identity and inverse function. Cardinality, characteristic function. Peano postulates and finite induction, example of proof by induction. Recursive definitions. Binary operation on a set, groupoid, commutative and associative binary operations, binary operation with identity. Semigroup, monoid. Boolean algebra - Axioms and properties, atomic structure of a finite Boolean algebra. Homomorphism and isomorphism. Disjunctive and conjunctive normal forms. Algebra of position. First order predicate calculus. Theory of groups - Axioms, properties, subgroup, cyclic group, cosets, Lagrange's theorem. Rings, subrings, ideals, ring homomorphism. Finite field - Field of order p. (p is prime).