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Syllabus For BCA Course For Batch (2007-2010)-effective From July 2007

### **4BCA5(B) - DISCRETE MATHEMATICS**

#### **UNIT-I**

Statements, logical connectives, truth tables. tautologies, contradictions, logical equivalence. Applications to everyday reasoning.

#### **UNIT-II**

An axiom system for the sentence calculus. Truth tables as an effective procedure for deciding logical validity. Relation of sentence calculus to Boolean algebra.

#### **UNIT-III**

Quantifiers: Universal and existential quantifier. Predicate calculus. Axiom system for predicate calculus. Application to everyday reasoning.

#### **UNIT-IV**

Sets and classes. Relations. Equivalence relation and equivalence classes. Partial order relation, lub and glb. Trees and lattices. Mappings: injective, surjective and bijective mappings. Cardinality. Finite and infinite sets.

#### **UNIT-V**

Definition and basic properties of: semigroups and groups, rings, integral domains, and fields.

#### **UNIT-VI**

Vector spaces and algebras. Linear dependence and independence. Bases. Linear transformations and their representation as matrices. Invertible linear transformation and invertible matrix. Geometrical interpretation of determinant of a 2x2 matrix

#### **Text & Reference Books :**

- S.S.SASTRY, "ENGINEERING MATHEMATICS", Prentice Hall of India
- Bernard Kolman, Robert C.Busby, Sharon Ross, "DISCRETE MATHEMATICAL STRUCTURES ENGINEERING MATHEMATICS"