

B.C.A. Part I Semester I
Paper IV
DISCRETE MATHEMATICS – I

UNIT- I:

Propositional Calculus:

Connectives, Negation, conjunction, Disjunction, statement formulas and truth tables, conditional and Bi-conditional, well formed formulas, Tautologies, Equivalence of formulas, duality law, Tautologies implications, Functionally complete set of, other connectives,

UNIT- II:

Disjunctive normal forms, connective normal forms, Principal disjunctive normal form, Principal conjunctive normal form.

UNIT- III:

Predicate Calculus:

The theory of Inference for statement Calculus, validity using truth tables, Rules of inference, consistency of premises and indirect method of Proof

UNIT- IV:

The statement function, variables and quantifier, Predicate formulas, Free and Bound variables, The universe of Discourse, Theory of inference for predicate calculus.

Reference Books:

1. Discrete Mathematical Structures with applications to computer Science By J.P.Tremblay & R. Manohar, (TMH)
2. Discrete Mathematical Structures by Kolman Busby and Ross (pearson)
3. Discrete Mathematics By Norman Biggs. (Oxford).
4. Logic and Discrete Mathematics : Grassmann, Tremblay (Pearson)
5. Introduction to Automata Theory, Languages, and computation :Hopcroft, Motwani and Ullman(Pearson)
6. An introduction to the theory of computer science , languages and machines : Sudkamp
7. Kenneth H Rosen Discrete Mathematics & it's Applications TMH