

CS1005 DISCRETE STRUCTURE (UPDATED OUTLINE)

Kenneth H. Rosen, Discrete Mathematics and Its Applications, McGraw Hill, 8th Edition

MID-1

Chapter 1: The Foundations: Logic and Proofs

Introduction Propositional Logic,
Applications of Propositional Logic, Propositional Equivalences, Predicates and
Quantifiers, Nested Quantifiers, Rules of Inference

Quiz-1

Introduction to Proofs and Proof Methods

Chapter 2: Sets, Functions, Sequences and Sums

Sets, Set Operations, Functions, Sequences and Series

Chapter 5: Induction and Recursion

Mathematical Induction and Recursive Algorithms

MID 2

Chapter 9: Relations

Relations and their Properties, Applications of Relations, Representing Relations,
Equivalence Relations, and Partial Orderings

Chapter 4: Number Theory and Cryptography

Quiz-2

Divisibility and Modular Arithmetic, Integer Representation and Algorithms, Primes
and Greatest Common Divisors, Congruence and Applications and Cryptography

Chapter 6 and 8: Counting & Counting Techniques

Basics, Pigeonhole Principle,
Permutations and Combinations, Binomial Coefficients and Recurrence Relations

FINAL

Chapter 2: Sequences and Sums, Sequences and Series

Chapter 10 Graphs

Quiz-3

Graphs and Graph Models, Terminologies, Types of Graphs,
Representing Graphs and Isomorphism, Connectivity, Euler and Hamiltonian Paths,

Planar Graphs, and Graph Coloring

Quiz-4

Chapter 11 Trees

Introduction, Applications, Tree Traversal, Spanning Trees and Minimum Spanning
Trees