



**UNIT– I** **L- 9**

**PROPOSITIONAL LOGIC:** Propositional logic - applications of propositional logic, propositional equivalences; Predicates and quantifiers - nested quantifiers; Rules of inference - introduction to proofs, proof methods and strategy.

**UNIT – II** **L- 9**

**SET THEORY:** Sets - set operations, Functions - sequences and summations; Cardinality of sets, Counting - the basics of counting, the pigeonhole principle.

**UNIT – III** **L- 9**

**RECURRENCE RELATIONS:** Applications of recurrence relations - solving linear recurrence relations, Divide-and-conquer algorithms and recurrence relations; Generating functions; Inclusion–exclusion; Applications of inclusion–exclusion.

**UNIT – IV** **L- 9**

**RELATIONS:** Relations and their properties - n-ary relations and their applications, representing relations, closures of relations, equivalence relations; Partial orderings.

**UNIT - V** **L- 9**

**GRAPHS:** Graphs and graph models - graph terminology, special types of graph, representing, graphs and graph isomorphism, connectivity; Euler and hamilton paths; Shortest-path problems; Planar graphs; Graph coloring.

**TEXT BOOK:**

1. Kenneth H. Rosen, “Discrete Mathematics and Its Applications with Combinatorics and Graph Theory”, 7<sup>th</sup> edition, MGH, 2012.

**REFERENCE BOOKS:**

1. Thomas Koshy, “Discrete Mathematics with Applications”, 1<sup>st</sup> edition, Elsevier, 2003.
2. Tremblay J. P. and Manohar R., “Discrete Mathematical Structures”, MGH, 1997.
3. Bernand Kolman, Roberty C. Busby and Sharn Cutter Ross, “Discrete Mathematical Structures”, 2<sup>nd</sup> edition, Pearson Education/Prentice Hall India, 2013.
4. Garry Haggard, “Discrete Mathematics for Computer science”, 1<sup>st</sup> edition, Thomson, 2007.
5. J.L. Mott, A. Kandel and T.P. Baker, “Discrete Mathematics for Computer Scientists and Mathematicians”, 2<sup>nd</sup> edition, Prentice Hall India, 2009.
6. Grass Man and Trembley, “ Logic and Discrete Mathematics”, 2<sup>nd</sup> edition, Pearson Education/Prentice Hall India, 2013.