MT-512	Advanced Discrete Mathematics
	Algorithms: Algorithms, Growth of functions, Complexity of algorithms, Integers, divisions, Applications of number theory. Mathematical Reasoning: Sequences and summations, Recursive definitions and structural inductions, Recursive algorithm. Set Theory: Subset, Set equality, Operations on sets, Venn diagram, Partition of sets, Properties of sets, Disproof's, Algebraic proofs, Russell's paradox and halting problems. Discrete Probability: Fundamental concepts, Independence and dependence, Random variables, Discrete probability, Random walks, Discrete-time Markov chains. Relations: Relations and their properties, N-ary relations and their Applications, Representing relations, Closure of relations, Equivalence relations, Partial Orderings. Boolean Algebra: Boolean functions and their representation, Logic gates, Minimization of circuits, Karnaugh maps, Quine-McCluskey method. Reference Books: 1. Rosen K.H, *Discrete Mathematics and its Application,* 5th Edition, Mcgraw Hill Co. Inc., 2003. 2. Johnonbaugh R., *Discrete Mathematics,* 6th Edition, Prentice Hall, 2004. 3. Susanna S. E, *Discrete Mathematics with Applications,* 3rd Edition, Thomson, 2004.